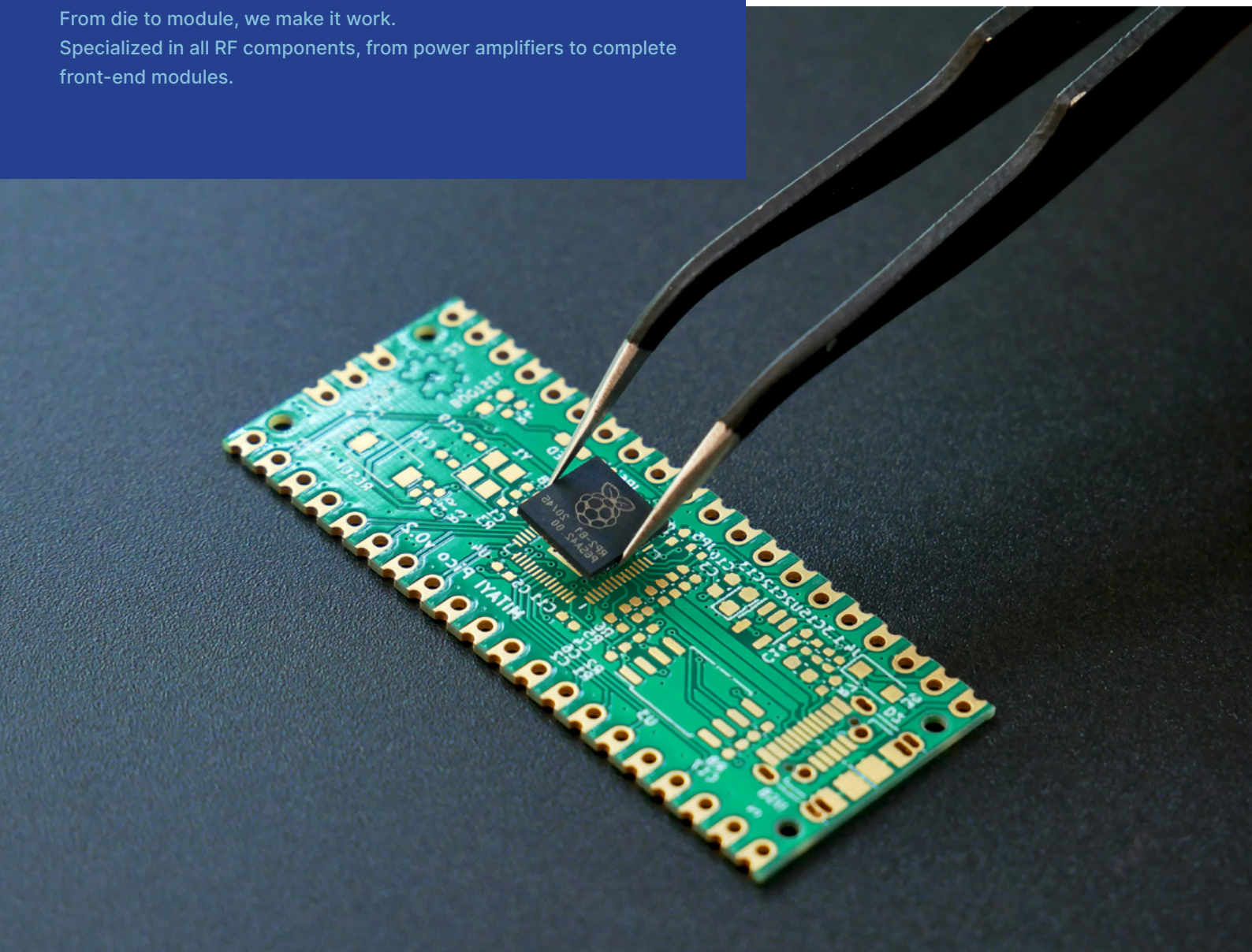
Product Manual 2025

BEGIN Electronics

From die to module, we make it work.
Specialized in all RF components, from power amplifiers to complete front-end modules.



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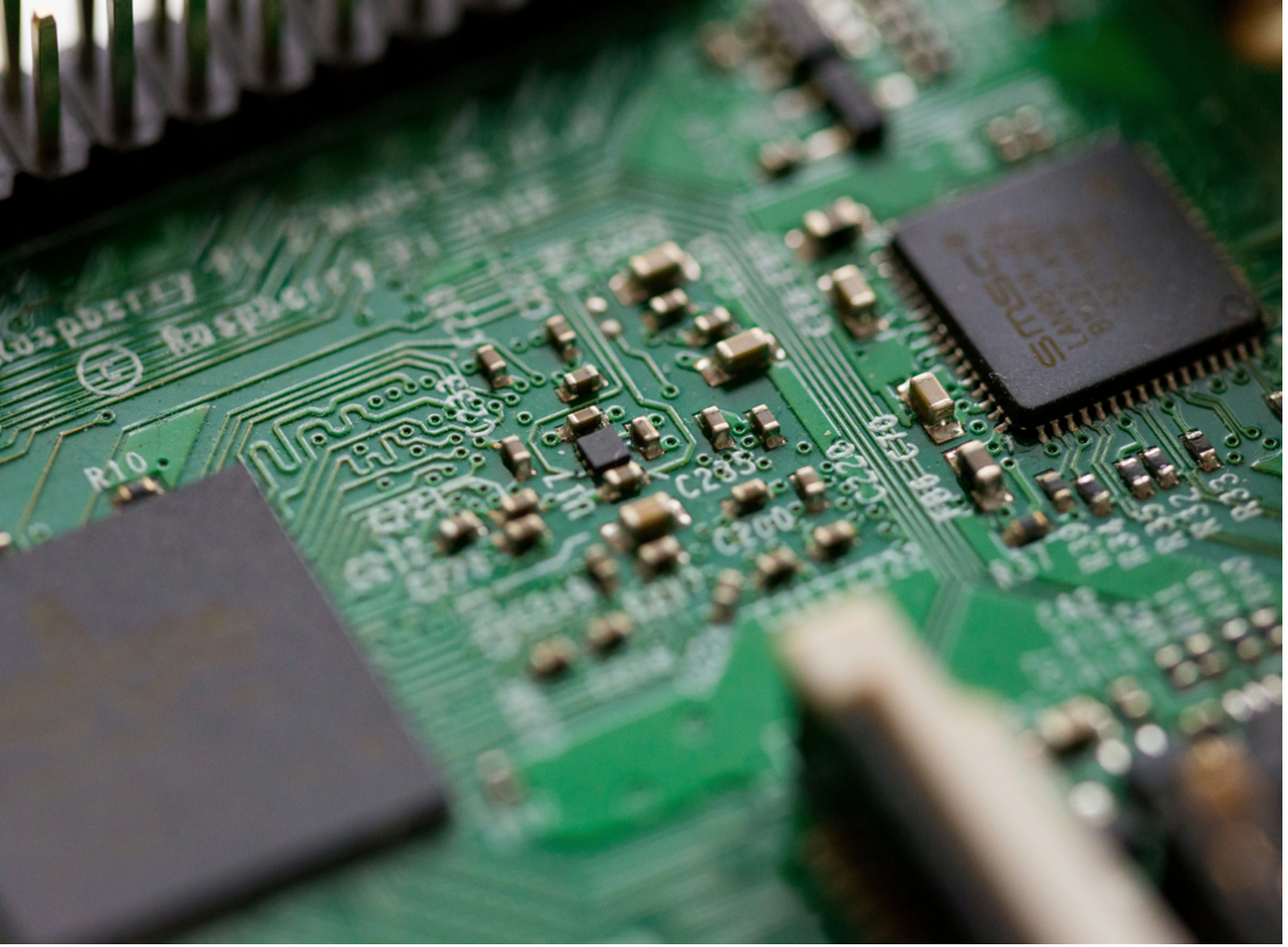

BEGIN
Electronics

About US

Begin Electronics is a specialised RF and microwave solutions provider delivering two core services: high-performance MMIC supply and end-to-end RF module design and production. Our portfolio is continuously updated and includes a broad range of microwave and millimetre-wave MMICs—available as bare die or packaged parts—to support diverse frequency bands, form factors, and system requirements.

With years of hands-on experience in the RF industry, we understand the real challenges of turning component specifications into working hardware. We support customers from die selection and verification through to module design, micro-assembly, testing, tuning, and validation, helping you convert die-level performance into ready-to-use, reliable RF solutions.

Backed by a skilled in-house production team and a disciplined quality processes, we can support projects from prototype iterations to volume builds, while maintaining performance consistency, manufacturability, and on-time delivery. Our product catalogue is designed for fast cross-search by device type, material platform, frequency range, and key specifications, making it easy to shortlist the right MMICs for your application.

What we do

01 DIE → 02 PACKAGE → 03 TEST → 04 MODULE

We provide end-to-end RF solutions built around high-performance MMIC dies. Starting from sourcing and selecting the most suitable dies, we perform rigorous testing, packaging, and integration to deliver fully functional RF modules tailored to client needs. With strong in-house design and manufacturing capabilities, we support the complete process from concept to production. Our expertise covers a wide frequency range, from SatCom to Ka-band and beyond. Whether for prototyping or volume production, we offer flexible customization to ensure optimal performance, reliability, and cost efficiency for each application.

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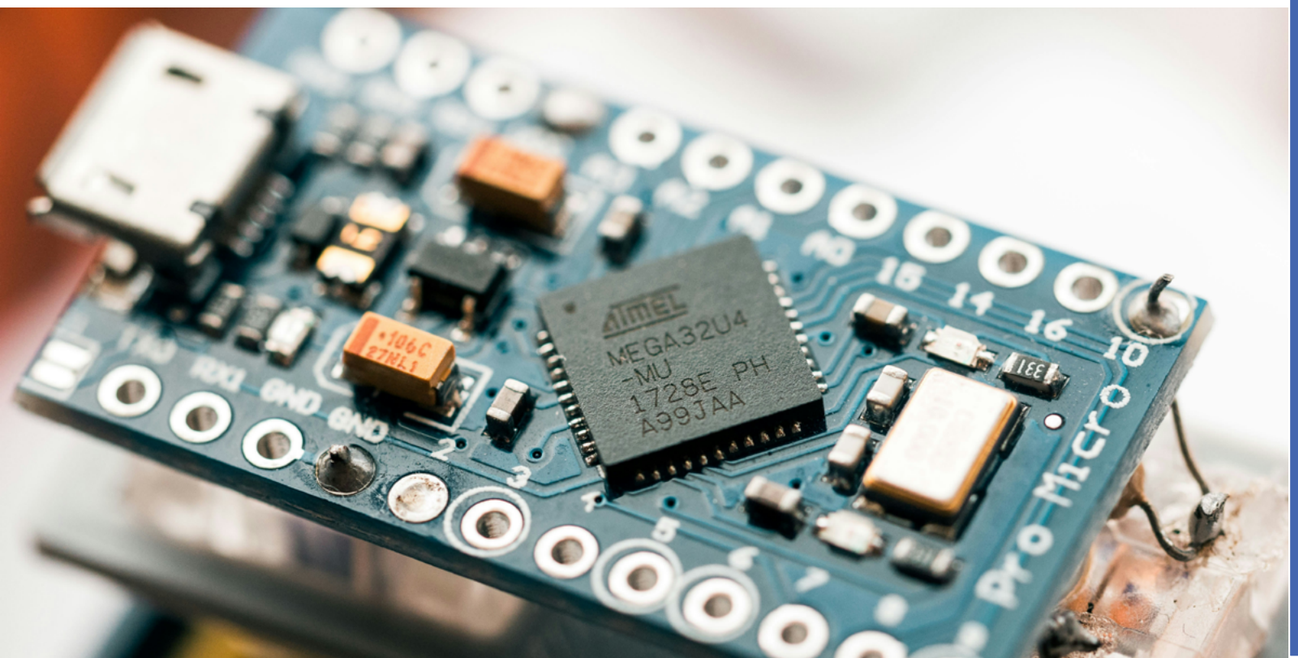


Check our website for more detail and updated product list.....

http://www.beginelectronics.com/

DESIGN OVERVIEW

Design Workflow

Customers usually begin by selecting a suitable bare die from our MMIC catalogue. Our website is organised with clear categories and filters, allowing you to quickly narrow down options by device type, frequency range, material platform, and key specifications. If you need a ready-to-use module (or an evaluation board / assembly solution) instead of integrating bare die yourself, our engineers will review your requirements and propose a practical solution based on your operating conditions, size constraints, environment, and performance targets. We work closely with you to confirm the design direction and key parameters. We then provide a clear quotation for prototyping and, where applicable, pilot and volume production. Projects typically move through prototype → small-batch build → mass production, with testing and refinement at each stage. Our focus is fast response, efficient customisation, and delivering module performance that remains consistent and controllable relative to die-level expectations.

RF Module Design

We design RF and microwave modules using our high-performance MMICs. Instead of customers integrating bare die themselves, we turn proven chip-level capability into a complete module that is easier to use in real systems—optimised for cost, integration effort, and delivery time. Our engineers tailor each design to your requirements, including frequency band, output power/linearity, supply rails, size and mechanical constraints, and operating environment.
This gives you a practical, scalable module solution that shortens development cycles while maintaining reliable RF performance. Typical design flow: Preliminary design → Simulation & layout → Prototype build → RF testing & tuning → Specification confirmation → Production release

Evaluation Boards for Bare Die

If you purchase bare die and need a practical way to evaluate performance, we can design and build a custom evaluation board on request. This provides a straightforward test setup so you can power up the die, take measurements, and verify key specifications without having to develop your own fixture from scratch. We tailor the board to your needs—such as frequency band, connector type, bias conditions, and test approach—and recommend a cost-efficient solution based on your application and timeline. With in-house RF design and assembly capability, we can deliver a complete, ready-to-test evaluation board that helps reduce uncertainty and speeds up your selection and integration process.

Assembly & Validation Testing

Testing and tuning are essential to delivering reliable RF performance—especially when moving from die-level capability to a finished module. We provide a true one-stop service that covers assembly, validation, and tuning, helping you reduce integration risk and shorten development cycles.

Our test capability includes standard RF instrumentation such as a Vector Network Analyser (VNA) and Spectrum Analyser, as well as high/low temperature testing to verify performance under realistic operating conditions. During prototyping, we characterise key metrics such as gain, return loss/VSWR, isolation, noise figure (where applicable), output power and linearity, and confirm stability across the required frequency band.

A dedicated tuning technician performs module-level testing and tuning—for example adjusting bias points, matching networks (if designed for tuning), and calibration settings—so that prototypes and production units meet (or exceed) the agreed performance targets. For volume builds, we follow controlled test procedures and acceptance criteria to maintain unit-to-unit consistency, traceability, and repeatable results.

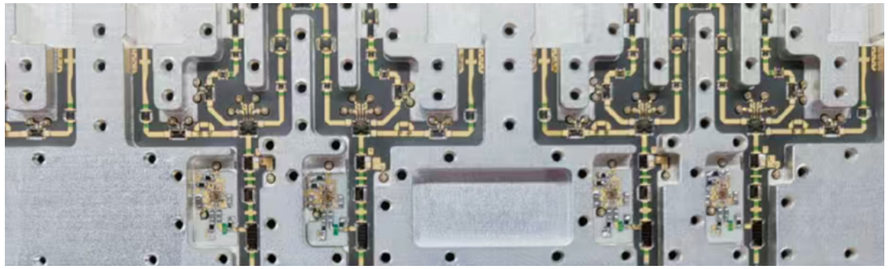
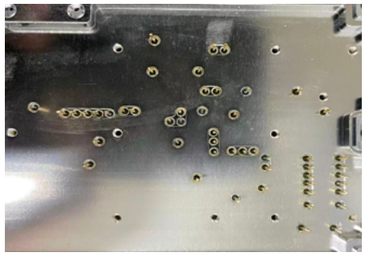
PRODUCTION ENVIRONMENT

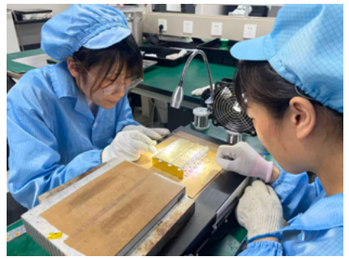
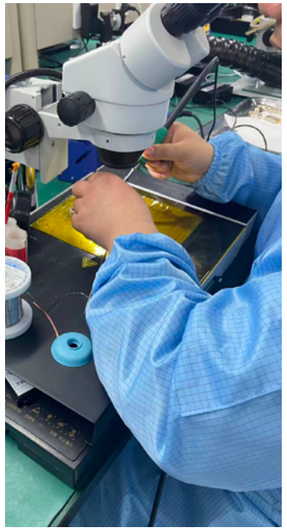
Assembly Procedure

Begin Electronics' assembly procedure integrates advanced micro-assembly techniques with strict process control to ensure reliable RF and microwave component fabrication. Our manufacturing capabilities include substrate attach and soldering, ensuring stable mechanical and thermal foundations for all assemblies; die and component attach, enabling accurate placement of GaAs/GaN chips and passive elements; and eutectic bonding, providing high-strength, low-void die attach optimized for microwave and high-power applications. Our gold wire bonding process uses semi-automatic equipment capable of handling fine-pitch interconnects with excellent repeatability. Each assembly step is carried out within ESD-safe and temperature-controlled environments. This highly disciplined workflow minimizes parasitic effects, improves long-term reliability, and ensures stable high-frequency performance across amplifier modules, filters, and integrated T/R units.

Substrate Attach & Soldering

Our substrate attach and soldering processes form the foundation of every RF module. High-precision pick-and-place systems and controlled reflow profiles ensure accurate alignment and strong mechanical bonds across ceramic, metal, and hybrid substrates. By maintaining strict solder temperature profiles and wetting control, we achieve consistent thermal conductivity and electrical grounding—both essential for high-frequency performance. This stage establishes the stability required for subsequent die attach, wire bonding, and final module assembly.

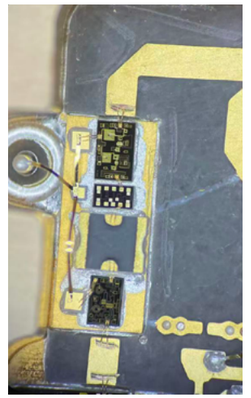
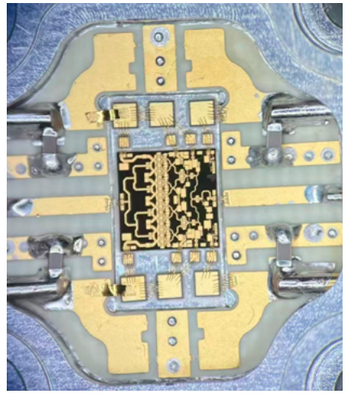
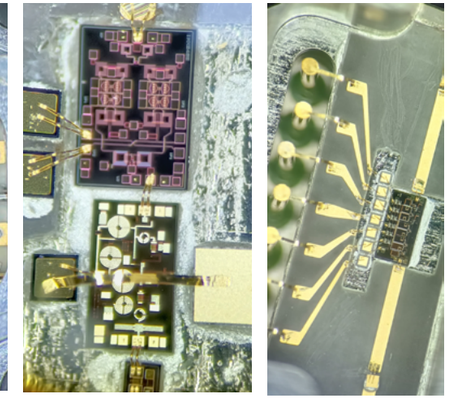



Die / Component Attach & Soldering

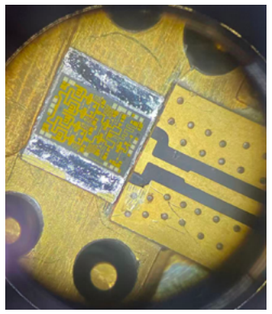
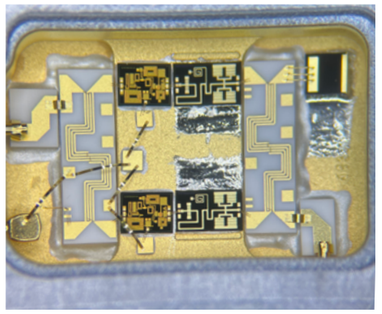
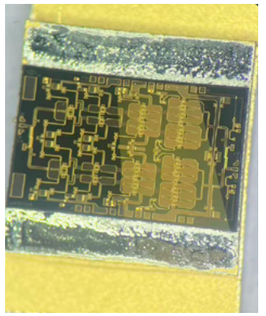
Our die and component attach procedures are optimized for GaAs, GaN, and high-frequency passive components. Using epoxy, conductive paste, or solder attach depending on product requirements, we ensure precise positioning, void-free joints, and excellent thermal paths. Semi-automatic bonders and controlled ovens maintain performance uniformity across batches. This step directly impacts gain, noise, and power stability, making accuracy essential in every assembly cycle.



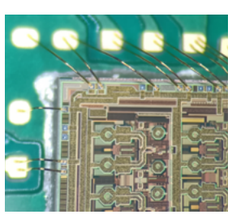
Eutectic bonding

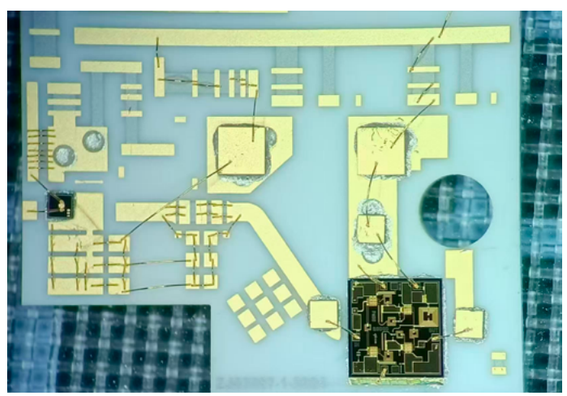
Eutectic bonding is used for high-reliability RF and microwave assemblies requiring high thermal conductivity and long-term stability. Our eutectic platforms support AuSn and other industry-standard alloys, enabling void-free, hermetic die attach suitable for power amplifiers, T/R modules, and high-frequency integrated assemblies. With precise control of temperature ramp, force, and time, we achieve reliable metallurgical bonds that significantly reduce thermal resistance and improve device longevity under demanding operating conditions.

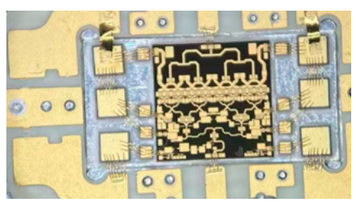




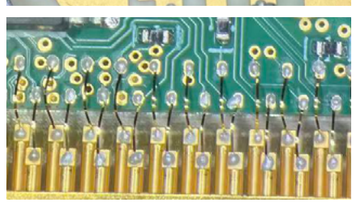

Wire Bonding (Gold Wire)

Our gold wire bonding capability supports both wedge and ball bonding for fine-pitch RF interconnects. Semi-automatic bonding systems allow consistent loop height control, bond strength, and placement accuracy. Gold wire ensures low-loss, corrosion-resistant connections critical for microwave signal integrity. Every bond is visually inspected and electrically validated to ensure long-term durability and stable RF characteristics, even under temperature and vibration stress.









Product Testing

Every RF component and microwave module produced at Begin Electronics undergoes a comprehensive testing and validation process to ensure performance consistency and field reliability. Testing begins with basic electrical and RF verification, measuring gain, noise figure, insertion loss, isolation, P1dB, and linearity across specified frequency bands. For hermetically sealed modules, lid sealing inspection ensures environmental protection and packaging stability. The Final QA / Factory Acceptance Test confirms mechanical robustness, pin-to-pin performance, and alignment with customer specifications. Additionally, environmental testing—thermal cycling, vibration, aging tests, and humidity exposure—validates long-term stability under real-world conditions. These procedures ensure each product meets stringent RF standards before shipment.

Electrical Test & RF Test

Electrical and RF testing is performed with calibrated VNA, spectrum analysis, power meters, and noise measurement systems. Each device is evaluated for gain, loss, noise figure, P1dB, OIP3, return loss, and bandwidth to ensure compliance with design specifications. This step guarantees frequency stability and performance repeatability across all units.

Lid Sealing

For modules requiring enclosure, lid sealing ensures mechanical protection, EMI shielding, and environmental isolation. We use controlled soldering or laser welding methods depending on module design. Each sealed unit undergoes post-seal verification to confirm RF integrity and enclosure stability.

Final QA / Factory Acceptance Test

Final QA verifies dimensional accuracy, connector alignment, solder quality, and electrical performance. FAT confirms the module meets customer requirements, ensuring full traceability and repeatability before delivery.

Environmental Testing

Environmental testing simulates real-world operating conditions. Thermal cycling, humidity exposure, shock and vibration testing validate long-term reliability and performance stability for communication, radar, and UAV applications.

Our Team

Production Team

Our production team consists of trained specialists in SMT, micro-assembly, die attach, wire bonding, and RF tuning. With extensive experience in GaAs/GaN packaging and module integration, they execute each manufacturing step with precision and strict process discipline.

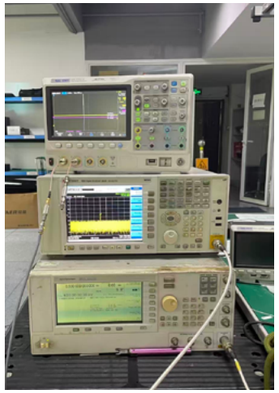




Design & Engineering Team

Our design and engineering team collaborates closely with production to translate customer requirements into manufacturable RF solutions. They support product definition, documentation, visual design, and customer communication, ensuring clear technical alignment and smooth project execution from concept to delivery.






PRODUCT LIST

PRODUCT NAMING SYSTEM

DA	-	GaAs Die	DS	-	SiGe Die
DN	-	GaN Die	SM	-	Surface-Mount Component
DI	-	Inp Die	QFN	-	Quad Flat No-lead Package
DC	-	Diamond Die	BGA	-	Ball Grid Array

BE-DA-LNA

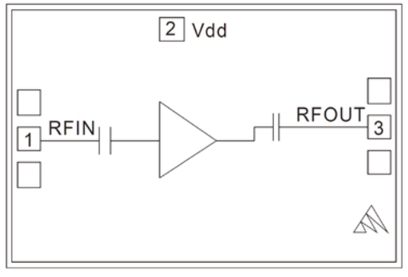
LNA	-	Low Noise Amplifier	HDR	-	Directional Coupler
LLNA	-	Limiter-LNA Integrated	2WPD	-	0° Two-Way Power Divider
PA	-	Power Amplifier	3WPD	-	0° Three-Way Power Divider
PASW	-	PA-Switch Integrated	4WPD	-	0° Four-Way Power Divider
GBA	-	Gain Block Amplifier	SPD	-	Special Phase Power Divider
DRA	-	Driver Amplifier	DPS	-	Digital Phase Shifters
BDA	-	Bi-directional/ T/R Amplifier	DL	-	Delay Lines
DAT	-	Digital Attenuators	DBM	-	Passive Double-Balanced Mixer
EAT	-	Electronic Variable Attenuator	IQM	-	I-Q Mixer
FAT	-	Fixed Attenuators	LODBM	-	Double-Balanced Mixer with LO Driver
TAT	-	Temperature Variable Attenuators	HAM	-	Harmonic Mixer
SW	-	Switches	DNC	-	Down Converters
LIM	-	Limiter	UPC	-	Upconverters
DET	-	Power Detector	UDC	-	Up-down Converters
GEQ	-	Gain Equalizer	MOD	-	Modulators
RES	-	Resistor PLR	PLL	-	Phase Locked Loops
BL	-	Balun	FM	-	Frequency Multiplier
BT	-	Bias Tees	RFFE	-	Front End
H90	-	90° Hybrid Coupler	FCFE	-	Front End with Frequency Convertion
H180	-	180° Hybrid Coupler	AMPC	-	Amplitude & Phase Control

Available in bare die and module integration

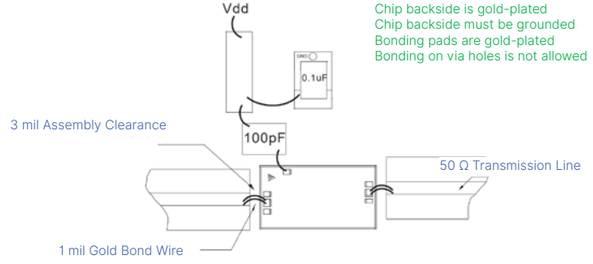
DC to 40 GHz • GaAs / InP / GaN Technologies

LOW NOISE AMPLIFIER MMIC

- Noise figure down to <1 dB (InP / GaAs)
- High gain up to 20–30 dB typical
- Excellent linearity with OIP3 up to +30 dBm+



BE-DA-LNA-B007 as Example



GaAs LNA - Balanced Performance • Wideband

- Wide frequency coverage
- Low noise + good gain

InP LNA - Ultra-Low Noise • High Sensitivity

- Lowest noise figure in portfolio
- Optimized for weak signal detection

GaN LNA - High Robustness • High Input Power

- Higher input power tolerance
- Strong reliability

GaAs Low Noise Amplifier MMIC

BE-DA-LNA GaAs Low Noise Amplifier MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Gain Flatness (dB)	OIP3 (dBm)	Power Supply (V/mA)
BE-DA-LNA-B001	0.1~20	15	13	3	±1	23	+5/50
BE-DA-LNA-B002	0.1~20	16	13	2.5	±1	24	+5/50
BE-DA-LNA-B003	0.1~20	16	13	2.5	±1	23	+5V/60
BE-DA-LNA-B004	0.7~5	14	20	2.2	±1	28	+5/65
BE-DA-LNA-B005	0.8~2	32	18	0.9	±2	-	5/60
BE-DA-LNA-B006	0.8~20	17	14	2.5	±1	24	+5/75
BE-DA-LNA-B007	1~6.5	20	11	2	±0.5	21	+5/60
BE-DA-LNA-B008	1~10	18	7	3	±1.5	18	+5/22
BE-DA-LNA-B009	1~12	14	15	2.2	±0.5	28	+5/45
BE-DA-LNA-B010	1.2~1.4	36	10	0.8	±0.5	19	+5/50
BE-DA-LNA-B011	1.5~1.7	18	18.5	0.5	±0.5	-	+5/70
BE-DA-LNA-B012	2~2.5	29	13.5	0.45	±0.3	-	5/35
BE-DA-LNA-B013	2~6	25	10	1	±0.5	21	+5/45
BE-DA-LNA-B014	2~12	23	2	1.9	±0.5	-	5/20
BE-DA-LNA-B015	2~18	25	13.5	1.6	±1	23	5/70
BE-DA-LNA-B016	2~20	15	14	2.5	±1	23	+5/65
BE-DA-LNA-B017	2~20	17	15	2.5	±1	24	+5/70
BE-DA-LNA-B018	2~20	18	19	2.5	±1	25	+5/100
BE-DA-LNA-B019	2.7~3.5	29	11	0.75	±0.5	23	+5/50
BE-DA-LNA-B020	4~6	28	6	0.9	±0.5	18	+5/20
BE-DA-LNA-B021	4~8	22	8	1	±0.5	20	+5/50
BE-DA-LNA-B022	5~6	25	11	0.9	±0.5	22	+5/52
BE-DA-LNA-B023	5~13	16	17	2.3	±1	25	+5/80
BE-DA-LNA-B024	5~14	19	19	2.7	±1.5	30	+5/150
BE-DA-LNA-B025	6~13	21	9	1.3	±0.5	19	+5/42
BE-DA-LNA-B026	6~18	16	10	1.7	±0.5	-	+5/46
BE-DA-LNA-B027	6~18	19	18	1.8	±1	27	+5/80
BE-DA-LNA-B028	6~18	27	10	1.8	±1	20	+5/55
BE-DA-LNA-B029	6~18	25	10	1.2	±0.5	-	+5/46
BE-DA-LNA-B030	8~12	20	15	1.6	±0.75	24	+5/65
BE-DA-LNA-B031	8~12	24	8	1	±0.5	19	+5/20
BE-DA-LNA-B032	8~12	24	6	1	±0.5	17	+5/20
BE-DA-LNA-B033	8~12	22	2	1.1	±0.5	12	+5/14
BE-DA-LNA-B034	10~18	24	9	1.1	±1	-	+5/25
BE-DA-LNA-B035	10~18	25	9	1.4	±1	-	+5/25
BE-DA-LNA-B036	10~20	16	5	2.5	±1	15	+5/25
BE-DA-LNA-B037	11~15	31	0	1.15	±1.5	-	+5/5.5
BE-DA-LNA-B038	14~18	26	9	1.6	±1	20	+5/55
BE-DA-LNA-B039	17~21	27	6	1.3	±1	18	+5/11
BE-DA-LNA-B040	20~34	22	4	2	±0.5	16	+5/18
BE-DA-LNA-B041	27~30	26	8	1.6	±1	19	+5/14
BE-DA-LNA-B042	29~31.5	19.5	10.5	2.35	±0.15	22	+5/20
BE-DA-LNA-B043	29~40	22.5	7	2	±1	-	+5/20
BE-DA-LNA-B044	32~38	28	12	3	±0.6	22	+5/35
BE-DA-LNA-B045	32~38	19	6	2.2	±0.5	-	+5/21
BE-DA-LNA-B046	34~40	23	15	2.6	±0.5	24	+5/33
BE-DA-LNA-B047	38~43	24	7	1.8	±1	20	+5/12
BE-DA-LNA-B048	47~52	25	9	2.3	±1	16	+5/20

BE-DA-LNA GaAs Low Noise Amplifier MMIC

N-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Gain Flatness (dB)	Power Supply (V/mA)
BE-DA-LNA-N001	0.01~6	31*	8*	2.5*	-	5/25
BE-DA-LNA-N002	0.2~20	24*	9*	1.5*	±1*	5/40
BE-DA-LNA-N003	0.5~2.7	23*	10*	<1	±1.5*	5/60
BE-DA-LNA-N004	0.6~1.6	23*	20*	0.75*	±0.5*	5/70
BE-DA-LNA-N005	0.7~3.0	29*	18*	1.6*	±0.75*	5/65
BE-DA-LNA-N006	0.8~2.0	21*	20*	1.0*	±0.6*	5/55
BE-DA-LNA-N007	0.8~2.0	21*	20*	1.0*	±0.6*	5/55
BE-DA-LNA-N008	0.8~2.0	23*	19*	0.8*	±0.3*	5/55
BE-DA-LNA-N009	0.8~2.0	28*	15*	1.5*	±0.25*	5/30
BE-DA-LNA-N010	0.8~2.0	31.5*	12*	0.4*	±0.5*	5/29
BE-DA-LNA-N011	0.8~2.0	31.5*	12*	0.4*	±0.5*	5/29
BE-DA-LNA-N012	0.8~2.0	32*	18*	0.4*	±0.75*	5/68
BE-DA-LNA-N013	0.8~2.0	32*	14.5*	0.7*	±1.5*	5/40
BE-DA-LNA-N014	0.8~3.5	28*	12*	1.5*	±0.7*	5/55
BE-DA-LNA-N015	1~3	14*	20*	2.2*	±0.5*	5/65
BE-DA-LNA-N016	1~3	15*	13*	1.5*	±0.7*	5/30
BE-DA-LNA-N017	1~9	16*	18*	1.7*	±0.8*	5/55
BE-DA-LNA-N018	1~9	16*	18*	1.7*	±0.8*	5/55
BE-DA-LNA-N019	1~9	28.8*	12*	0.9*	±0.5*	5/65
BE-DA-LNA-N020	1~12	14.5*	16*	1.6*	±1*	5/35
BE-DA-LNA-N021	1.2~2.5	22*	16*	1.4*	±0.5*	5/80
BE-DA-LNA-N022	1.5~1.8	35*	12*	0.6*	±0.5*	5/35
BE-DA-LNA-N023	1.5~1.8	27*	7*	0.7*	±0.2*	5/37
BE-DA-LNA-N024	2~2.5	27*	14*	0.9*	±0.5*	5/50
BE-DA-LNA-N025	2~4	16*	18.5*	2.2*	±0.5*	5/45
BE-DA-LNA-N026	2~6	13*	17*	2*	±0.6*	4/65, 5/65
BE-DA-LNA-N027	2~6	13*	17*	2*	±0.6*	4/65, 5/65
BE-DA-LNA-N028	2~6	25*	16*	1.5*	±1.5* (Positive slope)	5/75
BE-DA-LNA-N029	2~6	25*	16*	1.5*	±1.5* (Positive slope)	5/75
BE-DA-LNA-N030	2~7	24*	6*	1.2*	±0.6*	5/30
BE-DA-LNA-N031	2~18	17*	15*	1.6*	±0.5*	5/40
BE-DA-LNA-N032	2~20	17*	13*	2.5*	±0.5*	5/55
BE-DA-LNA-N033	2.2~4	32*	20*	1.2*	±0.75*	5/90
BE-DA-LNA-N034	2.5~4.5	≥24	10*	1.3*	±0.1*	5/45
BE-DA-LNA-N035	2.5~7.0	28*	7*	1.1*	±0.2*	5/20
BE-DA-LNA-N036	2.5~7.0	28*	7*	1.1*	±0.2*	5/20
BE-DA-LNA-N037	2.5~12	25*	10*	1.1*	±0.5*	5/30
BE-DA-LNA-N038	2.6~3.8	24*	11*	1.05*	±0.3*	5/42
BE-DA-LNA-N039	2.8~3.8	23*	12*	1.3*	±0.3*	5/45
BE-DA-LNA-N040	2.8~3.8	23*	12*	1.3*	±0.3*	5/45
BE-DA-LNA-N041	4~7	14.5*	14.5*	1.7*	±0.5*	5/35
BE-DA-LNA-N042	4~8	14*	14*	1.8*	±0.5*	5/60
BE-DA-LNA-N043	5~6	≥13	17*	≤1.8	±0.1*	5/60
BE-DA-LNA-N044	5~6	≥13	17*	≤1.8	±0.1*	5/60
BE-DA-LNA-N045	5~6	21*	≥11	≤1.0	±0.3*	5/55
BE-DA-LNA-N046	5~6	21*	≥11	≤1.0	±0.3*	5/55
BE-DA-LNA-N047	5~6	≥14	18.5*	≤2	±0.2*	5/65, 8/65
BE-DA-LNA-N048	5.2~5.8	24*	10*	1*	±0.4*	5/40
BE-DA-LNA-N049	5~18	20*	11*	1.4*	±0.5*	5/60
BE-DA-LNA-N050	5~18	20*	11*	1.4*	±0.5*	5/60
BE-DA-LNA-N051	5~19	13*	10*	2.5*	±0.3*	5/50
BE-DA-LNA-N052	5~19	13*	10*	2.5*	±0.3*	5/50
BE-DA-LNA-N053	6~12	9*	13*	≤3	±0.7* (Positive slope)	5/40
BE-DA-LNA-N054	6~12	9*	13*	≤3	±0.7* (Positive slope)	5/40
BE-DA-LNA-N055	6~12	≥8	11*	≤3.5	±1*	5/30
BE-DA-LNA-N056	6~12	≥8	11*	≤3.5	±1*	5/30
BE-DA-LNA-N057	6~13	20*	9*	1.2*	±0.4*	5/30
BE-DA-LNA-N058	6~13	20*	9*	1.2*	±0.4*	5/30
BE-DA-LNA-N059	6~18	17*	14*	2*	±0.5*	5/75
BE-DA-LNA-N060	6~18	18*	9*	1.5*	±0.8* (Positive slope)	5/45
BE-DA-LNA-N061	6~18	21.5*	12*	1.1*	±0.7*	5/40
BE-DA-LNA-N062	6~18	26*	13*	1.3*	±1.5*	5/60
BE-DA-LNA-N063	6~18	26*	13*	1.3*	±1.5*	5/60
BE-DA-LNA-N064	6.5~8.5	35*	8*	1*	±0.5*	5/23
BE-DA-LNA-N065	7~13	≥11	21*	2.8*	±0.5*	5/100
BE-DA-LNA-N066	7~13	15*	15*	2.3*	±0.7*	5/55, 8/55
BE-DA-LNA-N067	7~14	≥7	21*	≤3.5	±0.3*	5/90
BE-DA-LNA-N068	7~14	≥7	21*	≤3.5	±0.3*	5/90
BE-DA-LNA-N069	8~12	9*	10*	2.5*	±0.2*	5/20
BE-DA-LNA-N070	8~12	9*	10*	2.5*	±0.2*	5/20
BE-DA-LNA-N071	8~12	14*	9*	3.5*	±0.75*	5/30
BE-DA-LNA-N072	8~12	14*	9*	3.5*	±0.75*	5/30
BE-DA-LNA-N073	8~12	15.5*	11*	1.7*	±0.5*	3/50
BE-DA-LNA-N074	8~12	17*	18*	1.8*	±0.5* (Positive slope)	5/95
BE-DA-LNA-N075	8~12	17*	18*	1.8*	±0.5* (Positive slope)	5/95
BE-DA-LNA-N076	8~12	20.5*	16*	1.3*	±0.3*	5/55
BE-DA-LNA-N077	8~12	20.5*	16*	1.3*	±0.3*	5/55
BE-DA-LNA-N078	8~12	22*	19*	1.8*	±0.3*	5/85
BE-DA-LNA-N079	8~12	≥25	20*	≤2	±0.6*	5/90
BE-DA-LNA-N080	8~12	≥25	20*	≤2	±0.6*	5/90
BE-DA-LNA-N081	8~12	27*	2*	1.3*	±0.8*	5/12, 3.3/12
BE-DA-LNA-N082	8~12	27*	2*	1.3*	±0.8*	5/12, 3.3/12
BE-DA-LNA-N083	8~12	25*	12*	0.6*	±0.5*	5/30
BE-DA-LNA-N084	8~12	25*	12*	0.6*	±0.5*	5/30
BE-DA-LNA-N085	8~14	28*	17*	1.8*	±0.5*	5/80
BE-DA-LNA-N086	8~20	11*	12*	3*	±1*	5/70
BE-DA-LNA-N087	10~18	27*	3*	1.2*	±1*	5/15
BE-DA-LNA-N088	10~20	14*	7*	2.8*	±0.6*	5/25
BE-DA-LNA-N089	10~40	18*	16*	4*	±2*	5/95
BE-DA-LNA-N090	12~18	14*	14*	2.8*	±0.5*	5/60
BE-DA-LNA-N091	12~19	26*	3*	1.5*	±0.6*	5/15
BE-DA-LNA-N092	12~19	26*	3*	1.5*	±0.6*	5/15
BE-DA-LNA-N093	14~18	28*	10*	1.3*	±0.9*	5/55
BE-DA-LNA-N094	15~45	16*	14*	5*	±2*	5/92
BE-DA-LNA-N095	17~27	16*	16*	3*	±1.5*	5/60
BE-DA-LNA-N096	18~25	25*	-1*	1.8*	±0.4*	5/10
BE-DA-LNA-N097	18~25	25*	-1*	1.8*	±0.4*	5/10
BE-DA-LNA-N098	18~26	22*	12*	2.3*	±0.8*	5/40
BE-DA-LNA-N099	18~32	13*	11*	2.5*	±1*	5/60
BE-DA-LNA-N100	19~23	23*	10*	2*	±1*	5/50
BE-DA-LNA-N101	19~25	26*	12*	1.8*	±1*	4/35, 5/35
BE-DA-LNA-N102	19.6~21.2	23*	8*	1.9*	±1*	5/12
BE-DA-LNA-N103	22~26	23*	10*	2*	±1*	5/48
BE-DA-LNA-N104	22~32	21*	1*	2*	±0.5*	5/12
BE-DA-LNA-N105	22~32	21*	1*	2*	±0.5*	5/12
BE-DA-LNA-N106	26~34	17*	15*	3.8*	±0.3*	5/60
BE-DA-LNA-N107	26~40	16*	4*	2.5*	±2*	5/28

BE-DA-LNA-N108	26~40	16*	4*	2.5*	±2*	5/28
BE-DA-LNA-N109	28~33	≥13	≥2	≤3.5	±0.8*	5/12
BE-DA-LNA-N110	29~33	≥14	≥8	≤3.8	±0.2*	5/20
BE-DA-LNA-N111	29~31	15*	3*	3*	±1*	5/11
BE-DA-LNA-N112	32~40	13*	14*	5*	±1*	5/50
BE-DA-LNA-N113	32~40	21*	4*	2.3*	±0.8*	5/15
BE-DA-LNA-N114	32~40	21*	4*	2.3*	±0.8*	5/15
BE-DA-LNA-N115	32~40	22*	18*	7*	±1*	5/100
BE-DA-LNA-N116	33~37	22*	10*	2.3*	±0.7*	5/50
BE-DA-LNA-N117	33~37	26*	5*	1.8*	±0.4*	5/20
BE-DA-LNA-N118	40~46	17*	≥0	2.5*	±0.7*	5/30
BE-DA-LNA-N119	55~65	20*	14*	4*	±1*	3.5/80
BE-DA-LNA-N120	75~110	25*	3*	3*	±2*	1.8/24
BE-DA-LNA-N121	155~170	20*	3*	6*	±0.5*	1.2/35

GaN Low Noise Amplifier

BE-DN-LNA GaN Low Noise Amplifier MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	OIP3 (dBm)	Power Supply (V/mA)
BE-DN-LNA-B001	8~12	21	8	1.5	18	10/50
BE-DN-LNA-B002	14~18	17	17	1.8	28	15/50

InP Low Noise Amplifier

BE-DI-LNA Low Noise Amplifier MMIC

N-Series

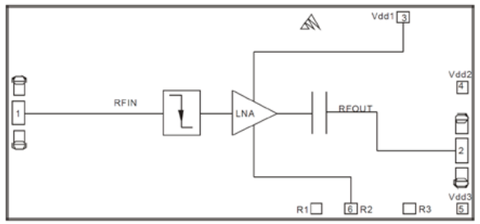
Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Gain Flatness (dB)	Power Supply (V/mA)
BE-DI-LNA-N001	75~110	25	3	3	±1.5	1.8/24
BE-DI-LNA-N002	155~170	22	-	5	±1	1.2/35

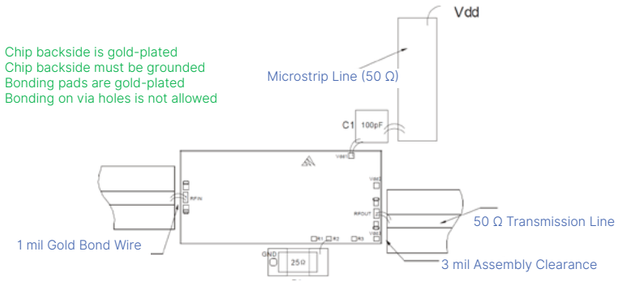
Available in bare die and module integration

DC to 40 GHz • Protection + Amplification • Front-End Ready

LIMITER-LNA INTEGRATED MMIC

- Integrated RF limiter + low noise amplifier in a single MMIC
- Provides front-end protection against high input power
- Maintains low noise figure for receiver sensitivity
- Broadband coverage from sub-GHz to mmWave





BE-DA-LLNA-B008 as Example

Integration Benefits

- Reduced insertion loss
- Improved system reliability
- Compact design
- Easier integration

BE-DA-LLNA Limiter-LNA Integrated MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Power Handling (dBm)	OIP3 (dBm)	Power Supply (V/mA)
BE-DA-LLNA-B001	0.8~2	31	17	1.6	43 (CW) / 47(Plused, PW=200μs, DC=25%)	27	+5/105
BE-DA-LLNA-B002	1.16~1.36	35.5	11	0.9	50 (Plused, PW=200μs, DC=20%)	20	+5/55
BE-DA-LLNA-B003	1.1~1.7	32	15	1.3	37 (CW)	-	+5/70
BE-DA-LLNA-B004	5~6	27.5	6.5	1.05	39 (Plused, PW=100μs, DC=25%)	-	+5/22
BE-DA-LLNA-B005	5~9	14.5	21.5	3.05	35 (CW) / 38(Plused, PW=200μs, DC=25%)	-	+5/170
BE-DA-LLNA-B006	5~13	10.5	21	3.1	33 (CW)	33	5/80
BE-DA-LLNA-B007	6~18	24	8	2.2	38 (CW) / 43(Plused, PW=400μs, DC=30%) / 41(Plused, PW=2μs, DC=25%)	-	+5/40
BE-DA-LLNA-B008	6~18	24	9	2.5	40(Plused, PW=200μs, DC=20%)	19	+5/55
BE-DA-LLNA-B009	6~18	25	4	2.1	43(Plused, PW=400μs, DC=30%)	-	+5/17
BE-DA-LLNA-B010	7~13	25	6	1.8	45(Plused, PW=200μs, DC=25%)	18	+5/25
BE-DA-LLNA-B011	7~13	28	8	1.75	46(Plused, PW=200μs, DC=25%)	-	+5/32
BE-DA-LLNA-B013	8~12	23	-1	2.1	44(Plused, PW=200μs, DC=10%)	10	+5/28
BE-DA-LLNA-B014	8~12	23	-1	2.2	44(Plused, PW=200μs, DC=10%)	8	+5/25
BE-DA-LLNA-B015	8~12	26	8.5	1.45	47(Plused, PW=100μs, DC=10%)	-	+5/22
BE-DA-LLNA-B016	8~12	27	3	2.1	44(Plused, PW=200μs, DC=10%)	14	+5/25
BE-DA-LLNA-B017	9~16	29	10	1.7	37(Plused, PW=50μs, DC=10%)	22.5	+5/22
BE-DA-LLNA-B018	14~18	27	9	1.6	37(Plused, PW=1ms, DC=40%)	22.5	+5/20
BE-DA-LLNA-B019	2~3.5	26	16	1.5	43 (CW) / 47(Plused, PW=200μs, DC=25%)	25	+5/70

BE-DA-LLNA Limiter-LNA Integrated MMIC

N-Series

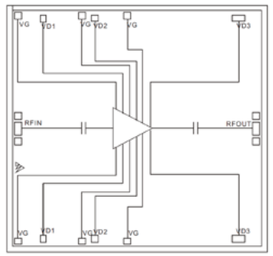
Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Power Handling (dBm)	Power Supply (V/mA)
BE-DA-LLNA-N001	2~6	26	10	1.2	39(CW)	5/35
BE-DA-LLNA-N002	5~6	23	4	1.3	49 (Plused, PW=150μs, DC=30%)	5/25
BE-DA-LLNA-N004	5~6	27	8	1.4	48 (Plused, PW=8ms, DC=30%)	5/42
BE-DA-LLNA-N006	5~7	25	9	1.1	42(CW)	5/40
BE-DA-LLNA-N007	5~8	26.5	7	1.7	45 (Plused, PW=8ms, DC=30%)	5/40
BE-DA-LLNA-N009	5~14	23	5	1.8	46 (Plused, PW=2ms, DC=20%)	5/50
BE-DA-LLNA-N010	6~18	25*	-	2*	43	5/40
BE-DA-LLNA-N011	6~18	27	11	1.8	45(CW)	5/60
BE-DA-LLNA-N013	6~18	28	13	2.2	42(CW)	5/62
BE-DA-LLNA-N014	6~18	29	6	1.7	44(CW)	5/30
BE-DA-LLNA-N015	7~13	25	6	1.8	43 (Plused, PW=300μs, DC=25%)	5/30
BE-DA-LLNA-N016	7~13	25	7	1.6	46(CW)	5/33
BE-DA-LLNA-N018	8~11	28	8	1.6	48 (Plused, PW=8ms, DC=25%)	5/45
BE-DA-LLNA-N019	8~12	25.5	9	1.6	45 (Plused, PW=8ms, DC=40%)	5/34
BE-DA-LLNA-N020	8~12	25.5	7	2.1	49 (Plused, PW=8ms, DC=30%)	5/45
BE-DA-LLNA-N021	8~12	24.5	7	1.2	43 (Plused, PW=300μs, DC=30%)	5/20
BE-DA-LLNA-N022	8~12	25	7	1.3	46(CW)	5/22
BE-DA-LLNA-N023	8~12	30	8	1.2	47(CW)	5/20
BE-DA-LLNA-N025	8~15	27	10	1.5	45(CW)	5/23
BE-DA-LLNA-N026	12~18	27	7	1.6	39 (Plused, PW=200μs, DC=30%)	5/20
BE-DA-LLNA-N027	12~18	27	8	1.7	44 (Plused, PW=200μs, DC=30%)	5/20
BE-DA-LLNA-N030	14~18	26	9	1.9	40(Plused, PW=130μs, DC=40%)	5/40
BE-DA-LLNA-N031	14~18	27.5	5	1.6	44(CW)	5/26
BE-DA-LLNA-N033	14~18	27.5	5	1.8	45(CW)	5/26
BE-DA-LLNA-N035	14~18	27	5	2.2	46(CW)	5/26
BE-DA-LLNA-N037	15~17	27	6	1.8	45(CW)	5/16

Available in bare die and module integration

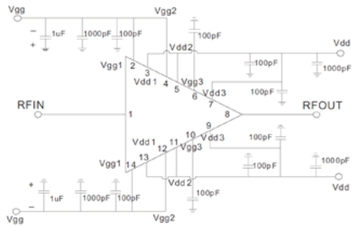
DC to 50 GHz • GaAs & GaN MMIC Solutions

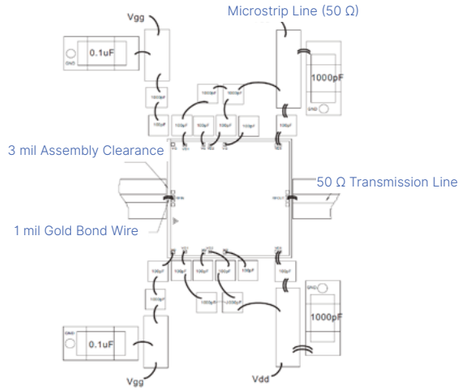
POWER AMPLIFIER MMIC

- Broadband coverage from sub-GHz to 50 GHz
- Technologies: GaAs pHEMT & GaN HEMT
- Output power up to +40 to +47 dBm (chip level)
- High efficiency and thermal stability
- Excellent linearity with OIP3 up to +45 dBm+



Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed





BE-DN-PA-B026 as Example

GaAs PA - Wideband • Linear • Moderate Power

- Good balance of gain, linearity, and bandwidth
- Lower power compared to GaN

GaN PA - High Power • High Efficiency • Rugged

- High output power (+40 dBm to +47 dBm+)
- High efficiency
- High voltage operation

GaN Dual-Mode PA - Flexible Operation • System-Level Optimization

- Multiple operating modes (efficiency / linearity trade-off)
- Adaptable to different system conditions

Selection Guide

Requirement	Recommendation
Best linearity	GaAs
Highest power	GaN
Efficiency control	Dual-mode GaN
Wideband	GaA

Frequency	Recommanded Model
0.1–4 GHz	BE-DA-SW-B001~003
DC–6 GHz	BE-DA-SW mid series
DC–15 GHz	BE-DA-SW broadband
DC–30 GHz	BE-DA-SW high freq
20–40 GHz	BE-DA-SW mmWave
8–12 GHz (high power)	BE-DN-SW GaN

GaAs Power Amplifier MMIC

BE-DA-PA GaAs Power Amplifier MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	Small Signal Gain (dB)	Gain Flatness (dB)	Efficiency (%)	Power Supply (V/mA)
BE-DA-PA-B001	1~1.4	25	28	29	±1	48	+5/0.38
BE-DA-PA-B002	1.2~1.4	22	26	26	±0.5	33	+5/0.24
BE-DA-PA-B003	1.2~1.4	22	26	26	±1.5	36	+5/0.24
BE-DA-PA-B004	2.2~3.5	19	29	22	±1	35	+9/0.24
BE-DA-PA-B005	2.7~3.5	24	41	27	-	35	+8.5/4.5
BE-DA-PA-B006	2.7~3.5	17	37	22	-	38	+8/1.70
BE-DA-PA-B007	4~5	25	41	28	±0.75	38	+8.5/3.00
BE-DA-PA-B008	6.8~9	23	33	28	-	33	+6/1.20
BE-DA-PA-B009	7.8~8.4	24.5	28.5	29	-	52	+5/0.30
BE-DA-PA-B010	8~9	14.5	31.5	19	-	48	+5/0.60
BE-DA-PA-B011	8~12	21	29	23	-	30	+8/0.30
BE-DA-PA-B012	8~12	20	29	23.5	-	40	+8/0.25
BE-DA-PA-B013	8~12	22	30	28	-	46	+5/0.50
BE-DA-PA-B014	11~17	19	28	22	±1	30	+8/0.32
BE-DA-PA-B015	12.7~15.4	20	32	24	-	28	+6/1.00
BE-DA-PA-B016	12.8~14.6	23	32	26	±1.5	32	+5/0.78
BE-DA-PA-B017	13~15	26.5	28.5	33	-	49	+5/0.35
BE-DA-PA-B018	15~17.5	20	36	21	-	25	+8/2.00
BE-DA-PA-B019	16.2~17.6	21	34	23	-	30	+8/0.72
BE-DA-PA-B020	17.0~21.0	18	26	23	-	52	+5/0.19
BE-DA-PA-B021	17.0~21.0	24	26	32	-	50	+5/0.20
BE-DA-PA-B022	24.2~27	16	33	20	-	27	+6/1.3
BE-DA-PA-B023	31~40	16.5	28.5	19	±1	32	+5/0.45
BE-DA-PA-B024	30~39	16	26	19	±1	35	+5/0.24
BE-DA-PA-B025	32~38	19.5	29.5	24	±0.5	35	+5/0.5

BE-DA-PA GaAs Power Amplifier MMIC

N-Series

Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	P1dB (dBm)	Gain Flatness (dB)	Efficiency (%)	Power Supply (V/mA)
BE-DA-PA-N001	0.12~0.3	20.5	-	>16	±0.3*	-	5/18
BE-DA-PA-N002	0.5~3.0	21*	27*	27*	±1*	35*	8/100
BE-DA-PA-N003	0.8~2.0	30*	26.7*	26*	±0.5*	35*	5/190
BE-DA-PA-N004	0.6~2.4	26*	31*	-	-	36*	8/-
BE-DA-PA-N005	0.8~2.0	12*	26*	23.5*	±1*	35*	5/150
BE-DA-PA-N006	1.0~1.6	29*	31*	29*	±0.6*	40*	8/350
BE-DA-PA-N007	1.35~1.45	30.5*	38*	37*	±0.5*	52*	8/950
BE-DA-PA-N008	1.4~1.7	35*	-	15*	±0.5*	-	5/33
BE-DA-PA-N009	1.9~2.4	28*	33*	-	±0.5*	50*	8/500
BE-DA-PA-N010	1.9~6.1	22*	30*	29*	±0.75*	30*	8/360
BE-DA-PA-N011	2~3	15*	29*	28*	±0.5*	-	5~8/200
BE-DA-PA-N012	2~6	-	-	20*	±0.5*	-	5/90
BE-DA-PA-N013	2~6	24*	31*	29*	±1.5*	35*	8/350
BE-DA-PA-N014	2~12	10*	23*	22*	±1*	20*	5/160
BE-DA-PA-N015	2~18	13*	26*	23*	±1.5*	20*	8/230
BE-DA-PA-N016	2~18	13*	26*	23*	±1.5*	20*	8/230
BE-DA-PA-N017	2~20	16*	-	18*	±1*	-	5/85
BE-DA-PA-N018	2~20	13*	26*	23.5*	±1.5*	25*	8/230
BE-DA-PA-N019	2~20	13*	26*	23*	±1.5*	25*	5/230
BE-DA-PA-N020	2~20	13*	26*	23*	±1.5*	25*	5/230
BE-DA-PA-N021	2.7~3.5	25*	36*	-	±0.5*	50*	8/950
BE-DA-PA-N022	2.2~2.7	10*	26*	24*	±0.5*	45*	8/100
BE-DA-PA-N023	2.2~2.9	24*	29*	-	±0.5*	40*	5~8/250
BE-DA-PA-N024	2.2~4.3	21*	31*	-	±1*	35*	8/450
BE-DA-PA-N025	2.7~3.5	15*	21*	19*	±0.6*	25*	5/115
BE-DA-PA-N026	2.7~3.5	22*	22*	21*	±0.25*	-	5/70
BE-DA-PA-N027	2.7~13	16*	27*	-	±1*	30*	8/160
BE-DA-PA-N028	3~5	25*	30*	-	±0.5*	30*	9/300
BE-DA-PA-N029	3~5.3	23*	-	23*	±0.6*	-	5/180
BE-DA-PA-N030	3~9	28.5*	30*	29*	±0.5*	28*	8/334
BE-DA-PA-N031	3~9	28.5*	30*	29*	±0.5*	28*	8/334
BE-DA-PA-N032	4~8	18.5*	23*	21.5*	±0.5*	-	5/96
BE-DA-PA-N033	5~6	22.5*	≥32.5	31*	±0.5*	-	8/600
BE-DA-PA-N034	5~6	26*	39*	-	±0.5*	40*	8/2000
BE-DA-PA-N035	5~6	23*	40.8*	-	±0.4*	40*	8/2500
BE-DA-PA-N036	5~6	24*	42*	-	±0.4*	38*	8.5/380
BE-DA-PA-N037	5~6	24*	33*	32*	±0.5*	40*	5/350
BE-DA-PA-N038	5~7	20*	28*	-	±0.5*	40*	8/5/200
BE-DA-PA-N039	5~7	21*	34*	-	±0.5*	42*	8/750
BE-DA-PA-N040	5~7	21*	37*	-	±0.5*	40*	8/650
BE-DA-PA-N041	5~12	13*	26*	24*	±0.75*	25*	5/8/150
BE-DA-PA-N042	5~13	15*	21*	20*	±1*	-	5/160
BE-DA-PA-N043	5.4~7.4	24*	30*	28*	±0.5*	35*	8/200
BE-DA-PA-N044	5.4~7.4	23*	22*	21*	±0.5*	35*	5/60
BE-DA-PA-N045	6~13	9*	-	8*	±1*	-	5~8/35
BE-DA-PA-N046	6~18	15.5*	-	21*	±0.5*	-	5/105
BE-DA-PA-N047	6~18	16*	-	21.5*	±1.5*	-	5/108
BE-DA-PA-N048	6~18	13*	19*	17*	±1*	-	5/70
BE-DA-PA-N049	6~18	18*	37*	-	±0.5*	25*	8/1100
BE-DA-PA-N050	6~18	18*	35*	-	±0.5*	25*	8/1100
BE-DA-PA-N051	6~18	20*	24*	22*	±1*	-	5/135
BE-DA-PA-N052	6~18	8*	-	11*	±1*	-	5/28
BE-DA-PA-N053	6~18	15*	25*	-	±1.5*	30*	5/2500
BE-DA-PA-N054	6~22	18*	26*	25*	±0.8*	38*	5/200
BE-DA-PA-N055	6~22	18*	26*	25*	±0.8*	38*	5/200
BE-DA-PA-N056	6.4~8.0	27.5*	31.8*	31.5*	±0.5*	45*	8/270
BE-DA-PA-N057	6.5~8.5	24*	30*	-	±1*	35*	8/400
BE-DA-PA-N058	7~10	23*	22.5*	21.5*	±0.5*	34*	5/90
BE-DA-PA-N059	7~15	18*	-	21*	±1*	-	5/105
BE-DA-PA-N060	7.4~8.8	20*	24*	23*	±0.5*	50*	5/120
BE-DA-PA-N061	7.4~8.8	21*	26.5*	26*	±0.3*	40*	5/220
BE-DA-PA-N062	8~12	18*	31*	30*	±0.5*	40*	5/500
BE-DA-PA-N063	8~12	21*	38*	-	±0.5*	35*	8/1800
BE-DA-PA-N064	8~12	20*	41*	-	±0.5*	35*	8/3200
BE-DA-PA-N065	8.5~9.5	22*	23.5	23	±0.5*	48*	5/50
BE-DA-PA-N066	8.5~9.5	22*	23.5	23	±0.5*	48*	5/50
BE-DA-PA-N067	8.5~10.5	20*	41.8*	-	±0.5*	37*	8/3600
BE-DA-PA-N068	8.5~10.0	26*	33*	-	±0.5*	58*	8/280
BE-DA-PA-N069	8.5~10.5	26.5*	31.5*	-	±0.5*	48*	8/350
BE-DA-PA-N070	8.5~10.5	22.5*	34.5*	-	±0.3*	42*	8/600
BE-DA-PA-N071	8.5~10.5	28*	37*	-	±0.3*	55*	8/1100
BE-DA-PA-N072	8.5~9.5	24*	33*	-	±0.5*	45*	8/300
BE-DA-PA-N073	8.5~9.5	24*	33*	-	±0.5*	45*	8/300
BE-DA-PA-N074	8.8~10.0	23*	36*	-	±0.3*	45*	8/850
BE-DA-PA-N075	9~10	22.5*	34.5*	-	±0.3*	45*	8/600
BE-DA-PA-N076	9~10	22.5*	34.5*	-	±0.3*	45*	8/600
BE-DA-PA-N077	12~15	19.5*	34.5*	-	±0.5*	32*	8/1100
BE-DA-PA-N078	12~30	-	-	17*	±0.5*	-	5/100
BE-DA-PA-N079	13~19	27*	30*	29*	±0.75*	30*	8/200
BE-DA-PA-N080	13~19	19*	22*	20.5*	±0.5*	-	5/110
BE-DA-PA-N081	13.7~14.5	6.5*	-	18*	±0.4*	-	5/50
BE-DA-PA-N082	13.75~14.5	23*	36.5*	36*	±0.5*	32*	7/1700
BE-DA-PA-N083	14~14.5	20*	31.5*	30.5*	±0.5*	32*	5/700
BE-DA-PA-N084	14~15	17*	14*	13*	±0.5*	26*	5/18
BE-DA-PA-N085	14~16	19*	37*	-	±0.5*	35*	8.5/1300
BE-DA-PA-N086	14~18	21*	37*	-	±0.5*	30*	8/1500
BE-DA-PA-N087	14~18	18*	20*	18*	±0.5*	-	5/65
BE-DA-PA-N088	14~18	19*	31*	-	±0.4*	30*	8/600
BE-DA-PA-N089	14~18	19*	34*	-	±0.4*	30*	8/660
BE-DA-PA-N090	14~18	19*	29*	26*	±0.5*	40*	5/200
BE-DA-PA-N091	14~18	19*	29*	26*	±0.5*	40*	5/200
BE-DA-PA-N092	14~18	27*	29.5*	28.5*	±0.5*	40*	5/250
BE-DA-PA-N093	15.5~18	19*	33*	-	±0.5*	30*	8/660
BE-DA-PA-N094	15~18	19*	37*	-	±0.4*	35*	8/1500
BE-DA-PA-N095	16~18	19*	34*	-	±0.3*	35*	8/660
BE-DA-PA-N096	16.6~22.2	29*	21*	20*	-	40*	4/40
BE-DA-PA-N097	16.6~22.2	29*	21*	20*	-	40*	4/40
BE-DA-PA-N098	17~24	19*	27*	26*	±1*	40*	5/140
BE-DA-PA-N099	17.2~21.5	27*	24.5*	23*	±1.3*	44	5/70
BE-DA-PA-N100	17.2~21.5	27*	24.5*	23*	±1.3*	44	5/70
BE-DA-PA-N101	17~21	17*	24*	22*	±0.5*	40*	5/35
BE-DA-PA-N102	17~21	17*	24*	22*	±0.5*	40*	5/35
BE-DA-PA-N103	17.4~21.0	≥22	≥33	-	±0.5*	35*	5/850
BE-DA-PA-N104	17.5~20.5	20*	27.5*	26.5*	±1*	35*	5/70
BE-DA-PA-N105	17.5~21.0	28*	22*	22*	±0.5*	38*	5/-
BE-DA-PA-N106	17.7~21.2	20*	26*	-	±0.6*	40*	5/90
BE-DA-PA-N107	17.7~21.2	20*	26*	-	±0.6*	40*	5/90
BE-DA-PA-N108	17.7~21.2	19*	24.5*	24*	±0.8*	35*	5/125
BE-DA-PA-N109	17.7~21.2	19*	24.5*	24*	±0.8*	35*	5/125
BE-DA-PA-N110	18~22	22*	26*	25*	±0.5*	33*	5/180
BE-DA-PA-N111	18~22	28*	26*	25*	±0.5*	48*	5/75

BE-DA-PA-N112	18~22	28*	26*	25*	±0.5*	48*	5/75
BE-DA-PA-N113	18~23	26*	28*	-	±0.5*	40*	5/270
BE-DA-PA-N114	18~23	23*	29*	-	≤±0.5	40*	5/200
BE-DA-PA-N115	19~23	≥21	≥26	≥25	≤±0.5	35*	5/160
BE-DA-PA-N116	19~23	≥20	≥20	≥19	≤±0.25	≥26	5/60
BE-DA-PA-N117	19~23	21.5*	32.5*	32*	±0.5*	32*	5/700
BE-DA-PA-N118	19.5~25	24*	28*	-	±0.5*	36*	5/240
BE-DA-PA-N119	22~25	16*	34*	-	±1*	25*	6/1000
BE-DA-PA-N120	22~27	24*	36*	-	±0.5*	30*	6/1200
BE-DA-PA-N121	24~27	≥22	≥30	≥29	±0.25*	≥35	5.7/350
BE-DA-PA-N122	24~27	27*	31*	-	≤±0.5	42*	5/270
BE-DA-PA-N123	24~31	18*	36*	35*	±0.5*	22*	6/2500
BE-DA-PA-N124	24~31	19*	34*	33*	±0.5*	22*	6/1200
BE-DA-PA-N125	24~33	16*	31*	30*	±1*	25*	6/500
BE-DA-PA-N126	24.5~26.5	25*	25*	-	±0.5*	40*	5/130
BE-DA-PA-N127	25~27	23*	23*	≥22	≤±0.3	≥35	5/65
BE-DA-PA-N128	25~26.5	≥23	≥16	≥15	≤±0.5	≥20	5/35
BE-DA-PA-N129	25~27	≥21	≥27	≥26.5	±0.5*	30*	6/230
BE-DA-PA-N130	25~27	≥20.5	≥32.5	≥31.5	≤±0.5	35*	6/500
BE-DA-PA-N131	25~27	26*	25*	24*	±1*	40*	5/85
BE-DA-PA-N132	27~31	25*	25.3*	25*	±0.5*	48*	5/85
BE-DA-PA-N133	27~33	15*	22*	21*	±0.25*	23*	5/65
BE-DA-PA-N134	28~32	24*	24*	23*	±1*	35*	5/120
BE-DA-PA-N135	29~31	20*	24*	23*	±1*	35*	5/90
BE-DA-PA-N136	29~31	≥24	≥35	≥34	≤±0.3	≥22	6/1600
BE-DA-PA-N137	29~31.5	≥25.5	≥25.5	≥24	≤±0.3	≥35	5/110
BE-DA-PA-N138	29~33	26*	22*	-	±1*	40*	5/55
BE-DA-PA-N139	29~33	26*	22*	-	±1*	40*	5/55
BE-DA-PA-N140	30~40	20*	30*	28*	±1*	20*	4.5/630
BE-DA-PA-N141	30~40	20*	30*	27*	±1.5*	18*	6/1000
BE-DA-PA-N142	31~36	22*	25*	22*	±1*	25*	4.5/250
BE-DA-PA-N143	31~38	18*	28*	26*	±1*	26*	5/260
BE-DA-PA-N144	32~40	20*	28*	25*	±1*	35*	5/250
BE-DA-PA-N145	32~40	23*	23*	20*	±1*	35*	5/162
BE-DA-PA-N146	32~40	20*	28*	25*	±1*	30*	6/400
BE-DA-PA-N147	33~37	≥16	≥27	-	-	≥20	5.5/500
BE-DA-PA-N148	34~36	17*	≥30	28*	±1*	30*	6/500
BE-DA-PA-N149	34~36	15*	36.5*	-	±0.5*	20*	6.5/3500
BE-DA-PA-N150	34~37	22*	25*	22*	±0.5*	30*	5/220
BE-DA-PA-N151	37~43	22*	24*	22*	±1*	30*	4/150
BE-DA-PA-N152	43~52	19*	21*	19*	±1.5*	10*	5/30

GaN Power Amplifier MMIC

BE-DN-PA GaN Power Amplifier MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	Efficiency (%)	Power Supply (V/mA)
BE-DN-PA-B001	0.2~1.8	11	38	54	28/0.38
BE-DN-PA-B002	0.2~2.2	10	39.5	50	28/0.65
BE-DN-PA-B003	1.2~1.6	19	40	50	28/0.75
BE-DN-PA-B004	1.9~2.5	27	40	60	28/0.58
BE-DN-PA-B005	2~6	13	43.5	36	28/2.80
BE-DN-PA-B006	2.7~3.5	27	47.5	50	28/4.60
BE-DN-PA-B007	2.7~3.5	21	43	45	28/1.80
BE-DN-PA-B008	2.7~3.5	21	41	48	28/1.10
BE-DN-PA-B009	2.7~3.5	24	40	40	28/0.90
BE-DN-PA-B010	2.7~3.5	24	40	50	28/0.90
BE-DN-PA-B011	4.2~5	23	45	50	28/2.40
BE-DN-PA-B012	4.4~5.1	19	40	48	28/0.75
BE-DN-PA-B013	4.4~6	22	43	48	28/1.70
BE-DN-PA-B014	4.4~6	20.5	44.5	47	28/2.20
BE-DN-PA-B015	4.5~7.5	19	39	42	28/0.80
BE-DN-PA-B016	5~6	20.5	40.5	47	28/0.90
BE-DN-PA-B017	5~6.5	22	36	48	28/0.35
BE-DN-PA-B018	5~7.5	24	42	50	28/1.10
BE-DN-PA-B019	5~9	28	35.5	36	28/0.36
BE-DN-PA-B020	5~13	26	38	32	28/0.90
BE-DN-PA-B021	5~13	20	40	26	28/1.60
BE-DN-PA-B022	6~18	17	35	25	28/0.55
BE-DN-PA-B023	6~18	30	41	22	28/2.60
BE-DN-PA-B024	6~18	20	34	22	28/0.55
BE-DN-PA-B025	7~9	21	41	44	28/1.10
BE-DN-PA-B026	7~13	23	45	36	28/2.50
BE-DN-PA-B027	7.6~11.6	25	34	56	8/0.30
BE-DN-PA-B028	8~12	20	40	45	28/0.90
BE-DN-PA-B029	8~12	29	42	42	28/1.40
BE-DN-PA-B030	8~12	21	43	40	28/1.90
BE-DN-PA-B031	8~12	22	44	40	28/1.00
BE-DN-PA-B032	8~12	24	42	45	28/1.35
BE-DN-PA-B033	9~10	22	44	50	28/2.50
BE-DN-PA-B034	11~18	26.5	42.5	39	28/1.80
BE-DN-PA-B035	12.5~15.5	30	43.5	36	28/2.80
BE-DN-PA-B036	12.5~15.5	28	46.5	38	28/5.00
BE-DN-PA-B037	13.5~17.5	20	44	36	28/2.80
BE-DN-PA-B038	14~18	20	42	36	28/1.80
BE-DN-PA-B039	14~18	23	44	36	28/2.60
BE-DN-PA-B040	14.5~17	20	42	34	28/1.70
BE-DN-PA-B041	17.7~19.7	20	43	35	28/2.30
BE-DN-PA-B042	19~21	15	40	29	28/1.20
BE-DN-PA-B043	26~30	18	38	30	20/0.85
BE-DN-PA-B044	32~38	17	37	26	20/1.10
BE-DN-PA-B045	32~38	21	41	30	20/2.40
BE-DN-PA-B046	32~38	20	35	40	12/0.75
BE-DN-PA-B047	37~40	19	37	28	20/0.90
BE-DN-PA-B048	37.5~42	20	40	30	20/2.20

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N-Series

Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	Gain Flatness (dB)	Efficiency (%)	Power Supply (V/mA)	Remark
BE-DN-PA-N001	0.03~3	11	40	±0.5	46	28/520	Continuous wave
BE-DN-PA-N002	0.3~3.0	15	35	±1	20	28/400	Pulse
BE-DN-PA-N003	0.35~2.0	15	40	±0.8	40	28/1000	Continuous wave
BE-DN-PA-N004	0.4~0.8	20	31.5	±0.5	24	28/250	Continuous wave
BE-DN-PA-N005	0.4~0.8	30	35	±0.5	37	28/260	Continuous wave
BE-DN-PA-N006	1.1~1.6	25.5	38.5	±0.5	57	28/280	Continuous wave
BE-DN-PA-N007	1.2~1.5	28	44	±0.25	50	28/1000	Pulse
BE-DN-PA-N008	1.4~2.8	31	39	±0.5	48	28/560	Continuous wave
BE-DN-PA-N009	1.6~2.1	29	39	±0.5	58	28/350	Continuous wave
BE-DN-PA-N010	1.7~6.1	26	42	-	43	28/600	-
BE-DN-PA-N011	1.7~6.1	26	42	-	43	28/600	-
BE-DN-PA-N012	1.8~6.4	21	43.5	±0.5	32	28/2500	Pulse/Continuous wave
BE-DN-PA-N013	2~4	22	46.5	±0.5	43	28/2000	Continuous wave
BE-DN-PA-N014	2~6	23	34	±0.5	35	28/100	Continuous wave
BE-DN-PA-N015	2~6	24	37	±1.5	45	28/350	Continuous wave
BE-DN-PA-N016	2~6	17	43	±0.5	35	28/1200	Continuous wave
BE-DN-PA-N017	2~6	21	45	±1	42	28/3000	Continuous wave
BE-DN-PA-N018	2~6	20	46	±0.5	30	28/3000	Pulse
BE-DN-PA-N019	2.0~2.6	25	41	±0.5	55	28/400	Continuous wave
BE-DN-PA-N020	2.0~6.2	24	41	±0.5	41	28/500	Pulse
BE-DN-PA-N021	2.0~6.2	24	40.5	±0.5	40	28/500	Continuous wave
BE-DN-PA-N022	2.0~6.2	24	40.5	±0.5	40	28/500	Continuous wave
BE-DN-PA-N023	2.0~6.2	20	44	±1	33	28/2200	Continuous wave
BE-DN-PA-N024	2.1~2.5	26	39	±0.6	40	28/400	Pulse
BE-DN-PA-N025	2.1~2.8	26.5	40	±0.5	40	28/600	Pulse
BE-DN-PA-N026	2.3~3.5	32.5	42.6	±0.8	50	28/1000	Pulse
BE-DN-PA-N027	2.5~6.2	19	45	±1	35	28/2500	Continuous wave
BE-DN-PA-N028	2.7~3.5	26	38	±0.5	47	28/340	Pulse
BE-DN-PA-N029	2.7~3.5	22	39.5	±0.5	48	28/95	Pulse
BE-DN-PA-N030	2.7~3.5	26	43	±0.3	60	28/700	Pulse
BE-DN-PA-N031	2.7~3.5	24	44	±0.4	48	28/500	Pulse
BE-DN-PA-N032	2.7~3.5	25	45	±0.5	57	28/1500	Pulse
BE-DN-PA-N033	2.7~3.5	23	43	±0.25	50	28/100	Pulse
BE-DN-PA-N034	2.7~3.5	23	47	±0.5	55	28/3100	Continuous wave
BE-DN-PA-N035	2.7~3.5	23	46	±0.25	57	28/900	Pulse
BE-DN-PA-N036	2.7~3.5	21	46	±0.5	45	28/500	Pulse
BE-DN-PA-N037	2.7~6.2	23	43	±0.7	40	28/1200	Continuous wave
BE-DN-PA-N038	2~12	22	32	±1.5	-	28/300	Continuous wave
BE-DN-PA-N039	2~12	7	40	±0.5	29	28/1000	Continuous wave
BE-DN-PA-N040	2~18	6	33	±1.5	13	28/300	Continuous wave
BE-DN-PA-N041	2~18	17	34	±1	20	28/200	Continuous wave
BE-DN-PA-N042	2~18	7	39	±1	20	28/880	Continuous wave
BE-DN-PA-N043	2~18	15	40	±1	20	28/1600	Continuous wave
BE-DN-PA-N044	2~18	23	42	±1	20	28/250	Continuous wave
BE-DN-PA-N045	2~18	23	42	±1	20	28/250	Continuous wave
BE-DN-PA-N046	3.0~6.2	24	41.5	±0.5	45	28/400	Continuous wave
BE-DN-PA-N047	3.0~6.2	24	41.5	±0.5	45	28/400	Continuous wave
BE-DN-PA-N048	3.4~3.6	28	47	±0.5	40	28/200	Continuous wave
BE-DN-PA-N049	3.4~3.7	20	32.5	±0.5	50	12/30	Continuous wave
BE-DN-PA-N050	3.5~4.0	26	46	±0.5	58	28/2800	Pulse
BE-DN-PA-N051	3.5~4.6	24	39	±0.8	50	28/470	-
BE-DN-PA-N052	3.5~6.0	25	36	±0.75	35	28/300	Pulse
BE-DN-PA-N053	3.7~4.2	22	39	±0.5	52	28/180	Continuous wave
BE-DN-PA-N054	3.7~4.2	11	41	±0.3	60	28/300	Continuous wave
BE-DN-PA-N055	3.7~4.2	25	43	0.5	55	28/750	Pulse
BE-DN-PA-N056	3.7~4.2	20	46	0.5	45	28/500	Pulse
BE-DN-PA-N057	4~10	19	45	±0.5	30	28/1500	Continuous wave
BE-DN-PA-N058	4~5	24	46	±0.5	50	28/1000	Continuous wave
BE-DN-PA-N059	4~8	21	43	±0.5	35	28/1350	Continuous wave
BE-DN-PA-N060	4.2~5.0	23	46	±0.5	50	28/1500	Pulse
BE-DN-PA-N061	4.2~5.2	24	44	±0.5	53	28/600	Continuous wave
BE-DN-PA-N062	4.4~5.2	22	43	±0.2	55	28/600	Continuous wave
BE-DN-PA-N063	4.4~5.8	24	38	±0.5	40	28/400	Pulse
BE-DN-PA-N064	4.6~5.4	23	36	±0.5	57	28/200	Pulse
BE-DN-PA-N065	4.7~5.8	20	40	±0.5	61	28/300	Pulse
BE-DN-PA-N066	4.8~5.0	25	46	-	37	28/200	Continuous wave
BE-DN-PA-N067	5~10	21	45	±0.5	42	28/1500	Pulse
BE-DN-PA-N068	5~12	21	46	±1	30	28/2500	Pulse
BE-DN-PA-N069	5~13	13	26	±0.5	-	28/110	Continuous wave
BE-DN-PA-N070	5~13	13	26	±0.5	-	28/110	Continuous wave
BE-DN-PA-N071	5~13	21	44	±0.5	30	28/2500	Continuous wave
BE-DN-PA-N072	5~13	21	45	±1	38	28/2000	Pulse
BE-DN-PA-N073	5~14	20	41.5	±0.5	38	28/1000	Pulse
BE-DN-PA-N074	5~6	26	49	±0.25	47	28/5000	Pulse
BE-DN-PA-N075	5~6	25	45.5	±0.5	52	28/1100	Pulse
BE-DN-PA-N076	5~6	25	42	±1	55	28/1000	Pulse
BE-DN-PA-N077	5~6	25	45	±1	50	28/2000	Pulse
BE-DN-PA-N078	5~6	22	52	±0.5	50	28/4800	Pulse
BE-DN-PA-N079	5~7	19	46	±0.5	45	28/1500	Pulse
BE-DN-PA-N080	5~7	23	41	±0.5	45	28/600	Pulse
BE-DN-PA-N081	5~7	25	46	±0.5	50	28/1500	Pulse
BE-DN-PA-N082	5~7	25	43	±1	45	28/1000	Pulse
BE-DN-PA-N083	5~9	26	35	±0.5	35	28/270	Pulse
BE-DN-PA-N084	5~9	24	46	-	45	28/1900	Pulse
BE-DN-PA-N085	5.7~5.9	29	37	-	58	28/120	Continuous wave
BE-DN-PA-N086	6~18	9	27	±0.5	-	28/120	Continuous wave
BE-DN-PA-N087	6~18	10	28	±0.5	-	28/120	Continuous wave
BE-DN-PA-N088	6~18	18	34	±1.2	25	28/120	Continuous wave
BE-DN-PA-N089	6~18	17	38	±0.5	25	28/560	Continuous wave
BE-DN-PA-N090	6~18	16	40	±0.5	20	28/1400	Continuous wave
BE-DN-PA-N091	6~18	20	41	±0.5	30	28/1000	Continuous wave
BE-DN-PA-N092	6~18	20	41	±0.5	35	28/1000	Continuous wave
BE-DN-PA-N093	6~18	18	42	±1	20	28/1700	Continuous wave
BE-DN-PA-N094	6~18	19	44	±0.5	30	28/3000	Continuous wave
BE-DN-PA-N095	6~18	19	44	±0.5	30	28/2500	Pulse
BE-DN-PA-N096	6~18	18	46	±1.3	25	28/3000	Pulse
BE-DN-PA-N097	6~18	20	47	±1	28	28/3300	Pulse
BE-DN-PA-N098	6~18	20	47	±1	28	28/3300	Pulse
BE-DN-PA-N099	6.9~7.4	22	40.5	±0.25	56	24/480	Pulse
BE-DN-PA-N100	6.9~7.4	22	40.5	±0.25	56	24/480	Pulse
BE-DN-PA-N101	7~8	21	50.3	±0.5	51	30/4000	Pulse
BE-DN-PA-N102	7~11	20	29	±1	20	28/170	Pulse
BE-DN-PA-N103	7~11	19	47	±1	35	28/4000	Pulse
BE-DN-PA-N104	7.5~9.5	22	48	±0.5	50	28/4500	Pulse
BE-DN-PA-N105	8~9	27	42.5	±0.3	60	28/300	Pulse
BE-DN-PA-N106	8.0~10.5	22	37	±1	50	28/300	Pulse
BE-DN-PA-N107	8~10	22	48	±0.5	45	28/3100	Pulse
BE-DN-PA-N108	8.0~10.5	23	53	±0.5	45	48/2000	Pulse
BE-DN-PA-N109	8.5~10.5	24	44	-	48	28/2500	Pulse
BE-DN-PA-N110	8.5~10.5	21	47	±0.5	45	28/2000	Pulse
BE-DN-PA-N111	8.5~10.5	24	44.5	±0.3	50	28/1000	Pulse

BE-DN-PA-N112	8.5~11	24.8	49.8	±0.25	50	28/5500	Pulse
BE-DN-PA-N113	8~12	16	35	±0.5	44	24/170	Continuous wave
BE-DN-PA-N114	8~12	20	39	±0.3	38	28/400	Pulse
BE-DN-PA-N115	8~12	22	42	0.3	50	28/480	Pulse
BE-DN-PA-N116	8~12	22	43	±0.3	43	28/1000	Pulse
BE-DN-PA-N117	8~12	21.5	43.5	±0.5	45	28/1100	Pulse
BE-DN-PA-N118	8~12	22	44	±0.5	43	28/1500	Pulse
BE-DN-PA-N119	8~12	24	45	±0.4	52	28/700	Pulse
BE-DN-PA-N120	8~12	23	46	±0.5	45	28/2400	Pulse
BE-DN-PA-N121	8~12	20	47	±0.8	40	28/2500	Pulse
BE-DN-PA-N122	8~12	22	48	±0.5	40	28/3500	Pulse
BE-DN-PA-N123	8~12	21	52	±0.5	40	48/3500	Pulse
BE-DN-PA-N124	8~16.5	15	26	±0.8	8	28/230	Pulse
BE-DN-PA-N125	8~18	8	25	±1	-	28/120	Continuous wave
BE-DN-PA-N126	8~18	18	40	±1	35	24/600	Continuous wave
BE-DN-PA-N127	8~18	19	43	±1	30	28/2000	Pulse
BE-DN-PA-N128	8~18	21	46	±1	30	28/4000	Pulse
BE-DN-PA-N129	8.5~13	20	41	±0.5	30	28/1000	Pulse
BE-DN-PA-N130	8.5~16	19	44	±0.5	33	28/2000	Pulse
BE-DN-PA-N131	10~11	21	47	±0.5	40	28/1900	Pulse
BE-DN-PA-N132	10~18	14	27	±1.5	13	28/170	Continuous wave
BE-DN-PA-N133	10~18	20	41	±0.25	30	28/700	Pulse
BE-DN-PA-N134	10~18	18	44	-	25	28/2000	Pulse
BE-DN-PA-N135	10~18	22	45	±1	35	28/1500	Pulse
BE-DN-PA-N136	10~18	15	28	±0.75	10	28/200	Pulse
BE-DN-PA-N137	11~13	20	44	±0.5	35	28/1500	Continuous wave
BE-DN-PA-N138	11~13	20	45.5	±0.3	37	28/1500	Continuous wave
BE-DN-PA-N139	12~14	22	46	±0.5	45	28/1000	Pulse
BE-DN-PA-N140	12~17	22	46	±0.5	36	28/2700	Pulse
BE-DN-PA-N141	12~18	19	38	±0.5	35	28/800	Pulse
BE-DN-PA-N142	12~18	20	40	±0.5	30	28/900	Continuous wave
BE-DN-PA-N143	12~18	23.5	45.5	±0.5	30	28/3000	Pulse
BE-DN-PA-N144	12.5~15.0	19	49	±0.3	30	28/5000	Pulse
BE-DN-PA-N145	12.5~15.0	22	44	±0.4	39	28/1400	Pulse
BE-DN-PA-N146	12.5~15.3	20	45.5	±0.3	33	28/800	Continuous wave
BE-DN-PA-N147	13.2~16	18	36	±0.5	40	28/62	Pulse
BE-DN-PA-N148	13.5~14.7	25	45.5	±0.5	33	28/800	Continuous wave
BE-DN-PA-N149	13.5~15.5	22	43	±0.25	35	28/50	Continuous wave
BE-DN-PA-N150	13.7~14.8	22	45	±0.2	35	28/2000	Continuous wave
BE-DN-PA-N151	13~14	23	42.5	±0.5	54	28/1000	Pulse
BE-DN-PA-N152	13~14	22	42.5	±0.5	46	28/1100	Continuous wave
BE-DN-PA-N153	13~15	23	46	±0.1	35	28/1800	Pulse
BE-DN-PA-N154	14~15	24	36	±0.5	54	28/160	Pulse
BE-DN-PA-N155	14~15	21	44	±1.5	30	28/2000	Continuous wave
BE-DN-PA-N156	14~16	21	47	±0.4	30	32/4000	Pulse
BE-DN-PA-N157	14~16	23	48	±0.3	47	28/4000	Pulse
BE-DN-PA-N158	14~18	17	26	±0.5	-	28/190	Continuous wave
BE-DN-PA-N159	14~18	21	26	±1	-	28/190	Continuous wave
BE-DN-PA-N160	14~18	21	35	±1	40	28/185	Continuous wave
BE-DN-PA-N161	14~18	20	36	±0.25	30	28/650	Pulse
BE-DN-PA-N162	14~18	20	39	±0.75	30	28/1100	Pulse
BE-DN-PA-N163	14~18	21	41	±0.5	38	28/1000	Pulse
BE-DN-PA-N164	14~18	18	42	±0.5	37	28/600	Pulse
BE-DN-PA-N165	14~18	21	45	±0.5	40	28/2000	Pulse
BE-DN-PA-N166	15.5~17.5	21.5	48.5	±0.5	42	28/2800	Pulse
BE-DN-PA-N167	15.5~17.7	20	47	±0.3	40	28/4000	Pulse
BE-DN-PA-N168	15.5~18.0	24	34	±0.3	56	12/210	Pulse
BE-DN-PA-N169	15.5~18.0	24	34	±0.3	56	12/210	Pulse
BE-DN-PA-N170	15.5~18.0	20	45	±0.5	33	28/2500	Pulse
BE-DN-PA-N171	15.8~17.6	22	44	±0.3	42	28/1200	Pulse
BE-DN-PA-N172	15~16	23	45	±0.5	40	28/2000	Pulse
BE-DN-PA-N173	15~17	24	42	±0.3	46	28/160	Pulse
BE-DN-PA-N174	15~17	20	39.5	±0.3	37	28/200	Pulse
BE-DN-PA-N175	15~17	18	48	±0.5	35	28/1800	Pulse
BE-DN-PA-N176	15~17	20	50	±0.2	35	48/4000	Pulse
BE-DN-PA-N177	15~18	20	47	±0.3	32	28/3700	Pulse
BE-DN-PA-N178	15~18	23	41.5	±0.5	35	28/1500	Pulse
BE-DN-PA-N179	16~17	21	49	±0.5	35	28/2040	Pulse
BE-DN-PA-N180	16~18	21	39.5	±0.3	36	28/200	Pulse
BE-DN-PA-N181	16~18	20	47	±0.5	35	28/4000	Pulse
BE-DN-PA-N182	17~18	21	42.5	±0.2	40	28/1300	Pulse
BE-DN-PA-N183	17~20	23	41	±0.75	32	28/700	Continuous wave
BE-DN-PA-N184	17~21	21	40.5	±0.5	45	28/180	Continuous wave
BE-DN-PA-N185	18.0~21.5	21	33	±0.5	42	20/155	Continuous wave
BE-DN-PA-N186	18.5~40	19	31	±0.5	20	20/300	Continuous wave
BE-DN-PA-N187	18~23	20	43	±0.5	25	28/2300	Pulse
BE-DN-PA-N188	18~26	11	38.5	±1.5	18	22/1000	Continuous wave
BE-DN-PA-N189	18~26	12	40	±0.5	20	22/1000	Continuous wave
BE-DN-PA-N190	18~40	14	40	±0.75	14	24/2300	Pulse
BE-DN-PA-N191	19~21	18	43	±0.5	20	28/1500	Pulse
BE-DN-PA-N192	19~22	22	44.5	±0.6	45	28/83.5	Pulse
BE-DN-PA-N193	19~23	21	44	±0.5	31	28/1350	Continuous wave
BE-DN-PA-N194	19~40	14	39	±0.75	14	24/1700	Continuous wave
BE-DN-PA-N195	19.5~22.0	23	33	±0.5	43	20/160	Continuous wave
BE-DN-PA-N196	20~21	21	43	±1	40	28/1200	Pulse
BE-DN-PA-N197	21~26	20	43.5	±1	36	28/1200	Pulse
BE-DN-PA-N198	22~29	18	42	±1	28	24/670	Continuous wave
BE-DN-PA-N199	22~33	19	41.5	±0.75	22	22/1000	Continuous wave
BE-DN-PA-N200	24.25~27.5	18	37	±0.5	30	20/630	Continuous wave
BE-DN-PA-N201	24~28	17	40	±0.5	30	20/1100	Continuous wave
BE-DN-PA-N202	25~29	22	42.5	±0.4	39	20/1350	Continuous wave
BE-DN-PA-N203	25~31	22	42.5	±1	32	22/600	Continuous wave
BE-DN-PA-N204	26~40	18	36	±1	23	20/430	Pulse
BE-DN-PA-N205	26~40	18	42.5	±0.75	20	28/1700	Pulse
BE-DN-PA-N206	27~31	20	37	±1	28	28/300	Continuous wave
BE-DN-PA-N207	27~31	18	40	±0.5	24	20/1000	Continuous wave
BE-DN-PA-N208	27~31	16	42	±0.5	30	24/200	Continuous wave
BE-DN-PA-N209	27~31	20	43	±0.5	36	24/620	Continuous wave
BE-DN-PA-N210	28~31	17	43	±0.5	25	24/2000	Continuous wave
BE-DN-PA-N211	30~37	16	42	±0.5	26	28/1500	Pulse
BE-DN-PA-N212	31~38	18	35	±0.4	34	15/350	Pulse
BE-DN-PA-N213	32~36	19	38	±0.5	33	24/500	Pulse
BE-DN-PA-N214	32~36	19	39	±0.5	31	24/550	Pulse
BE-DN-PA-N215	32~36	18.2	40.2	±0.5	31	22/1000	Pulse
BE-DN-PA-N216	32~36	14	43	±1	25	22/3100	Pulse
BE-DN-PA-N217	32~38	18	32	±0.5	25	22/300	Continuous wave
BE-DN-PA-N218	32~38	18	36.5	±1.6	26	22/480	Pulse
BE-DN-PA-N219	32~38	15	38	±1	25	22/1500	Pulse
BE-DN-PA-N220	32~38	13	41	±0.75	20	22/2000	Continuous wave
BE-DN-PA-N221	32~39	19	35	±0.5	36	15/350	Pulse
BE-DN-PA-N222	32~39	21	39	±0.5	35	14/120	Pulse
BE-DN-PA-N223	32~40	18	30	±1	24	22/200	Pulse
BE-DN-PA-N224	32~40	19	34	±0.4	38	12/320	Continuous wave
BE-DN-PA-N225	32~40	17	37	±0.75	25	22/480	Pulse
BE-DN-PA-N226	32~40	15	40	±0.75	20	24/1000	Pulse
BE-DN-PA-N227	33.5~36	15	43	±0.5	25	24/3000	Pulse

BE-DN-PA-N228	33~37	15	41.5	±1	28	22/1500	Continuous wave
BE-DN-PA-N229	33~37	18	41	±1	28	22/2400	Pulse
BE-DN-PA-N230	33~37	17	39	±0.5	28	24/800	Continuous wave
BE-DN-PA-N231	33~37	20	40	±0.5	38	15/180	Pulse
BE-DN-PA-N232	33~37	20	43.5	-	30	28/2200	Pulse
BE-DN-PA-N233	34~36	13.8	41.8	±0.5	25	22/2500	Pulse
BE-DN-PA-N234	34~36	16	45	±0.5	25	28/3000	Pulse
BE-DN-PA-N235	34~36	14	46	±0.5	25	28/5000	Pulse
BE-DN-PA-N236	34.5~37.5	12	40	±0.75	25	22/2000	Pulse
BE-DN-PA-N237	37~42	18	41	±0.5	25	22/2000	Pulse
BE-DN-PA-N238	37~43	23	41	±0.5	25	22/1500	Pulse
BE-DN-PA-N239	38~43	17	41	±0.5	28	24/600	Continuous wave
BE-DN-PA-N240	40~67	19	34	±1	10	18/1500	Pulse
BE-DN-PA-N241	40~70	20	25	±1.5	10	15/195	Continuous wave
BE-DN-PA-N242	41~46	21	41	±0.2	28	24/1000	Pulse
BE-DN-PA-N243	42~46	17	43	±0.75	25	24/3000	Continuous wave
BE-DN-PA-N244	43~46	18	41	±0.5	30	24/1000	Continuous wave
BE-DN-PA-N245	45~50	16.5	41.5	±0.3	37	18/350	Pulse
BE-DN-PA-N246	46~51	12	37	±0.5	15	24/1300	Continuous wave
BE-DN-PA-N247	47~52	17	40	±0.5	23	24/1400	Continuous wave
BE-DN-PA-N248	57~63	15	35	±1.5	15	18/1000	Pulse
BE-DN-PA-N249	59~61	16	33	±0.5	22	15/700	Continuous wave
BE-DN-PA-N250	59~61	17	37	±0.4	19	18/1300	Pulse
BE-DN-PA-N251	64~70	13	37	±0.5	20	20/1400	Pulse
BE-DN-PA-N252	67~71	12	36	±0.5	20	20/1400	Pulse
BE-DN-PA-N253	71~76	12	35.5	±0.5	18	18/1300	Pulse
BE-DN-PA-N254	79~81	12	32	±0.5	27	15/390	Pulse
BE-DN-PA-N255	81~86	12	34	±0.75	20	18/800	Pulse/Continuous wave
BE-DN-PA-N256	90~96	12.5	30.5	±0.5	16	15/450	Pulse/Continuous wave
BE-DN-PA-N257	88~98	12.5	29.5	±1.5	12	15/700	Pulse
BE-DN-PA-N258	92~96	13.5	36.5	-	10	18/1600	Pulse
BE-DN-PA-N259	100~115	15	28	±0.75	12	16/110	Continuous wave
BE-DN-PA-N260	102~112	10	26	±1	12	16/110	Continuous wave
BE-DN-PA-N261	190~220	4	17	±1.5	5	9/100	Continuous wave

GaN (Dual-Mode) Power Amplifier MMIC

BE-DN-PA GaN Power Amplifier MMIC

N-Series (Dual Mode)

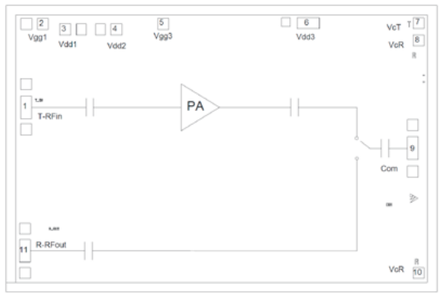
Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	Gain Flatness (dB)	Efficiency (%)	Power Supply (V/mA)
BE-DN-PA-ND001	5~13	20	44	±1.7	35	28/2000
BE-DN-PA-ND002	7~13	20	45	±0.6	37	28/2200
BE-DN-PA-ND003	9~10/13~14	24.5	39.5	±0.25	50	28/600

Available in bare die and module integration

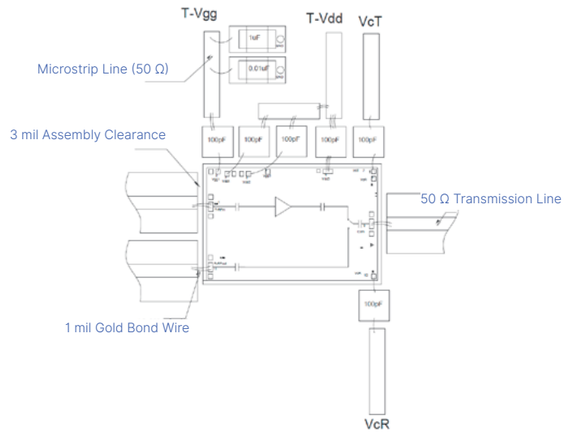
DC to 40 GHz • Transmit Chain Integration • GaAs / GaN

PA - SWITCH INTEGRATED MMIC

- Integrated Power Amplifier + RF Switch in a single MMIC
- Enables transmit path control and signal routing
- Reduces external components and insertion loss
- Broadband coverage from sub-GHz to mmWave



Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed



BE-DA-PASW-B001 as Example

Integration Benefits

- Reduced insertion loss
- Improved system reliability
- Improved efficiency
- Compact design
- Easier integration

BE-DA-PASW PA-Switch Integrated MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	Additional Efficiency (%)	Switch Insertion Loss (dB)	Power Supply (V/A)	Working Conditions
BE-DA-PASW-B001	5~6	29	41	48	0.85	+28/1.10	Pulse/Continuous wave
BE-DA-PASW-B002	8~11	21	42	48	-	28/1.30	-
BE-DA-PASW-B003	10~17	21	38	30	1	+28/0.80	-
BE-DA-PASW-B004	10~18	22	40	23	0.9	28/1.80	-
BE-DA-PASW-B005	14~18	19	39	32	0.9	+28/1.20	Pulse
BE-DA-PASW-B006	14~18	24	42	35	1	+28/2.00	Pulse
BE-DA-PASW-B007	14~18	24	42	35	0.8	28/1.80	Pulse
BE-DA-PASW-B008	14~18	25	40.5	32	0.9	+28/0.80	Pulse
BE-DA-PASW-B009	14~18	26	35.5	32	1.1	+28/0.50	Pulse
BE-DA-PASW-B010	14.5~17.5	23.5	41.5	35	0.9	+28/1.50	Pulse

BE-DA-PASW PA-Switch Integrated MMIC

N-Series

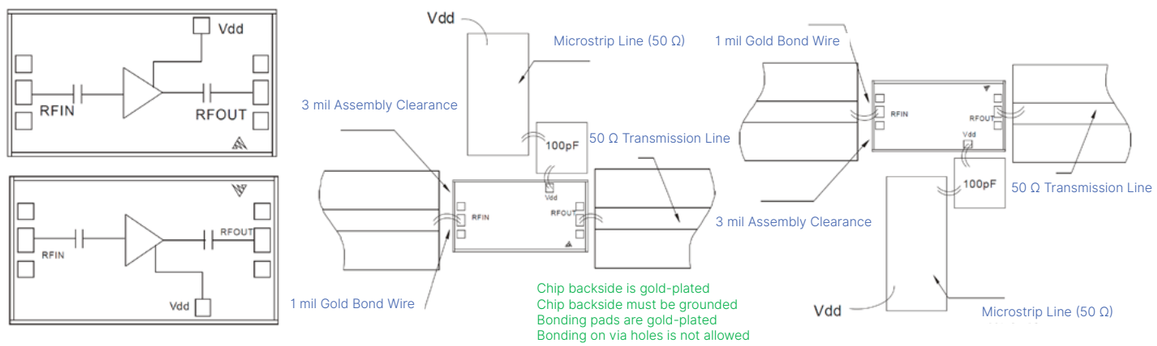
Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	Additional Efficiency (%)	Gain Flatness (dB)	Power Supply (V/A)	Working Conditions
BE-DA-PASW-N001	0.8~2.0	27	39.5	48	±0.5	+28/780	Continuous wave
BE-DA-PASW-N002	2~18	14	30	15	±1	+16/150	Continuous wave
BE-DA-PASW-N003	2~18	14	30	15	±1	+16/150	Continuous wave
BE-DA-PASW-N004	2~18	9	33	18	±1.2	+24/200	Continuous wave
BE-DA-PASW-N005	2~18	14	33	20	±1	+20/250	Continuous wave
BE-DA-PASW-N006	2~18	14	38	20	±1	+28/600	Continuous wave
BE-DA-PASW-N007	2~18	14	38	20	±1	+28/600	Continuous wave
BE-DA-PASW-N008	2~18	14	39	16	±1	+28/1400	Continuous wave
BE-DA-PASW-N009	2~18	14	39	16	±1	+28/900	Continuous wave
BE-DA-PASW-N010	5~10	23	45	42	±0.5	+28/1850	Pulse/Continuous wave
BE-DA-PASW-N011	6~18	18	38	20	±0.5	+28/900	Pulse
BE-DA-PASW-N012	8~12	22	36	43	±1	+28/280	Pulse
BE-DA-PASW-N013	11~19	20	37.8	33	±0.3	+28/500	Pulse
BE-DA-PASW-N014	11~19	20	37.8	33	±0.3	+28/500	Pulse
BE-DA-PASW-N015	12~18	20.5	41.5	36	±0.6	+28/600	Pulse
BE-DA-PASW-N016	12~18	19	43	30	±0.5	+28/1400	Pulse
BE-DA-PASW-N017	32~38	19	29	20	±0.5	+24/100	Pulse
BE-DA-PASW-N018	32~38	18	29	20	±0.5	+24/100	Pulse
BE-DA-PASW-N019	33~37	20	33	20	±0.5	+28/150	Pulse

Available in bare die and module integration

DC to 40 GHz • GaAs & GaN Technologies

DRIVER AMPLIFIER MMIC

- Designed to drive power amplifiers (PA stages)
- Provides high gain and sufficient output power
- Broadband coverage from sub-GHz to mmWave
- Available in GaAs and GaN technologies



BE-DA-DRA-B033 as Example

GaAs Driver Amplifiers - Linear • Wideband • Stable

- High linearity performance
- Moderate output power

GaN Driver Amplifiers - Higher Power • Rugged • Efficient

- Higher output capability than GaAs
- Better robustness

GaAs Driver Amplifier MMIC

BE-DA-DRA GaAs Driver Amplifier MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Psat (dBm)	Noise Figure (dB)	OIP3 (dBm)	Power Supply (V/mA)
BE-DA-DRA-B001	0.5~3	12	18	19	2.7	29	+5/45
BE-DA-DRA-B002	0.5~4	21	16	17	5.5	26	+5/55
BE-DA-DRA-B003	0.8~6.5	21	17	18	3.5	25	+5/65
BE-DA-DRA-B004	1~1.5	16	18	19	3	29	+5/55
BE-DA-DRA-B005	1~3	22	15	17	7.5	26	+5/55
BE-DA-DRA-B006	1~4	23	17	18.5	3.5	28	+5/65
BE-DA-DRA-B007	1.2~1.4	13	17	19	/	26	+5/24
BE-DA-DRA-B008	2~3.5	15	19	20	5.5	29	+5/90
BE-DA-DRA-B009	2~6	16	16	18	5.5	26	+5/75
BE-DA-DRA-B010	2~6	24	14	15.5	3	22	+5/50
BE-DA-DRA-B011	2~6	26	21	22	3.4	28	+5/105
BE-DA-DRA-B012	2~6	24	14	16	3.5	24	+5/60
BE-DA-DRA-B013	4~8	20	16	16.5	4	23	+5/70
BE-DA-DRA-B014	4~19	21	22.5	23	8	35	+5/180
BE-DA-DRA-B015	4.5~6	22.5	18.5	20	5.5	28	+5/60
BE-DA-DRA-B016	5~6	24	12	13	/	-	5/36
BE-DA-DRA-B017	5~20	22	20	21	10	28	+5/120
BE-DA-DRA-B018	6~13	19.5	20	21	3	28	+5/130
BE-DA-DRA-B019	6~20	14.5	19.5	20	5.5	26	+5/107
BE-DA-DRA-B020	6~18	13	18	19	/	-	5/65
BE-DA-DRA-B021	6~18	18	26	27	/	-	+5/320
BE-DA-DRA-B022	6~18	18	16	17	10	24	+5/55
BE-DA-DRA-B023	6~18	17	/	24	/	-	+5/200
BE-DA-DRA-B024	7~13	18	18	19	/	-	+5/60
BE-DA-DRA-B025	7~13	17	17	17.5	/	-	+28/22
BE-DA-DRA-B026	8~12	21	17	18	6	27	+5/65
BE-DA-DRA-B027	8~12	20	21	22	3	30	+5/110
BE-DA-DRA-B028	8~12	19	25	25.5	/	30	+28/75
BE-DA-DRA-B029	8~14	30	17	18	/	-	+5/60
BE-DA-DRA-B030	10~15	28	14	16	6	24	+5/60
BE-DA-DRA-B031	10~15	23	11.5	13	11	22.5	+5/60
BE-DA-DRA-B032	10~20	17.5	18	19	5	28	+5/80
BE-DA-DRA-B033	10~26	20	17	18	7	27	+5/90
BE-DA-DRA-B034	14~18	9	16	17	4	22	+5/25
BE-DA-DRA-B035	14~18	20	21	22	7	26	+7/65
BE-DA-DRA-B036	17~21	24	18	/	2.9	28	+5/58
BE-DA-DRA-B037	19.6~21.2	24	15	/	2.9	24.5	+5/38
BE-DA-DRA-B038	24~28	26	/	23.5	/	-	+5/130
BE-DA-DRA-B039	30~38	15	14	15	6	-	+5/46

GaAs Driver Amplifier MMIC

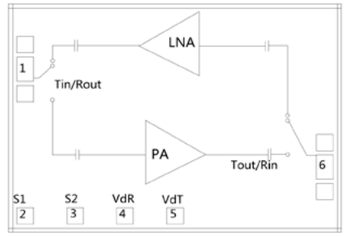
BE-DN-DRA GaN Driver Amplifier MMIC						
B-Series						
Model Number	Frequency (GHz)	Gain (dB)	Psat (dBm)	OIP3 (dBm)	Efficiency (%)	Power Supply (V/mA)
BE-DN-DRA-B001	1.2~1.6	23	26.5	-	22	28/0.10
BE-DN-DRA-B002	2~6	25	30	35	20	28/0.16
BE-DN-DRA-B003	2~6	18	26	-	-	28/0.13
BE-DN-DRA-B004	5~6	21	29	30	25	28/0.10
BE-DN-DRA-B005	5~6	9	30	35	20	28/0.15
BE-DN-DRA-B006	5~14	8	26	-	20	28/0.09
BE-DN-DRA-B007	6~18	8.5	26.5	-	-	28/0.14
BE-DN-DRA-B008	8~12	16	24	28	10	28/0.12
BE-DN-DRA-B009	8~12	16	26	30	15	28/0.13
BE-DN-DRA-B010	8~12	20	27.5	34	18	28/0.09
BE-DN-DRA-B011	16~18	24	34	-	43	28/0.20

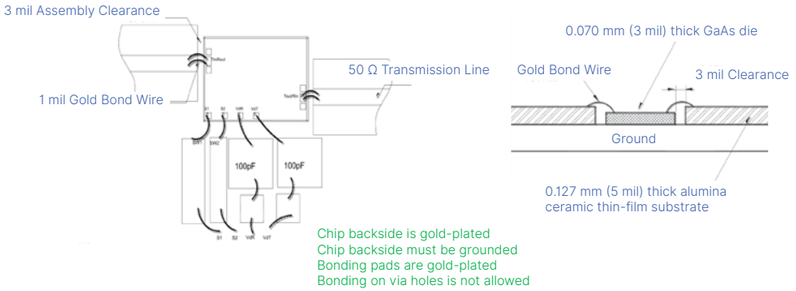
Available in bare die and module integration

DC to 40 GHz • Two-Way Amplification • GaAs Technology

BI-DIRECTIONAL AMPLIFIER MMIC

- Amplifies signals in both forward and reverse directions
- Eliminates need for separate TX/RX amplifier paths
- Broadband coverage from sub-GHz to mmWave
- Balanced performance in both directions
- Optimized for T/R systems and shared RF channel





BE-DA-BDA-B025 as Example

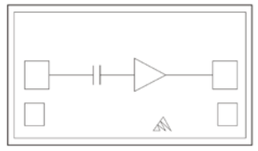
BE-DA-BDA Bidirectional Amplifier MMIC					
B-Series					
Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Noise Figure (dB)	Power Supply (V/mA)
BE-DA-BDA-B001	0.3~0.9	30/30	16/15	6	+5/90
BE-DA-BDA-B002	0.5~2	24	16	4.5	+5/60
BE-DA-BDA-B003	0.5~2	17	16	2.5	+5/50
BE-DA-BDA-B004	0.7~3	12	17	4	+5/55
BE-DA-BDA-B005	0.8~3.5	16	18	2.8	+5/65
BE-DA-BDA-B006	0.8~3.5	25/13	19/19.5	3.5/3	+5/100,+5/75
BE-DA-BDA-B007	1~3	24	16	5	+5/60
BE-DA-BDA-B008	1~3	21	15.5	5	+5/60
BE-DA-BDA-B009	1~3	19/21	16/16	7/5	+5/60
BE-DA-BDA-B010	1~4.5	13	17	4	+5/70
BE-DA-BDA-B011	1~5	19	16	5	+5/70
BE-DA-BDA-B012	2~6	8.2/20.5	7.5/21	3	+5/16,+5/130
BE-DA-BDA-B013	2~18	14	12	4	+5/60
BE-DA-BDA-B014	2~20	14	13	4	+5/65
BE-DA-BDA-B015	3~7	21	18	5	+5/80
BE-DA-BDA-B016	8~12	26/27	10/19.5	4/5	+5/55,+5/175
BE-DA-BDA-B017	8~14	6/6	11/13	5/5	+5/40,+5/40
BE-DA-BDA-B018	8~14	6/15	11/14	5/8	+5/40,+5/45
BE-DA-BDA-B019	9.5~10.5	12/18	17.5/17.5	4.5	+5/60,+5/70
BE-DA-BDA-B020	10~17	13/21	18/25	3.2	+5/95,+5/200
BE-DA-BDA-B021	10~17	14/-2	17	-	+5/70
BE-DA-BDA-B022	14~18	8/16	10/12	5/6.5	+5/20,+5/30
BE-DA-BDA-B023	14~18	27/25	9/13	2.5/3.5	+5/40,,+5/22
BE-DA-BDA-B024	14~18	12.5/24	7/23	4/9	+5/22,+5/195
BE-DA-BDA-B025	23~29	21.5/11	15/19	4	+5/50,+5/70

Available in bare die and module integration

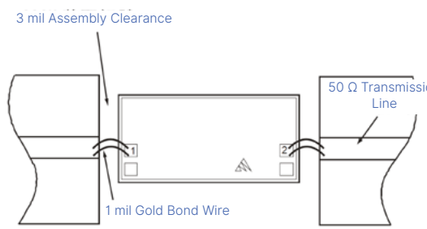
DC to 40 GHz • GaAs & SiGe Technologies

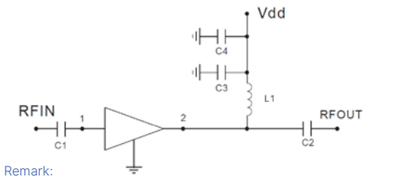
GAIN BLOCK AMPLIFIER MMIC

- General-purpose broadband gain blocks
- Flat gain across wide frequency range
- Good linearity and stability
- Technologies: GaAs pHEMT & SiGe
- Designed for cascaded amplification stages



Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed





Remark:
DC blocking capacitors are required at the input and output ports
The chip backside must be properly grounded

BE-DA-GBA-B013 as Example

GaAs Gain Block Amplifiers - Wideband • RF Performance • Stable

- Broadband coverage
- Good gain flatness

SiGe Gain Block Amplifiers - Cost-Effective • Low Power • High Volume

- Lower power consumption
- Highly consistent performance

GaAs Gain Block Amplifier MMIC

BE-DS-GBA Gain Block Amplifier MMIC

B-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Psat (dBm)	Noise Figure (dB)	OIP3 (dBm)	Power Supply (V/mA)
BE-DA-GBA-B001	0.01~5	20	11	13	3.8	21	5.0/35
BE-DA-GBA-B002	0.01~7	18	12	13	3.8	23	5.0/40
BE-DA-GBA-B003	0.01~13	12.5	13	15	5.5	25	5.0/50
BE-DA-GBA-B004	0.1~1	15.5	10	12.5	1.6	17	1.8/12
BE-DA-GBA-B005	0.1~1.5	15	10	12	1.6	18	1.8/12
BE-DA-GBA-B006	0.1~3	21	19	21	2.2	28	5.0/50
BE-DA-GBA-B007	0.1~3	13	17	18	5.5	28	5.0/58
BE-DA-GBA-B008	0.1~3.5	15	16	18	4.5	25	5.0/50
BE-DA-GBA-B009	0.1~6.5	14	19	20.5	4.5	30	5.0/65
BE-DA-GBA-B010	0.4~6.5	14	18	19	4.5	27	5.0/55
BE-DA-GBA-B011	0.4~7	14	17	19	5.5	28	5.0/65
BE-DA-GBA-B012	0.5~2.5	22	19	20.5	1.2	30	5.0/65
BE-DA-GBA-B013	0.5~9	13	19	20.5	4.5	27	5.0/75
BE-DA-GBA-B014	0.5~9	13	17	18	4.5	25	5.0/75

BE-DS-GBA Gain Block Amplifier MMIC

N-Series

Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Psat (dBm)	Efficiency (%)	Noise Figure (dB)	OIP3 (dBm)	Power Supply (V/mA)
BE-DA-GBA-N001	0.1~2	22.5	22	-	-	1.5	35	5.0/115
BE-DA-GBA-N002	0.01~2	20.5	27.5	-	40	3.5	41	8.0/195
BE-DA-GBA-N003	0.01~2	20	30	-	40	4	45	12.0/315
BE-DA-GBA-N004	0.01~3	15	29	30	25	-	-	8.0/460
BE-DA-GBA-N005	0.01~3	17	9	-	-	3.5	-	5/40
BE-DA-GBA-N006	0.01~3				-			3.1/19
BE-DA-GBA-N007	0.01~3	14.7	23.5	-	40	4	39	5.0/110
BE-DA-GBA-N008	0.01~3	23.9	12	-	-	3	-	3.4/35
BE-DA-GBA-N009	0.01~6				-			5.0/75
BE-DA-GBA-N010	0.01~4	15.5	26	-	40	4	41	8.0/190
BE-DA-GBA-N011	0.01~4.5	13.5	21.5	-	40	2.4	35	5.0/90
BE-DA-GBA-N012	0.01~5.5	14	-	26	20	-	-	8.0/285
BE-DA-GBA-N013	0.01~6	18	20	-	-	3.5	-	5.0/60
BE-DA-GBA-N014	0.01~6	16.5	22.5	-	-	3.5	-	5.0/140
BE-DA-GBA-N015	0.01~6.5	12	23.5	-	35	4.5	36	5.0/86
BE-DA-GBA-N016	0.01~2	20	30	-	40	4	45	12.0/280
BE-DA-GBA-N017	0.01~2	22	27	-	40	3.5	43	8.0/195
BE-DA-GBA-N018	0.02~0.3	20.5	23	-	-	-	-	5.0/28
BE-DA-GBA-N019	0.1~10	15	16	-	-	3.5	-	5.0/50

SiGe Gain Block Amplifier MMIC

BE-DS-GBA Gain Block Amplifier MMIC

B-Series(SiGe)

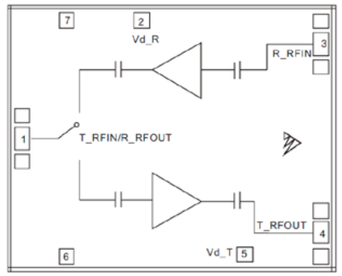
Model Number	Frequency (GHz)	Gain (dB)	P1dB (dBm)	Psat (dBm)	Noise Figure (dB)	Gain Flatness (dB)	OIP3 (dBm)	Power Supply (V/mA)
BE-DS-GBA-B001	0.01~0.8	33	10	-	1.9	±2	21	5.0/30
BE-DS-GBA-B002	0.01~1.9	29	10.8	14	3.6	±0.4	20	5.0/26
BE-DS-GBA-B003	0.01~3.1	16	-9	-3.3	3	-	0	3.0/6.8

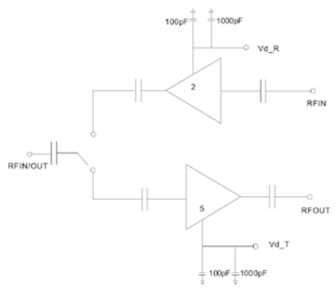
Available in bare die and module integration

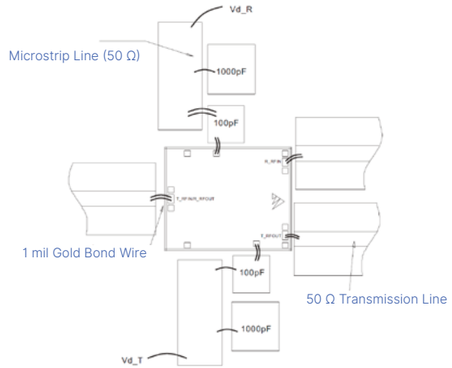
DC to 40 GHz • Multi-Function Integration • GaAs / GaN

FRONT-END INTEGRATED MMIC

- Highly integrated multi-function RF front-end chips
- Designed for TR modules and RF front-end systems
- Broadband coverage from sub-GHz to mmWave
- Combines functions such as:
- Amplification (LNA / PA)
- Switching
- Attenuation / phase control







Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed

BE-DA-RFFE-B003 as Example

BE-DA-RFFE Front-End MMIC

B-Series

Model Number	Frequency (GHz)	Receive Gain (dB)	Transmit Gain (dB)	P1dB (Receive/ Transmit) (dBm)	Working Voltage (V)	Quiescent Current (Receive/Transmit) (mA)	Function Description
BE-DA-RFFE-B001	2~4	26	26	15/15	+5/-5	85/85	Implement transmit/receive switching and gain functions, transmit/receive double-ended
BE-DA-RFFE-B002	2~4	24.5	25.5	15/15	+5/-5	85/85	Implement transmit/receive switching and gain functions, transmit/receive single-ended, integrated 1-bit 20dB digitally controlled attenuator
BE-DA-RFFE-B003	33~37	23	23	13/14	+5	40/40	Implement transmit/receive switching and gain functions

BE-DA-RFFE Front-End MMIC

N-Series

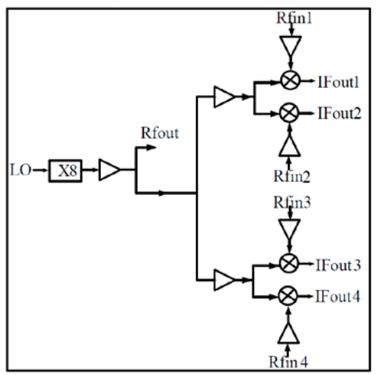
Model Number	Frequency (GHz)	Receive Gain (dB)	Transmit Gain (dB)	Receive Noise Figure (dB)	Transmit Power (dBm)	Control Level (V)
BE-DA-RFFE-N001	0.9~2.1	32*	32*	2.7*	15*	0/-5
BE-DA-RFFE-N002	1.0~1.6	9.5*	9.5*	3.7*	18.5*	-
BE-DA-RFFE-N003	1.2~1.4	22*	14*	3*	14*	0/-5
BE-DA-RFFE-N004	1.3~2.5	21*	21*	2.7*	3*	-
BE-DA-RFFE-N005	2.0~2.2	22*	22*	5.5*	16*	-
BE-DA-RFFE-N006	2~6	25*	13*	1.6*	15*	-
BE-DA-RFFE-N007	2~6	23*	13.5*	1.5*	16*	0/-5
BE-DA-RFFE-N008	2~6	13.9*	14*	2.6*	17*	0/-5
BE-DA-RFFE-N009	2~18	19*	18*	4*	10*	-
BE-DA-RFFE-N010	2~18	19*	19*	4*	7*	-
BE-DA-RFFE-N011	2.7~3.5	16*	22*	5.5*	15*	-
BE-DA-RFFE-N012	3.5~4.5	13*	13*	2.5*	16.5*	0/-5
BE-DA-RFFE-N013	4~7	29.5*	32.5*	2.7*	15*	0/-5
BE-DA-RFFE-N014	5~13	15*	15*	7*	21*	-
BE-DA-RFFE-N015	7~13	8.3*	8*	3.5*	17*	+5/0
BE-DA-RFFE-N016	7~13	16*	16*	5*	21*	-
BE-DA-RFFE-N017	8~12	19*	19*	2.2*	14*	0/-5
BE-DA-RFFE-N018	8~12	19.5*	-2*	3.8*	-	0/-5
BE-DA-RFFE-N019	8~12	-2.1*	18.5*	-	15.5*	0/-5
BE-DA-RFFE-N020	8~12	19*	19*	3.7*	17.5*	0/-5
BE-DA-RFFE-N021	8~12	18*	18.5*	4.5*	21*	0/-5
BE-DA-RFFE-N022	8~12	17*	19*	3.5*	14*	-
BE-DA-RFFE-N023	8.5~10.5	10*	8*	3*	21*	0/-5
BE-DA-RFFE-N024	8.8~10.4	15*	24*	2.5*	16*	0/-5
BE-DA-RFFE-N025	8.8~10.4	14*	-1.5*	3*	-	0/-5
BE-DA-RFFE-N026	8.8~10.4	15*	24*	2.2*	18*	0/-5
BE-DA-RFFE-N027	9~10	19*	23*	3.3*	20.5*	+5/0
BE-DA-RFFE-N028	9~11	9*	16*	4*	22*	-
BE-DA-RFFE-N029	9~11	19*	27*	3.6*	20.5*	0/-5
BE-DA-RFFE-N030	12~18	16*	18*	3.8*	21*	0/-5
BE-DA-RFFE-N031	12~18	16*	18*	3.8*	21*	0/-5
BE-DA-RFFE-N032	12~18	5.5*	7.8*	4*	≥11	0/-5
BE-DA-RFFE-N033	12~18	5.5*	7.8*	4*	≥11	0/-5
BE-DA-RFFE-N034	14~18	6.5*	17.5*	3.7*	22*	0/-5
BE-DA-RFFE-N035	15~17	26*	-5.5*	2.3*	-	0/-5
BE-DA-RFFE-N036	15~17	23*	26*	2.5*	17*	-
BE-DA-RFFE-N037	15~18	25*	25*	3.5*	12*	-
BE-DA-RFFE-N038	16~17	7.8*	7.8*	4*	18.5*	0/-5
BE-DA-RFFE-N039	16~17	7.6*	21*	4*	20*	0/-5
BE-DA-RFFE-N040	16~17	18.3*	21*	2.7*	20*	0/-5
BE-DA-RFFE-N041	17~21	16*	16*	3.6*	21*	-
BE-DA-RFFE-N042	19~23	23*	24*	2.8*	22*	+5/0
BE-DA-RFFE-N043	21~23	23*	28*	2.5*	13*	0/-5
BE-DA-RFFE-N044	21~23	23*	30*	2.5*	18*	0/-5
BE-DA-RFFE-N045	21~23	24*	23*	2.5*	18*	0/-5
BE-DA-RFFE-N046	32~38	16*	18*	5*	18	0/-5
BE-DA-RFFE-N047	32~40	10*	11*	6*	12*	+5/0
BE-DA-RFFE-N048	32~40	21*	25*	2.3*	24*	+5/0
BE-DA-RFFE-N049	32~40	-3*	11*	3*	13*	0/-5
BE-DA-RFFE-N050	32~40	-3*	11*	3*	13*	0/-5
BE-DA-RFFE-N051	32~40	12*	23*	5*	21*	-
BE-DA-RFFE-N052	33~37	11*	20*	5.5*	13*	0/-5
BE-DA-RFFE-N053	33~37	22*	22*	≤5	12*	+5/0
BE-DA-RFFE-N054	33~37	23*	12*	2.4*	15*	+5/0
BE-DA-RFFE-N055	33~37	23*	12*	2.4*	15*	+5/0

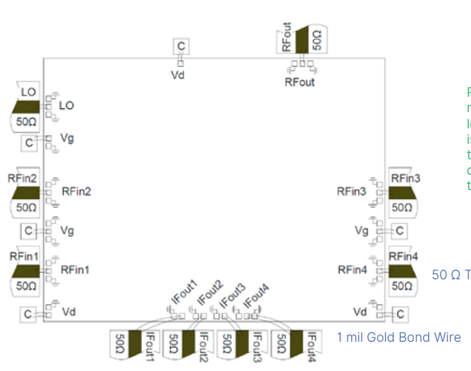
Available in bare die and module integration

DC to Millimeter-Wave Integrated Frequency Conversion Solutions

FRONT-END UPDOWN CONVERTER INTEGRATED MMIC

- Integrated RF front-end + frequency conversion (Up/Down)
- Covers broadband operation from IF to microwave/mmWave bands
- Combines mixer, LO path, amplification and control function
- Optimized for low conversion loss and high isolation
- Supports SPI / digital control (frequency, attenuation, mode switching)
- Designed for multi-channel and system-level integration





Remark : Bond wire length should be minimized and shall not exceed 200 µm. For longer interconnections, dual wire bonding is recommended. When the substrate thickness exceeds 200 µm, a molybdenum–copper (MoCu) spacer of appropriate thickness should be placed beneath the die.

50 Ω Transmission Line

1 mil Gold Bond Wire

BE-DA-FCFE-N017 as Example

BE-DA-FCFE Front-End Up/Down Converter Integrated MMIC

N-Series

Model Number	RF Frequency Range (GHz)	LO Frequency Range (GHz)	IF Frequency Range (GHz)	LO Drive Power (dBm)	Receive Gain (dB)	Receive Noise Figure (dB)	Receive LO-RF Isolation (dB)	Transmit Gain (dB)	Transmit P1dB (dBm)	Transmit LO-RF Isolation (dB)
BE-DA-FCFE-N001	1.8~2.5	1.5~3	0.2~0.8	-5~0	18*	-	≥62	14*	17*	≥10
BE-DA-FCFE-N002	1.8~2.5	1.5~3	0.2~0.8	-5~0	18*	-	≥62	14*	17*	≥10
BE-DA-FCFE-N003	2~4	1.5~5	0.01~0.8	-5~0	18*	7*	≥60	13*	15*	≥5
BE-DA-FCFE-N004	2~6	2~6	0.01~1	0	5*	-	40*	12*	13*	10*
BE-DA-FCFE-N005	4~8	3~9	0.2~2	-5~0	12*	11*	≥50	12*	3*	≥15
BE-DA-FCFE-N006	6~18	6~20	0.01~6	0	7*	-	≥41	7*	12*	≥4
BE-DA-FCFE-N007	8~12	9~15	1~3	0	5*	10*	≥50	5*	9*	≥5
BE-DA-FCFE-N008	8~12	8~15	2~3	-3.0	8*	5*	60*	8*	15*	10*
BE-DA-FCFE-N009	8~12	8~15	2~3	-3.0	8*	5*	60*	8*	15*	10*
BE-DA-FCFE-N010	10~18	3~9	2~6	0	38*	-	-	8*	8*	-
BE-DA-FCFE-N011	19~26	9.5~13	0.1~4	0	-8*	8*	35*	8*	4.5*	35*
BE-DA-FCFE-N012	20~25	20~25	0.01~4	-6.0	19*	-	36*	-	-	-
BE-DA-FCFE-N013	20~25	20~25	0.01~4	-6.0	19*	-	36*	-	-	-
BE-DA-FCFE-N014	34~38	34~38	0.01~2	-6.0	15*	-	32*	-	-	-
BE-DA-FCFE-N015	34~38	34~38	0.01~2	-6.0	15*	-	32*	-	-	-
BE-DA-FCFE-N016	34~38	8.5~9.5	0.01~2	5	14*	5*	60*	10*	-	60*
BE-DA-FCFE-N017	75~80	9.3~10	0.01~3	5-10	9*	-	-	8*	-	-
BE-DA-FCFE-N018	24~28	13~17	2~5	-5~5	10*	-	40*	10*	17*	30*

Available in bare die and module integration

DC to 38 GHz Integrated Amplitude & Phase Control Solutions

AMPLITUDE & PHASE CONTROL INTEGRATED MMIC

BE-DA-AMPC Amplitude & Phase Control Integrated MMIC

B-Series

Model Number	Frequency (GHz)	Receive Gain (dB)	Transmit Gain (dB)	P1dB (dBm)	Function Description
BE-DA-AMPC-B001	0.8~2	-17.5	0.5	15.5	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B002	1.2~1.4	5.0	18	25	Amplitude and phase control multi-function chip, internally integrated amplifier, switch, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, parallel control
BE-DA-AMPC-B003	2.7~3.5	-8.0	5	19	Amplitude and phase control multi-function chip, internally integrated amplifier, switch, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, parallel control
BE-DA-AMPC-B004	2~6	10.5	24	18	Dual-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B005	5~6	5.5	20.3	24	Single-channel amplitude and phase control multi-function chip, internally integrated gain module, switch and drive circuit, 6-bit digital control attenuator, 6-bit digital control phase shifter, parallel control
BE-DA-AMPC-B006	5~9	6	11	20	Dual-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B007	5~13	-1	6	19	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B008	6~18	-1	0	13	Dual-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B009	6~18	2	2	13	Amplitude and phase control multi-function chip, internally integrated amplifier, switch, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, parallel control
BE-DA-AMPC-B010	7~13	-2	18	24	Amplitude and phase control multi-function chip, internal integrated amplifier, switch, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B011	8~12	-2	1	10	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B012	8~12	-2	10	21	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B013	8~12	12.5	13.5	14	Amplitude and phase control multi-function chip, internally integrated amplifier, switch, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial-to-parallel conversion, etc.
BE-DA-AMPC-B014	8~18	-1	5	18.5	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B015	8.5~11.5	12.5	13.5	14	Amplitude and phase control multi-function chip, internally integrated amplifier, switch, 6-bit digital control attenuator, 6-bit digitally controlled phase shifter, serial-to-parallel conversion, etc.
BE-DA-AMPC-B016	14~18	2	10	16.5	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B017	14~18	9.0	23	-	Amplitude and phase control multi-function chip, internally integrated amplifier, switch, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, parallel control
BE-DA-AMPC-B018	14~18	21	21	27	It internally integrates six digitally controlled phase shifters, six digitally controlled attenuators, gain modules, switches, power dividers, serial-to-parallel conversion and power modulation circuits.
BE-DA-AMPC-B019	21.4~24.4	21	27	24.5	It internally integrates six digitally controlled phase shifters, six digitally controlled attenuators, gain modules, switches, power dividers, serial-to-parallel conversion and power modulation circuits.
BE-DA-AMPC-B020	24~28	16	22	25	Integrate six digitally controlled phase shifters, six digitally controlled attenuators, gain modules, power dividers, serial-to-parallel conversion and power modulation circuits. Realize the phase shifting and attenuation functions in the transmitting and receiving state.
BE-DA-AMPC-B021	32~38	8	3	12	Single-channel amplitude and phase control multi-function chip, internally integrated six-bit phase shifter, six-bit attenuator, drive amplifier, parallel control
BE-DA-AMPC-B022	32~38	19	20	23	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B023	32~38	18.5	22	25	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control
BE-DA-AMPC-B024	32~38	22	24	27	Four-channel amplitude and phase control multi-function chip, internally integrated gain module, switch, power divider, serial-to-parallel conversion, power modulation, 6-bit digitally controlled attenuator, 6-bit digitally controlled phase shifter, serial control

BE-DA-AMPC Amplitude & Phase Control Integrated MMIC

N-Series

Model Number	Frequency (GHz)	Receive Gain (dB)	Transmit Gain (dB)	Transmit P1dB (dBm)	Number of Phase Shifts	Phase Shift Accuracy RMS (°)	Number of Attenuation Bits	Attenuation Accuracy (dB)
BE-DA-AMPC-N001	1.9~2.3	-	≥15	≥18	6	2	6	0.4
BE-DA-AMPC-N002	2~13	0	0	15*	1	4	0	0
BE-DA-AMPC-N003	2~18	≥0	≥0	≥10	6-Bit TTD	-	-	-
BE-DA-AMPC-N004	2~18	2*	2*	11*	5-BitTTD	3ps	5	1.5
BE-DA-AMPC-N005	2~18	5*	5*	14*	7	5	0	0
BE-DA-AMPC-N006	2~18	4*	4*	14*	7	5	0	0
BE-DA-AMPC-N007	2.7~3.5	-7.5*	4.5*	20*	6	2	6	0.3
BE-DA-AMPC-N008	3.7~4.2	14*	14*	18*	6	2	5	0.3
BE-DA-AMPC-N009	4~12	7*	-	3*	6	4.5	6	0.6
BE-DA-AMPC-N010	4~12	7*	-	3*	6	4.5	6	0.6
BE-DA-AMPC-N011	4.4~5.0	14*	15*	19*	6	2.5	5	0.2
BE-DA-AMPC-N012	5~6	5*	-6*	-	6	2.5	6	1
BE-DA-AMPC-N013	5~6	8*	9*	14*	6	3	6	0.5
BE-DA-AMPC-N014	5~6	8*	9*	14*	6	3	6	0.5
BE-DA-AMPC-N015	5~6	4*	7*	9*	6	3	6	0.3
BE-DA-AMPC-N016	5~6	10*	17*	23*	6	3	6	0.6
BE-DA-AMPC-N017	5~6	12*	16*	23*	6	3	6	0.5
BE-DA-AMPC-N018	5~6	12*	16*	23*	6	3	6	0.5
BE-DA-AMPC-N019	5~6	-2.5	9.5*	18*	6	3	6	0.3
BE-DA-AMPC-N020	5~6	10.5	16*	23*	6	2	6	0.5
BE-DA-AMPC-N021	5~6	10.5	16*	23*	6	2	6	0.5
BE-DA-AMPC-N022	5~6	11*	1.9*	22*	6	3	6	0.5
BE-DA-AMPC-N023	5~7	16.5*	-	-	6	2	-	-
BE-DA-AMPC-N024	5~7	16.5*	-	-	6	2	-	-
BE-DA-AMPC-N025	6~18	7*	23*	26*	6	4	6	1
BE-DA-AMPC-N026	6~18	9*	9*	11*	6	10ps	0	0
BE-DA-AMPC-N027	6~18	9*	9*	11*	6	10ps	0	0
BE-DA-AMPC-N028	6~18	12*	13*	17*	7	2.5ps	0	0
BE-DA-AMPC-N029	6~18	-3*	-3*	13*	4	76.8ps	0	0
BE-DA-AMPC-N030	7.6~11.6	-2*	9*	15*	2.5	5	1	0.2
BE-DA-AMPC-N031	8~12	7.5*	1*	7.5*	6	3	6	0.5
BE-DA-AMPC-N032	8~12	≥9	≥3	≥7.5*	6-Bit TTD	10	6	1.5
BE-DA-AMPC-N033	8~12	9	10	12*	6	3	6	1.2
BE-DA-AMPC-N034	8~12	9	10	12*	6	3	6	1.2
BE-DA-AMPC-N035	8~12	8	10	12*	6	3	6	1
BE-DA-AMPC-N036	8~12	9	10	12*	6	3.5	6	1
BE-DA-AMPC-N037	8~12	-	11*	19*	6	3	-	-
BE-DA-AMPC-N038	8~12	0*	11*	-6*	6	10	-	-
BE-DA-AMPC-N039	8~12	12*	18*	23*	6	3	6	1
BE-DA-AMPC-N040	8~12	15*	19*	23*	6	2	6	0.7
BE-DA-AMPC-N041	8~12	17*	24*	15*	3	5	0	0
BE-DA-AMPC-N042	8~18	3.5*	4*	13.5*	3	5	0	0
BE-DA-AMPC-N043	8~18	3.5*	4*	13.5*	3	5	0	0
BE-DA-AMPC-N044	10~18	7*	21*	22*	6	3	6	0.8
BE-DA-AMPC-N045	12~18	10.5*	16*	22*	6	3	6	0.6
BE-DA-AMPC-N046	12~18	4*	3*	10*	4-BitTTD	5	-	-
BE-DA-AMPC-N047	14~18	3*	1.5*	3*	6	2	4	0.2
BE-DA-AMPC-N048	14~18	3*	1.5*	3*	6	2	4	0.2
BE-DA-AMPC-N049	14~18	15*	15*	20.5*	6	4	6	0.7
BE-DA-AMPC-N050	14~18	15*	15*	20.5*	6	4	6	0.7
BE-DA-AMPC-N051	14.4~18	10*	9*	13*	6	3	6	0.5
BE-DA-AMPC-N052	17.7~21.2	5*	5*	-23*	1	10	-	-
BE-DA-AMPC-N053	17.7~21.2	-6*	-	-	7-BitTTD	3ps	-	-
BE-DA-AMPC-N054	17.7~21.2	-6*	-	-	7-BitTTD	3ps	-	-
BE-DA-AMPC-N055	19~23	0.5*	0.5*	3*	6	3	5	0.5
BE-DA-AMPC-N056	19.5~23	9*	9*	3*	6	3.5	5	0.4

Series 3 - Core AMPC (Phase + Attenuator)

BE-DA-AMPC Amplitude & Phase Control Integrated MMIC

N-Series(Digital Phase-Shifter & Attenuator)

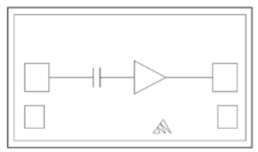
Model Number	Frequency (GHz)	Insertion Loss (dB)	Number of Attenuation Bits	Attenuation Range (dB)	Number of Phase Shifts	Phase Shift Range (°)
BE-DA-AMPC-NA001	1.2~1.4	≤6	4	0.5~7.5	6	5.6-354.3
BE-DA-AMPC-NA002	1.9~2.3	10*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA003	1.9~2.5	16*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA004	2.0~2.5	5.2*	4	0.5~7.5	6	5.6-354.3
BE-DA-AMPC-NA005	2.0~2.5	5*	-	-	6	5.6-354.3
BE-DA-AMPC-NA006	2.0~2.5	5.5*	5	0.5~15.5	5	11.2-348.7
BE-DA-AMPC-NA007	2.0~2.5	5.5*	5	0.5~15.5	5	11.2-348.7
BE-DA-AMPC-NA008	2.0~2.6	8.5*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA009	2~6	-5*	0	0	7	10-1270
BE-DA-AMPC-NA010	2.7~3.5	3*	6	0.5~31.5	-	-
BE-DA-AMPC-NA011	3.5~4.5	11*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA012	5~6	6*	5	0.5~15.5	5	11.2-348.7
BE-DA-AMPC-NA013	5~6	6*	5	0.5~15.5	5	11.2-348.7
BE-DA-AMPC-NA014	5~6	9*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA015	5~7	4*	4	0~3.75	4	0-42.2
BE-DA-AMPC-NA016	5.0~7.5	13*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA017	5.9~7.4	≤8	4	0.5~7.5	6	5.6-354.3
BE-DA-AMPC-NA018	6.0~7.5	12*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA019	7.0~8.5	11.5*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA020	7.0~8.5	11.5*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA021	7~13	14*	1	-	-	-
BE-DA-AMPC-NA022	7~13	14*	1	-	-	-
BE-DA-AMPC-NA023	8~12	13*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA024	8~12	13*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA025	8~12	12.5*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA026	8.5~10.5	3*(Gain)	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA027	8.5~10.5	3*(Gain)	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA028	8.8~10	8*	-	-	5	11.2-348.7
BE-DA-AMPC-NA029	8.8~10	8*	-	-	5	11.2-348.7
BE-DA-AMPC-NA030	9.2~9.8	3*(Gain)	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA031	11~13	9*	2	0.25~0.75	6	5.6-354.3
BE-DA-AMPC-NA032	11~13	11*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA033	13~15	11*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA034	13~17	≤10.5	-	-	5	11.2-348.7
BE-DA-AMPC-NA035	14.4~18	6*	6	31.5	6	5.6-354.3
BE-DA-AMPC-NA036	14.4~18	6*	6	31.5	6	5.6-354.3
BE-DA-AMPC-NA037	15~18	≤16	6	0.5~31.5	6	5.6-354.3(Two way)
BE-DA-AMPC-NA038	18~22	11*	5	0~15.5	6	5.6-354.3
BE-DA-AMPC-NA039	18~22	11*	5	0~15.5	6	5.6-354.3
BE-DA-AMPC-NA040	18~24	6.5*	4	1~15	-	-
BE-DA-AMPC-NA041	18.5~21	14*	-	-	6	5.6-354.3
BE-DA-AMPC-NA042	19~21	15*	5	0~15.5	6	0-354.375
BE-DA-AMPC-NA043	19~23	≤13	5	0.5~15.5	6	5.6-354.3
BE-DA-AMPC-NA044	19~23	≤13	5	0.5~15.5	6	5.6-354.3
BE-DA-AMPC-NA045	19~23	12*	5	0.5~15.5	6	5.6-354.3
BE-DA-AMPC-NA046	19~23	13.5*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA047	19~23.5	10*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA048	19~23.5	10*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA049	19.4~21.2	12*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA050	19.4~21.2	12*	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA051	19.6~21.2	15*	-	-	6	5.6-354.3(four way)
BE-DA-AMPC-NA052	21~23	19*	4	1~11	6	5.6-354.3
BE-DA-AMPC-NA053	21~25	3*	6	0.5	6	354.375
BE-DA-AMPC-NA054	22~24	12*	5	0.5~15.5	6	5.6-354.3
BE-DA-AMPC-NA055	22~27	16*	-	-	6	5.6-354.3(four way)
BE-DA-AMPC-NA056	24~26	12.5*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA057	24~26	12.5*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA058	25.2~26.5	≤13	-	-	6	5.6-354.3
BE-DA-AMPC-NA059	26~32	6*	4	1~15	-	-
BE-DA-AMPC-NA060	29~32	≤14	6	0.5~31.5	6	5.6-354.3
BE-DA-AMPC-NA061	29~32	11*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA062	29~32	11*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA063	29~32	≤13	5	0.5~15.5	6	5.6-354.3
BE-DA-AMPC-NA064	30.5~33.5	14*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA065	30.5~33.5	14*	-	-	6	5.6-354.3(Two way)
BE-DA-AMPC-NA066	33~37	13*	6	0.5~23.5	6	5.6-354.3
BE-DA-AMPC-NA067	33~37	10*	6	23.5	6	0-360

Available in bare die and module integration

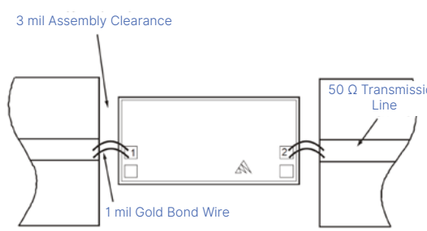
DC to 40 GHz • GaAs & SiGe Technologies

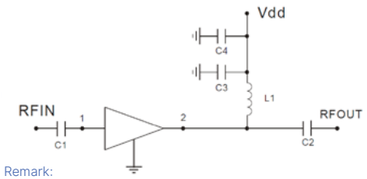
MIXERS MMIC

- General-purpose broadband gain blocks
- Flat gain across wide frequency range
- Good linearity and stability
- Technologies: GaAs pHEMT & SiGe
- Designed for cascaded amplification stages



Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed





Remark:
DC blocking capacitors are required at the input and output ports
The chip backside must be properly grounded

BE-DA-GBA-B013 as Example

GaAs Gain Block Amplifiers - Wideband • RF Performance • Stable

- Broadband coverage
- Good gain flatness

SiGe Gain Block Amplifiers - Cost-Effective • Low Power • High Volume

- Lower power consumption
- Highly consistent performance

Passive Double-Balanced Mixers MMIC

BE-DA-DBM Passive Double-Balanced Mixers MMIC

B-Series

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	P1dB (dBm)	Local Oscillator Power (dBm)
BE-DA-DBM-B001	0.5~2	0.01~1	8.0	50	38	15	12	13
BE-DA-DBM-B002	0.6~2.4	0.01~1.3	8.0	45	35	15	13	13
BE-DA-DBM-B003	0.8~3.2	0.01~1.4	8.0	50	40	15	11	13
BE-DA-DBM-B004	1~4	0.01~2	8.0	50	37	15	12	14
BE-DA-DBM-B005	1.5~4.5	0.01~2.5	7.5	40	30	15	11	13
BE-DA-DBM-B006	2~6	0.01~3	7.5	40	32	15	11	13
BE-DA-DBM-B007	2.5~8	0.01~4	8.0	35	30	15	11	13
BE-DA-DBM-B008	3.5~7	0.01~3	9.0	45	40	15	11	13
BE-DA-DBM-B009	4~8	0.01~3	7.0	42	30	15	11	13
BE-DA-DBM-B010	4~8	0.01~3	7.5	45	48	15	12	13
BE-DA-DBM-B011	4~12	0.01~4	8.5	50	42	25	13	14
BE-DA-DBM-B012	5~12	0.01~5	8.0	48	40	15	12	13
BE-DA-DBM-B013	6~18	0.01~7	8.0	45	40	20	12	14
BE-DA-DBM-B014	6~18	0.01~6	8.0	35	25	15	11	13
BE-DA-DBM-B015	7~14	0.01~5	8.0	45	50	15	12	14
BE-DA-DBM-B016	7~15	0.01~4.5	8.0	38	32	14	11	13
BE-DA-DBM-B017	10~20	0.01~6	8.0	32	30	15	13	13
BE-DA-DBM-B018	10~20	0.01~6	8.0	45	50	15	12	14
BE-DA-DBM-B019	14~26	0.01~6	8.0	45	40	20	11	14
BE-DA-DBM-B020	18~32	0.01~10	8.5	44	42	30	12.5	14
BE-DA-DBM-B021	27~52	0.01~20	10	20	18	-	10	13

BE-DA-DBM Passive Double-Balanced Mixers MMIC

B-Series (High-Linearity & Wideband Mixer)

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	Local Oscillator Power (dBm)	Downconversion :P1dB (dBm)	Upconversion :P1dB (dBm)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)
BE-DA-DBM-BW001	1.6~9	0.01~1.5	12	18	14	50	40	30
BE-DA-DBM-BW002	1.6~9	0.01~1.5	16	18	14	50	40	30
BE-DA-DBM-BW003	3~12	0.01~3	12	12.5	9	60	40	30
BE-DA-DBM-BW004	3~12	0.01~4	16	20	15	60	40	30
BE-DA-DBM-BW005	4~18	0.01~4.5	12	12.5	9	60	40	30
BE-DA-DBM-BW006	4~18	0.01~4.5	16	18	15	60	40	30
BE-DA-DBM-BW007	5~24	0.01~5	12	12.5	9	60	40	30
BE-DA-DBM-BW008	5~24	0.01~5	16	18	15	60	40	30
BE-DA-DBM-BW009	6~30	0.01~6.5	12	12.5	9	60	40	30
BE-DA-DBM-BW010	6~30	0.01~6.5	16	18	14	60	40	30
BE-DA-DBM-BW011	4~16	0.01~5	12	13	9	65	45	30
BE-DA-DBM-BW012	4~16	0.01~5	16	16	14	65	45	30
BE-DA-DBM-BW013	15~30	0.01~18	12	12.5	11.5	50	40	30
BE-DA-DBM-BW014	15~30	0.01~18	16	15	14	50	40	30
BE-DA-DBM-BW015	10~40	0.01~14	13	12.5	10	50	45	-
BE-DA-DBM-BW016	10~35	0.01~14	16	15	10	48	45	30

BE-DA-DBM Passive Double-Balanced Mixers MMIC

B-Series(High IP3)

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	OIP3 (dBm)	Frequency Conversion Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	P1dB (dBm)	LO Power (dBm)
BE-DA-DBM-BA001	0.7~2.2	0.01~0.8	25	8.5	47	35	11	17	19
BE-DA-DBM-BA002	3.5~7	0.01~3	24	8.5	52	48	12	18	19
BE-DA-DBM-BA003	7~14	0.01~5	24	8.0	45	38	20	18	19
BE-DA-DBM-BA004	12~18	0.01~6	26	8.5	41	37	23	15	19

BE-DA-DBM Passive Double-Balanced Mixers MMIC

N-Series

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	Local Oscillator Power (dBm)
BE-DA-DBM-N001	0.4~1.2	0.01~0.5	10*	≥48	≥41	≥12	13*
BE-DA-DBM-N002	0.4~1.2	0.01~0.5	10*	≥48	≥41	≥12	13*
BE-DA-DBM-N003	0.7~1.7	0.01~0.5	≤9.5	≥46	≥41	≥14	13*
BE-DA-DBM-N004	0.7~1.7	0.01~0.5	≤9.5	≥46	≥41	≥14	13*
BE-DA-DBM-N005	1~4	0.01~1	≤10	≥40	≥27	≥14	13*
BE-DA-DBM-N006	1~4	0.01~1	≤10	≥40	≥27	≥14	13*
BE-DA-DBM-N007	1~4	0.01~2	8*	45*	10*	30*	0*
BE-DA-DBM-N008	1~4	0.01~2	8*	45*	10*	30*	0*
BE-DA-DBM-N009	1.5~4.5	0.01~1.5	≤8.5	≥36	≥31	≥15	13*
BE-DA-DBM-N010	1.5~4.5	0.01~1.5	≤8.5	≥36	≥31	≥15	13*
BE-DA-DBM-N011	1.5~6.0	0.01~3.5	8*	45*	18*	30*	13*
BE-DA-DBM-N012	1.5~6.0	0.01~3.5	8*	45*	18*	30*	13*
BE-DA-DBM-N013	1.8~5.0	0.01~2	≤9	≥40	≥26	≥12	13*
BE-DA-DBM-N014	1.8~5.0	0.01~2	≤9	≥40	≥26	≥12	13*
BE-DA-DBM-N015	1.9~2.2	0.2	≤9	≥40	≥32	≥12	8*
BE-DA-DBM-N016	2~22	0.01~4	9.5*	40*	20*	30*	15*
BE-DA-DBM-N017	2~22	0.01~4	9.5*	40*	20*	30*	15*
BE-DA-DBM-N018	2.5~7.0	0.01~2.5	≤8.5	≥30	≥23	≥13	13*
BE-DA-DBM-N019	2.5~7.0	0.01~2.5	≤8.5	≥30	≥23	≥13	13*
BE-DA-DBM-N020	2.5~10	0.01~3	8*	40*	45*	20*	13*
BE-DA-DBM-N021	2.5~10	0.01~3	8*	40*	45*	20*	13*
BE-DA-DBM-N022	3~8	0.01~3	≤8.5	≥34	≥23	≥12	13*
BE-DA-DBM-N023	3~10	0.01~4	8*	50*	55*	15*	17*
BE-DA-DBM-N024	3~10	0.01~4	8*	50*	55*	15*	17*
BE-DA-DBM-N025	3~12	0.01~5	9*	50*	25*	15*	15*
BE-DA-DBM-N026	3~12	0.01~5	9*	50*	25*	15*	15*
BE-DA-DBM-N027	4~10	0.01~4	≤9	≥32	≥21	≥14	13*
BE-DA-DBM-N028	4.5~10.5	0.01~5	≤10	≥40	≥35	≥18	10*
BE-DA-DBM-N029	5~13	0.01~6	8*	40*	40*	15*	13*
BE-DA-DBM-N030	5~13	0.01~6	8*	40*	40*	15*	13*
BE-DA-DBM-N031	5~36	0.01~10	9*	40*	25*	15*	15*
BE-DA-DBM-N032	5~36	0.01~10	9*	40*	25*	15*	15*
BE-DA-DBM-N033	6~15.5	0.01~7	≤10.5	≥35	≥32	≥12	13*
BE-DA-DBM-N034	6~18	0.01~6	≤9.5	≥35	≥25	≥11	13*
BE-DA-DBM-N035	6~18	0.01~6	≤9.5	≥35	≥25	≥11	13*
BE-DA-DBM-N036	6~20	0.01~6	≤9	≥34	≥25	≥12	13*
BE-DA-DBM-N037	6~20	0.01~7	9*	45*	15*	25*	14*
BE-DA-DBM-N038	6~20	0.01~7	9*	45*	15*	25*	14*
BE-DA-DBM-N039	7~13	0.01~3.5	8*	40*	55*	35*	16*
BE-DA-DBM-N040	7~13	0.01~3.5	8*	40*	55*	35*	16*
BE-DA-DBM-N041	7~14	0.01~3	≤9	≥25	≥30	≥18	13*
BE-DA-DBM-N042	7~14	0.01~3	≤9	≥25	≥30	≥18	13*
BE-DA-DBM-N043	7~25	0.01~6	≤9	≥32	≥23	≥9	13*
BE-DA-DBM-N044	7~25	0.01~6	≤9	≥32	≥23	≥9	13*
BE-DA-DBM-N045	8~18	0.01~3	9*	30*	40*	50*	17*
BE-DA-DBM-N046	10~20	0.01~8	≤9.5	≥26	≥16	≥10	13*
BE-DA-DBM-N047	10~20	0.01~8	≤9.5	≥26	≥16	≥10	13*
BE-DA-DBM-N048	10~44	0.01~18	10*	40*	25*	20*	15*
BE-DA-DBM-N049	10~44	0.01~18	10*	40*	25*	20*	15*
BE-DA-DBM-N050	11~20	0.1~6	10*	40*	35*	20*	13*
BE-DA-DBM-N051	12~22	0.01~3	9*	35*	40*	45*	17*
BE-DA-DBM-N052	12~28	0.01~14	10*	50*	50*	10*	15*
BE-DA-DBM-N053	12~28	0.01~14	10*	50*	50*	10*	15*
BE-DA-DBM-N054	13~28	0.01~10	≤10	≥25	≥15	≥8	13*
BE-DA-DBM-N055	13~28	0.01~10	≤10	≥25	≥15	≥8	13*
BE-DA-DBM-N056	14~34	0.01~10	≤10.8	≥35	≥30	≥8	13*
BE-DA-DBM-N057	14~34	0.01~10	≤10.8	≥35	≥30	≥8	13*
BE-DA-DBM-N058	14~37	0.01~9	≤10	≥30	≥35	≥16	13*
BE-DA-DBM-N059	15~30	0.01~10	≤10	≥23	≥15	≥9	13*
BE-DA-DBM-N060	15~30	0.01~10	≤10	≥23	≥15	≥9	13*
BE-DA-DBM-N061	18~50	0.01~16	≤11	≥25	≥23	≥10	15*
BE-DA-DBM-N062	18~50	0.01~16	≤11	≥25	≥23	≥10	15*
BE-DA-DBM-N063	RF: 20~26, LO: 24~40	2~18	8*	25*	35*	10*	13*
BE-DA-DBM-N064	RF: 20~26, LO: 24~40	2~18	8*	25*	35*	10*	13*
BE-DA-DBM-N065	24~40	0.01~8	≤10	≥24	≥32	≥13	13*
BE-DA-DBM-N066	24~40	0.01~8	≤10	≥24	≥32	≥13	13*
BE-DA-DBM-N067	40~75	0.01~12	9*	25*	15*	15*	13*
BE-DA-DBM-N068	40~75	0.01~12	9*	25*	15*	15*	13*
BE-DA-DBM-N069	52~66	0.01~8	≤9	32*	20*	30*	12*
BE-DA-DBM-N070	52~66	0.01~8	≤9	32*	20*	30*	12*
BE-DA-DBM-N071	75~110	0.1~30	8*	20*	25*	25*	13*
BE-DA-DBM-N072	210~220	0.01~10	10*	-	-	-	8*
BE-DA-DBM-N073	210~220	0.01~10	10*	-	-	-	8*

Double Balanced Mixers With Local Oscillator Driver MMIC

BE-DA-LODBM Double Balanced Mixers With Local Oscillator Driver MMIC

N-Series

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	P1dB (dBm)	Local Oscillator Power (dBm)
BE-DA-LODBM-N001	0.5~2	0.01~0.5	9	30	22	20	10	-5
BE-DA-LODBM-N002	0.9~3	0.01~1	8.5	22	23	33	13	0
BE-DA-LODBM-N003	2~6	0.01~1.5	8	20	35	50	12	-10~-8
BE-DA-LODBM-N004	2~6	0.01~2.5	8	40W	25	20	10	0
BE-DA-LODBM-N005	RF: 3~11, LO: 7~12	0.01~5	8	40	40	15	13	0
BE-DA-LODBM-N006	RF: 4~10, LO: 6~12	0.01~3.5	8	25	15	15	13	0
BE-DA-LODBM-N007	RF: 5~15, LO: 6~18	0.01~6	8	25	30	28	12	0~5
BE-DA-LODBM-N008	6~18	0.01~8	8	25	30	30	10	0~5
BE-DA-LODBM-N009	6~20	0.01~6	8	30	32	35	10	-3~3
BE-DA-LODBM-N010	6~20	0.01~8	8	20	20	30	14	-8
BE-DA-LODBM-N011	32~40	0.01~2.5	10	15	20	20	8	-5

I/Q Mixers MMIC

BE-DA-IQM I/Q Mixers MMIC

B-Series

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Loss (dB)	Image Rejection (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	P1dB (dBm)	Local Oscillator Power (dBm)
BE-DA-IQM-B001	1~1.5	0.01~0.5	8.0	30	50	17	12	16
BE-DA-IQM-B002	2~3	0.01~1	8.0	28	42	18	13	17
BE-DA-IQM-B003	2.5~3.7	0.01~1.2	8.0	25	37	15	14	17
BE-DA-IQM-B004	2.5~6.5	0.01~3	9.0	20	35	20	14	17
BE-DA-IQM-B005	2.8~4.2	0.01~1	8.0	32	55	17	14	16
BE-DA-IQM-B006	3.5~7	0.01~3	8.0	23	33	15	14	17
BE-DA-IQM-B007	6~18	0.01~3.5	9.0	20	25	40	14	17
BE-DA-IQM-B008	8~12	0.01~4.5	8.0	30	37	15	14	17
BE-DA-IQM-B009	10~20	0.01~4	8.5	25	32	20	14	17

BE-DA-IQM I/Q Mixers MMIC

N-Series

Model Number	RF&LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Loss (dB)	Image Rejection (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	Local Oscillator Power (dBm)
BE-DA-IQM-N001	0.4~0.8	0.01~0.5	10*	25*	45*	15*	40*	16*
BE-DA-IQM-N002	0.8~2.5	0.01~1	9*	28*	45*	45*	35*	16*
BE-DA-IQM-N003	1~2	0.01~0.7	9*	25*	50*	20*	36*	15*
BE-DA-IQM-N004	1~4	0.01~1.5	10*	30*	50*	50*	35*	18*
BE-DA-IQM-N005	2~3	0.01~1	9*	25*	55*	33*	s	15*
BE-DA-IQM-N006	2~18	0.01~5	10*	25*	40*	25	20*	20*
BE-DA-IQM-N007	2.5~4	0.01~1	9*	30*	45*	23*	30*	15*
BE-DA-IQM-N008	3~6.5	0.01~3.5	7*	30*	45*	20*	30*	16*
BE-DA-IQM-N009	3~8.5	0.01~3.5	7*	25*	45*	30*	45*	16*
BE-DA-IQM-N010	3.9~6.2	0.01~1.5	8*	35*	48*	26*	43*	15*
BE-DA-IQM-N011	6~10	0.01~3.5	8*	35*	45*	20*	35*	15*
BE-DA-IQM-N012	6~12	0.01~3.5	7*	35*	25*	35*	40*	15*
BE-DA-IQM-N013	6~32	0.01~10	10*	25*	45*	25*	25*	20*
BE-DA-IQM-N014	7~22	0.01~7	9*	25*	28*	-	-	0*
BE-DA-IQM-N015	7~22	0.01~7	10*	25*	50*	-	-	15*
BE-DA-IQM-N016	7~22	1.7~2.8	11*	25*	28*	28*	32*	0*
BE-DA-IQM-N017	7~22	1.7~2.8	11*	25*	28*	28*	32*	0*
BE-DA-IQM-N018	8~12	0.01~2	9*	25*	44*	48*	38*	15*
BE-DA-IQM-N019	8~12	0.01~3.5	7*	40*	42*	22*	35*	15*
BE-DA-IQM-N020	8~12	0.01~3.5	7*	35*	35*	10*	35*	0*
BE-DA-IQM-N021	12~18	0.01~3.5	7*	25*	30*	25*	35*	13*
BE-DA-IQM-N022	11~28	0.01~3.5	10*	35*	55*	40*	25*	16*
BE-DA-IQM-N023	12~36	0.01~5	10*	35*	50*	25*	25*	16*
BE-DA-IQM-N024	RF: 14~17, LO: 17~20	3~4	12*	25*	48*	27*	15*	13*
BE-DA-IQM-N025	14~32	0.01~6	10*	35*	40*	25*	15*	16*
BE-DA-IQM-N026	15~23	0.01~3	9*	20*	30*	10*	25*	15*
BE-DA-IQM-N027	20~36	0.01~8	9*	25*	35*	20*	30*	16*
BE-DA-IQM-N028	25~33	0.01~5	10*	35*	40*	20*	30*	17*
BE-DA-IQM-N029	26~38	0.01~8	9*	28*	40*	15*	40*	16*
BE-DA-IQM-N030	27~42	0.01~8	8*	35*	40*	35*	35*	16*
BE-DA-IQM-N031	RF: 30~40, LO: 15~20	0.01~4	9*	25*	30*	25*	25*	13*
BE-DA-IQM-N032	RF: 30~40, LO: 15~20	0.01~4	9*	25*	18*	-	-	0*
BE-DA-IQM-N033	RF: 30~40, LO: 15~20	1.6~2.4	11.5*	25*	20*	40*	22*	0*
BE-DA-IQM-N034	RF: 30~40, LO: 15~20	1.6~2.4	11.5*	25*	20*	40*	22*	0*
BE-DA-IQM-N035	30~66	0.01~8	10*	25*	35*	15*	15*	16*
BE-DA-IQM-N036	32~46	0.01~7	11*	30*	30*	20*	35*	16*
BE-DA-IQM-N037	52~66	0.01~8	9*	22*	32*	20*	30*	16*

Harmonic Mixers MMIC

BE-DA-HAM Harmonic Mixers MMIC

N-Series

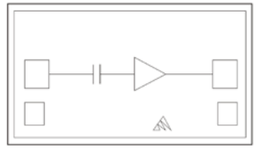
Model Number	RF Frequency (GHz)	LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Loss (dB)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	Local Oscillator Power (dBm)	Voltage (V)
BE-DA-HAM-N001	14~32	7~16	0.01~5	10	0	0	15	2	5
BE-DA-HAM-N002	16~36	8~18	0.5~3	(Gain 2 dB)	-2	0	30	2	3.5
BE-DA-HAM-N003	20~30	10~15	0.01~5	10	0	6	15	2	5
BE-DA-HAM-N004	24~50	12~25	0.01~5	10	6	4	18	2	3.5

Available in bare die and module integration

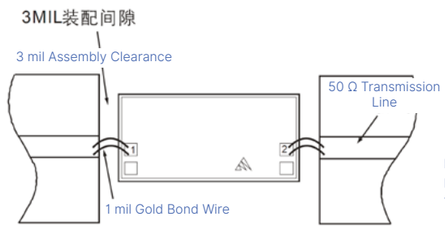
DC to 40 GHz • GaAs & SiGe Technologies

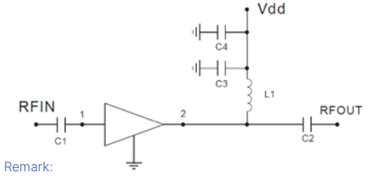
FREQUENCY CONVERTERS MMIC

- General-purpose broadband gain blocks
- Flat gain across wide frequency range
- Good linearity and stability
- Technologies: GaAs pHEMT & SiGe
- Designed for cascaded amplification stages



Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed





Remark:
DC blocking capacitors are required at the input and output ports
The chip backside must be properly grounded

BE-DA-GBA-B013 as Example

GaAs Gain Block Amplifiers - Wideband • RF Performance • Stable

- Broadband coverage
- Good gain flatness

SiGe Gain Block Amplifiers - Cost-Effective • Low Power • High Volume

- Lower power consumption
- Highly consistent performance

Downconverter MMIC

BE-DA-DNC Downconverter MMIC

N-Series

Model Number	RF Frequency (GHz)	LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Gain (dB)	P1dB (dBm)	OIP3 (dBm)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	Local Oscillator Power (dBm)
BE-DA-DNC-N001	1.8~3.7	2.3~3.2	0.4~0.5	10	9	15.5	46	24	15	0
BE-DA-DNC-N002	3~4	3~5.8	0.05~1.8	2	3.7	7.5	56	26	-	3
BE-DA-DNC-N003	8~10	8~10	0.01~1.0	16	-11	-	55	35	32	-3
BE-DA-DNC-N004	8~12	10~16	2~4	3	16	-	≥17	≥20	≥13	0
BE-DA-DNC-N005	9~10	9~10	0.01~0.6	29	≥3.5	-	≥65	≥35	≥20	-3~0
BE-DA-DNC-N006	10~18	10~18	0.8~1.2	5	12	-	-	-	-	-3~3
BE-DA-DNC-N007	12~16	8~14	1.5~4	23	9	-	45	40	5	-10~15
BE-DA-DNC-N008	16~18	16~18	0.2~1	2.5	-	-	27	-	-	-15~-13

Upconverter MMIC

BE-DA-UPC Upconverter MMIC

N-Series

Model Number	RF Frequency (GHz)	LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Gain (dB)	Noise Figure (dB)	P1dB (dBm)	OIP3 (dBm)	LO-RF Isolation (dB)	LO-IF Isolation (dB)	RF-IF Isolation (dB)	Local Oscillator Power (dBm)
BE-DA-UPC-B001	3~4	3~5.8	0.05~1.8	5	11.8	7.7	17.5	21	26	-	3
BE-DA-UPC-B002	1.8~3.7	2.3~3.2	0.4~0.5	14	4	9.5	17	18	34	11	0

Up-down Converters MMIC

BE-DA-UDC Up-down Converters MMIC

B-Series

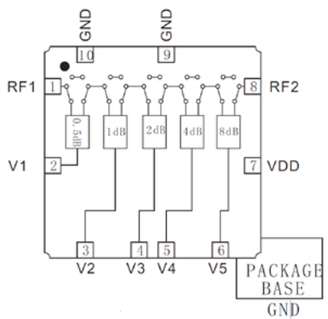
Model Number	RF Frequency (GHz)	LO Frequency (GHz)	IF Frequency (GHz)	Frequency Conversion Gain (dB)	LO/RF Isolation Degree (dB)	Local oscillator power (dBm)	Remark
BE-DA-UDC-B001	0.7~2	0.7~2	0.01~1	4	15	-7	Double balanced mixer, integrated local oscillator driver amplifier and RF bidirectional amplifier
BE-DA-UDC-B002	0.7~2	0.7~2	0.01~1	-8	30	-7	Double balanced mixer with integrated local oscillator driver amplifier
BE-DA-UDC-B003	1~1.5	1~1.5	0.01~0.5	-8	40	0	I/Q mixer with integrated local oscillator driver amplifier
BE-DA-UDC-B004	1~3	1~3	0.01~1	-8	35	-5	Double balanced mixer with integrated local oscillator driver amplifier
BE-DA-UDC-B005	1.8~6	1.8~6	0.01~2.5	-8	28	0~+6	Double balanced mixer with integrated local oscillator driver amplifier
BE-DA-UDC-B006	2~4	2~4	0.01~1	14	65	14	Double balanced mixer, integrated RF port 6-digit controlled attenuator, RF low noise amplifier
BE-DA-UDC-B007	2.7~3.5	3~4	0.4~1.1	-11	40	-7	Double balanced mixer, integrated local oscillator gate switch, local oscillator driver amplifier, RF bandpass filter
BE-DA-UDC-B008	4~8	4~8	0.01~3	10	8	-7	Double balanced mixer, integrated local oscillator driver amplifier and RF bidirectional amplifier
BE-DA-UDC-B009	4~12	4~12	0.01~3	-8.5	40	5	Double balanced mixer with integrated local oscillator driver amplifier
BE-DA-UDC-B010	5~6	8~10	3~3.5	10/20	0	-7	Double balanced mixer, integrated RF bidirectional amplifier, local oscillator driver amplifier
BE-DA-UDC-B011	6~12	6~18	0.01~6	-8	30	-5	Double balanced mixer, integrated local oscillator driver amplifier, three-port low-pass filter
BE-DA-UDC-B012	7~13	7~17	0.01~4	-8	20	-3	Double balanced mixer with integrated local oscillator driver amplifier
BE-DA-UDC-B013	7~13	7~17	0.01~4	11	0	-3	Double balanced mixer, integrated local oscillator driver amplifier, RF bidirectional amplifier
BE-DA-UDC-B014	7~17	7~17	0.01~3	-7.5	30	-5	Double balanced mixer, integrated local oscillator driver amplifier, intermediate frequency low-pass filter
BE-DA-UDC-B015	18~25	18~25	0.01~7	-8	22	0	Double balanced mixer, integrated local oscillator driver amplifier, RF and intermediate frequency low-pass filter
BE-DA-UDC-B016	35~37	31.25~33.75	3.25~3.75	25	-	-2	Double balanced mixer, integrated local oscillator, RF and IF amplifiers, RF CNC attenuator, IF filter
BE-DA-UDC-B017	0.3~0.8	0.4~1	0.01~0.15	-10	28	0±2	Double balanced mixer with integrated local oscillator amplifier
BE-DA-UDC-B018	1~2	1.3~2.5	0.3~0.5	-8	25	0±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B019	1.2~1.4	1.5~1.9	0.3~0.5	Receive 27 / Transmit 38	10	0±2	Double-balanced mixer integrates local oscillator amplifier, RF and IF integrated bidirectional amplifier
BE-DA-UDC-B020	8.2~8.6	2~6.8	2~6.8	7.5	3	1.5±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B021	3.3~3.7	4.25	0.55~0.95	9	-	-3±2	Double balanced mixer, integrated local oscillator and intermediate frequency bidirectional amplifier
BE-DA-UDC-B022	8.2~8.6	9.15	0.55~0.95	9	-	-3±2	Double balanced mixer, integrated local oscillator and intermediate frequency bidirectional amplifier
BE-DA-UDC-B023	13~14	14~16	0.8~2	13	20	-4±2	Double balanced mixer with integrated local oscillator, RF and IF amplifiers
BE-DA-UDC-B024	13~14	15~20	2~6	10	5	-4±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B025	8~14	7~12	0.1~3.5	-8	25	0±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B026	6~18	7~22	2~4	-9	25	0±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B027	2~4	2~5	0.3~1	7	10	0±2	Double-balanced mixer integrates local oscillator amplifier and RF integrated bidirectional amplifier
BE-DA-UDC-B028	26~40	43~48	3~17	-10	20	-7±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B029	5~13	6~16	1~6	4	-	-3±2	Double-balanced mixer integrates local oscillator amplifier and RF amplifier
BE-DA-UDC-B030	5~13	6~16	1~3	-11	20	-10±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B031	5~13	6~12	1~3.5	31	-	-5±2	The double-balanced mixer integrates local oscillator driver amplifier, RF and IF integrated bidirectional amplifier, and digitally controlled attenuator.
BE-DA-UDC-B032	8~12	10~16	2.7~3.5	-10	25	0	IQ mixer integrated local oscillator driver amplifier
BE-DA-UDC-B033	2~18	10~20	20~30	-11/8.5	10	-2~6	Double-balanced mixer integrated frequency multiplier and local oscillator amplifier, IF integrated switching amplifier
BE-DA-UDC-B034	2.5~3.5	2.8~4.8	0.3~1.3	-7	23.5	0±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B035	20~40	10~20	0.1~18	-9	10	0±2	Double-balanced mixer integrates local oscillator amplifier and frequency multiplier amplifier
BE-DA-UDC-B036	30~34	35~40	4.4	-9	20	0±2	Double balanced mixer, integrated local oscillator and RF amplifier
BE-DA-UDC-B037	30~35	16~19	2.5~3.5	13	40	8~16	IQ mixer integrates local oscillator frequency multiplier amplifier and RF integrated low-noise amplifier
BE-DA-UDC-B038	36~41	16~19	2.5~3.5	13.5	50	8~16	IQ mixer integrates local oscillator frequency multiplier amplifier and RF integrated low-noise amplifier

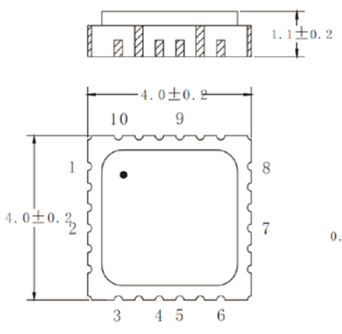
Available in bare die and module integration

DC to 30 GHz • GaAs / GaN • High Precision Control

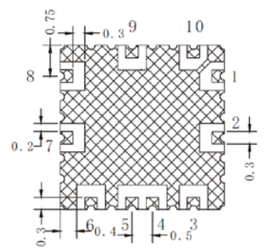
DIGITAL ATTENUATOR MMIC

- Multi-bit control: 5-bit / 6-bit / X-bit
- Step size as fine as 0.25 dB / 0.5 dB / 1 dB
- Attenuation range up to XX dB
- Serial (SPI) and parallel control interfaces
- Fast switching speed
- Low insertion loss and high linearity





Package material: Alumina ceramic
Lead surface plating: Nickel-gold
Package surface warpage: < 0.05 mm
All ground leads must be connected to RF ground
This package is suitable for reflow soldering processes



BE-DA-DAT-B030 as Example

GaAs Digital Attenuator - Enhanced Linearity • Wider Bandwidth

- Higher IP3 performance
- Wider frequency coverage
- Better attenuation accuracy

GaN Digital Attenuator - High Power • Rugged Design

- High RF input power handling
- Superior linearity under high power

GaAs Digital Attenuator MMIC

BE-DA-DAT GaAs Digital Attenuator MMIC

B-Series

Model Number	Frequency (GHz)	Attenuation Range (dB)	Number of Attenuation Bits (bit)	Insertion loss (dB)	Remark	Return Loss (dB)	Additional Phase Shift (°)
BE-DA-DAT-B001	0.1~8	0.5~31.5	6	2.5	Low phase shift	15	±5
BE-DA-DAT-B002	0.1~8	0.5~31.5	6	2.5	Low phase shift, Integrated driver	15	±5
BE-DA-DAT-B003	0.1~12	0.25~1	3	0.6	Low phase shift	20	≤±3
BE-DA-DAT-B004	0.1~13	0.5~31.5	6	3.5	-	15	-
BE-DA-DAT-B005	0.1~18	10	1	1.8	-	15	-
BE-DA-DAT-B006	0.1~18	16	1	3	-	15	-
BE-DA-DAT-B007	0.1~18	20	1	2.6	-	15	-
BE-DA-DAT-B008	0.1~18	20	1	2.3	Low phase shift	15	≤+5
BE-DA-DAT-B009	0.1~18	30	1	3	-	15	-
BE-DA-DAT-B010	0.1~18	32	1	1.5	Integrated driver	22	-
BE-DA-DAT-B011	0.1~18	5~35	3	3.5	Integrated driver	15	-
BE-DA-DAT-B012	0.1~18	1~15	4	2.4	-	15	-
BE-DA-DAT-B013	0.1~18	3~45	4	5	-	15	-
BE-DA-DAT-B014	0.1~18	0.5~15.5	5	2.8	-	16	-
BE-DA-DAT-B015	0.1~18	0.5~15.5	5	2.6	Low phase shift	15	≤±5
BE-DA-DAT-B016	0.1~18	0.5~31.5	6	4	Low phase shift	15	≤±5
BE-DA-DAT-B017	0.1~18	0.5~31.5	6	3.3	-	17	-
BE-DA-DAT-B018	0.1~18	0.5~31.5	6	3.3	Low phase shift, Integrated driver	13	≤±5
BE-DA-DAT-B019	0.1~18	0.5~31.5	6	3.3	Low phase shift	15	≤±5
BE-DA-DAT-B020	0.1~18	30	1	2.5	Integrated driver	15	-
BE-DA-DAT-B021	0.1~20	0.5~31.5	6	5	Low phase shift	15	≤±5
BE-DA-DAT-B022	0.1~20	0.5~31.5	6	5	Low phase shift, Integrated driver	15	≤±5
BE-DA-DAT-B023	0.1~21	35	1	2.5	-	15	-
BE-DA-DAT-B024	0.1~30	0.5~15.5	5	4.7	Integrated driver	15	-
BE-DA-DAT-B025	0.1~40	0.5~31.5	6	8.2	Integrated driver	15	-
BE-DA-DAT-B026	0.5~6	0.25~15.75	6	1.5	Integrated driver	15	-
BE-DA-DAT-B027	8~12	4~22	3	1.6	Integrated driver	15	-
BE-DA-DAT-B028	8~14	0.5~31.5	6	3.5	Low phase shift	18	±3
BE-DA-DAT-B029	8~14	0.5~31.5	6	3.5	Low phase shift, Integrated driver	18	±3
BE-DA-DAT-B030	10~18	0.5~15.5	5	2.5	Low phase shift	14	≤±5
BE-DA-DAT-B031	12~20	0.25~1	3	0.9	Low phase shift	20	≤±3
BE-DA-DAT-B032	14~18	0.5~31.5	6	3.8	Low phase shift	15	≤±5
BE-DA-DAT-B033	14~18	16	1	1.6	Low phase shift	18	≤+5
BE-DA-DAT-B034	14~18	0.5~31.5	6	4	Low phase shift, Integrated driver	15	≤±5

BE-DA-DAT GaAs Digital Attenuator MMIC

N-Series

Model Number	Frequency (GHz)	Attenuation Range (dB)	Number of Attenuation Bits (bit)	Insertion Loss (dB)	Step by Step (dB)	Additional Phase Shift (%)	Control Level (V)
BE-DA-DAT-N001	0.1~9	0~25	1	≤1	25	±45*	0/-5
BE-DA-DAT-N002	0.1~20	0~16	1	2.7	16	≤±5*	0/-5
BE-DA-DAT-N003	0.5~9	32	1	2*	32	-	0/-5
BE-DA-DAT-N004	0.5~12	0~20	1	1*	20	-	0/-5
BE-DA-DAT-N005	0.5~18	0~16	1	≤1.6	16	±5*	0/-5
BE-DA-DAT-N006	0.5~18	0~32	1	≤2	32	±60*	0/-5
BE-DA-DAT-N007	0.5~18	0~32	1	2	32	-	+5/0
BE-DA-DAT-N008	1~18	0~10	1	≤1	10	±20*	0/-5
BE-DA-DAT-N009	15~17	0~32	1	≤3	32	±1.5*	0/-5
BE-DA-DAT-N010	30~40	0~20	1	1.6*	20	-	+5/0
BE-DA-DAT-N011	30~40	0~30	1	2.2*	30	-	+5/0
BE-DA-DAT-N012	0.1~12	10~30	2	1.5*	10	±100*	+5/0
BE-DA-DAT-N013	18~26	10~30	2	2.2*	10	-	0/-5
BE-DA-DAT-N014	20~40	10~30	2	3*	10	-	+5/0
BE-DA-DAT-N015	0.5~18	5~35	3	≤2.8	5	-	0/-5
BE-DA-DAT-N016	0.5~18	5~35	3	≤2.8	5	-	+5/0
BE-DA-DAT-N017	0.5~18	5~35	3	≤2.8	5	-	+5/0
BE-DA-DAT-N018	0.5~8.5	3~21	3	≤2.5	3	-	0/-5
BE-DA-DAT-N019	0.5~18	5~35	3	≤3.5	5	±5*	0/-5
BE-DA-DAT-N020	1~20	0.25~1.75	3	0.7*	0.25	-	0/-5
BE-DA-DAT-N021	2~6	3~21	3	1.6*	3	±3*	+5/0
BE-DA-DAT-N022	5~14	4~28	3	2.8*	4	±4*	+5/0
BE-DA-DAT-N023	8~12	0.25~1.75	3	0.55*	0.25	±1.5*	0/-5
BE-DA-DAT-N024	12~18	0.25~1.75	3	0.72*	0.25	±1.5*	0/-5
BE-DA-DAT-N025	20~40	5~35	3	4.5*	5	-	+5/0
BE-DA-DAT-N026	0.5~18	0.25~3.75	4	1.6*	0.25	±2.5*	0/-5
BE-DA-DAT-N027	2~20	3~45	4	5*	3	±20*	0/-5
BE-DA-DAT-N028	8~12	2~30	4	≤2.8	2	±25*	0/-5
BE-DA-DAT-N029	8~12	2~30	4	≤2.8	2	±25*	+5/0
BE-DA-DAT-N030	25~40	0.5~7.5	4	≤3	0.5	±6*	0/-5
BE-DA-DAT-N031	34~36	0.25~1	4	1.2*	0.25	±3*	0/-5
BE-DA-DAT-N032	0.5~8	1~31	5	≤2.8	1	±8*	0/-5
BE-DA-DAT-N033	0.5~23	0.25~7.75	5	≤3.5	0.25	±8*	0/-5
BE-DA-DAT-N034	0.1~30	1/2/3/4/5	5	1*	1	-	-
BE-DA-DAT-N035	0.5~40	1~31	5	7.5*	1	±20*	+5/0
BE-DA-DAT-N036	0.5~18	0.5~15.5	5	3.3*	0.5	±3*	0/-5
BE-DA-DAT-N037	6~18	0.5~15.5	5	3*	0.5	±5*	+5/0
BE-DA-DAT-N038	12~18	0.5~15.5	5	≤3.5	0.5	±5*	0/-5
BE-DA-DAT-N039	18~30	0.5~15.5	5	≤3	0.5	±10*	0/-5
BE-DA-DAT-N040	24~28	0.5~15.5	5	≤3	0.5	±5*	0/-5
BE-DA-DAT-N041	25~40	0.25~7.75	5	≤3.5	0.25	±6*	0/-5
BE-DA-DAT-N042	26~32	0.5~15.5	5	≤3	0.5	±5*	0/-5
BE-DA-DAT-N043	26~40	0.5~15.5	5	≤3.5	0.5	±10*	0/-5
BE-DA-DAT-N044	42~46	0.5~15.5	5	2.7*	0.5	±5*	0/-5
BE-DA-DAT-N045	0.5~8	0.5~31.5	6	≤3.2	0.5	±8*	0/-5
BE-DA-DAT-N046	0.5~8	0.5~31.5	6	≤3.5	0.5	-3~25	+5/0
BE-DA-DAT-N047	0.5~8	0.5~31.5	6	2.5*	0.5	5	+5/0
BE-DA-DAT-N048	0.5~8	1~51	6	≤4	-	-	0/-5
BE-DA-DAT-N049	0.5~40	0.5~31.5	6	7.5*	0.5	-	+5/0
BE-DA-DAT-N050	0.5~4	0.5~31.5	6	4*	0.5	-	0/-5
BE-DA-DAT-N051	0.5~18	0.5~31.5	6	≤5.9	0.5	±5.5*	0/-5
BE-DA-DAT-N052	0.5~18	1~63	6	≤6.1	1	-	+5/0
BE-DA-DAT-N053	0.5~18	0.5~31.5	6	≤4.5	0.5	-	+5/0
BE-DA-DAT-N054	1~2	0.5~31.5	6	1.5*	0.5	-	0/-5
BE-DA-DAT-N055	2~8	0.5~31.5	6	4.5*	0.5	-	+5/0
BE-DA-DAT-N056	3~15	0.5~31.5	6	5*	0.5	±8.5*	0/-5
BE-DA-DAT-N057	6~18	0.5~31.5	6	5*	0.5	±5*	0/-5
BE-DA-DAT-N058	6~18	0.5~31.5	6	≤5.2	0.5	±5*	+5/0
BE-DA-DAT-N059	6~18	0~31.5	6	3.5*	0.5	±5*	+5/0
BE-DA-DAT-N060	8~12	0.5~31.5	6	3.5*	0.5	-	0/-5
BE-DA-DAT-N061	8~12	0.5~31.5	6	≤4.1	0.5	±4*	0/-5
BE-DA-DAT-N062	8~12	0.5~31.5	6	4.6*	0.5	±5*	+5/0
BE-DA-DAT-N063	10~18	0.5~31.5	6	≤4.5	0.5	±8*	0/-5
BE-DA-DAT-N064	19~23	0.5~31.5	6	≤3.5	0.5	±10*	0/-5
BE-DA-DAT-N065	19~23	0.5~31.5	6	≤3.5	0.5	±10*	0/-5
BE-DA-DAT-N066	24~30	0.5~31.5	6	≤3.8	0.5	±10*	0/-5
BE-DA-DAT-N067	26~34	0.5~31.5	6	≤4	0.5	±15*	0/-5
BE-DA-DAT-N068	26~34	0.5~31.5	6	≤4	0.5	±15*	0/-5
BE-DA-DAT-N069	32~40	0.5~31.5	6	≤4.3	0.5	±15*	0/-5

GaN Digital Attenuator MMIC

BE-DN-DAT GaN Digital Attenuator MMIC

N-Series

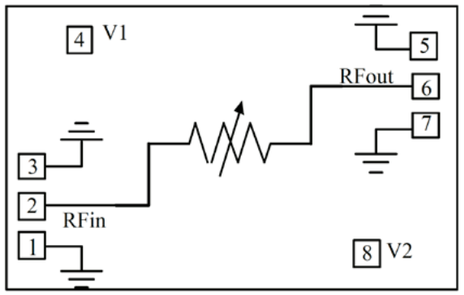
Model Number	Frequency (GHz)	Attenuation Range (dB)	Number of Attenuation Bits (bit)	Insertion Loss (dB)	Step by Step (dB)	Additional Phase Shift (%)	Control Level (V)
BE-DN-DAT-N001	2~18	20	1	2*	20	-	0/-15
BE-DN-DAT-N002	0.3~13	10-40	3	3.2*	10	-	0-40

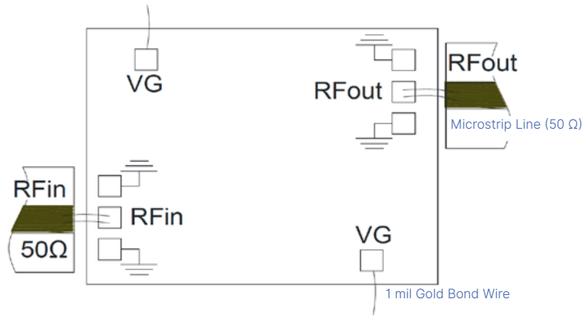
Available in bare die and module integration

Voltage-Controlled / Analog Attenuators | DC to High GHz

ELECTRONIC SIGNAL CONTROL ATTENUATOR MMIC

- Wideband operation from DC to multi-GHz
- Continuous attenuation control via analog voltage
- High linearity with excellent IP3 performance
- Low insertion loss and smooth attenuation slope
- Fast response for dynamic signal control
- Low power consumption





1. Assembly should be performed in a cleanroom environment.
2. GaAs material is fragile; the chip surface is easily damaged. Do not touch the surface and handle with care.
3. Recommended wire bonding: 25 µm diameter gold wire. Keep bond wires as short as possible, not exceeding 200 µm.
4. The IF output is DC-coupled (no internal DC blocking capacitor).
5. The backside of the die must be properly grounded.
6. Use AuSn (80/20) eutectic bonding. Bonding temperature should not exceed 300°C, and bonding time should be kept as short as possible (≤30 seconds).
7. This device is ESD sensitive. Proper ESD precautions must be observed during storage and handling.
8. Store in a dry, nitrogen environment.
9. Do not attempt to clean the chip surface using dry or wet chemical methods.

BE-DA-EAT-N019 as Example

BE-DA-EAT Electronic Signal Control Attenuator MMIC

B-Series

Model Number	Frequency (GHz)	Attenuation Range (dB)	Insertion loss (dB)	Return Loss (dB)	Additional Phase Shift (°)	Tuning Voltage (V)
BE-DA-EAT-B001	0.1~20	0~34	2	15	-	0~-2
BE-DA-EAT-B002	2~3	0~40	1.5	15	-	0~2
BE-DA-EAT-B003	8~12	0~40	1.5	15	-	0~2
BE-DA-EAT-B004	12~18	0~40	1.5	15	-	0~2

BE-DA-EAT Electronic Signal Control Attenuator MMIC

N-Series

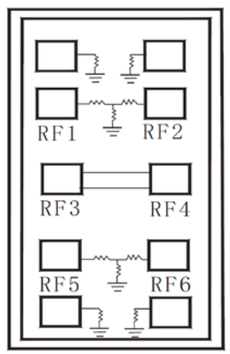
Model Number	Frequency (GHz)	Attenuation Range (dB)	Insertion Loss (dB)	Input Standing Wave	Output Standing Wave	Control Level (V)
BE-DA-EAT-N001	0.8~2.0	0~35	1.8*	1.5*	1.5*	5/0
BE-DA-EAT-N002	0.8~2.0	0~38	1*	1.9*	1.9*	0/+5
BE-DA-EAT-N003	1~4	0~23	1*	2*	2*	0~2.5
BE-DA-EAT-N004	1~4	20	0.7*	1.3*	1.3*	0~1.5
BE-DA-EAT-N005	1~4	20	0.7*	1.3*	1.3*	0~1.5
BE-DA-EAT-N006	1~40	0~20	2.5*	2*	2*	-5~0
BE-DA-EAT-N007	2~3	0~30	1*	1.3*	1.3*	0~2
BE-DA-EAT-N008	4~9	0~35	≤1.8	≤2	≤2	0~2.5
BE-DA-EAT-N009	4~9	0~35	≤1.5	≤2	≤2	0~2
BE-DA-EAT-N010	6~8	0~36	2.2*	2.5*	2.5*	0~5
BE-DA-EAT-N011	7~13	0~40	≤1.5	≤1.7	≤1.7	0~2
BE-DA-EAT-N012	8~12	0~25	2.2*	2*	2*	0~2.5
BE-DA-EAT-N013	12~22	0~40	≤3	≤1.8	≤1.8	0~5
BE-DA-EAT-N014	18~30	0~40	≤3	≤2	≤2	0~5
BE-DA-EAT-N015	20~40	0~40	≤4	≤2.3	≤2.3	0~5
BE-DA-EAT-N016	25~50	0~40	4.5*	1.9*	1.9*	0~5
BE-DA-EAT-N017	30~75	1~30	2.3*	1.7*	1.7*	0/-5
BE-DA-EAT-N018	30~80	1~35	2.4*	1.6*	1.6*	0/-5
BE-DA-EAT-N019	50~110	0~27	2.5*	1.3*	1.3*	0/-5

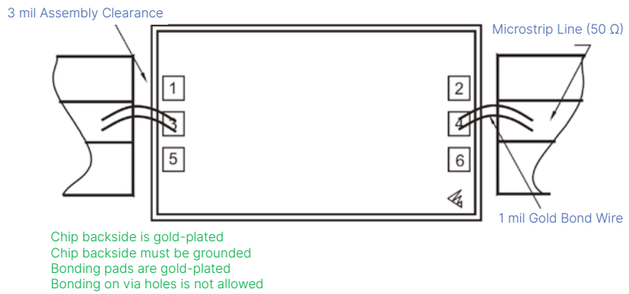
Available in bare die and module integration

Thin-Film & MMIC Fixed Attenuators | DC to High GHz

FIXED ATTENUATOR MMIC

- Wideband coverage from DC to mmWave frequencies
- Accurate attenuation values from low to high dB levels
- Excellent attenuation flatness over frequency
- Low VSWR for improved system matching
- High repeatability and long-term stability
- Suitable for hybrid, module, and system-level designs





BE-DA-FAT-B030 as Example

SM-FAT Series (Thin-Film)

- High precision, excellent flatness, ideal for broadband applications

GaAs Fixed RF Attenuator MMIC

- Standard broadband attenuators for general RF use
- Enhanced performance with improved linearity and consistency

Thin Film Broadband Fixed Attenuator

BE-SM-FAT Thin Film Broadband Fixed Attenuator

B-Series

Model Number	Frequency (GHz)	Attenuation (dB)	Attenuation Accuracy (dB)	Rated Power (dBm)	Return Loss (dB)
BE-SM-FAT-B001	0.01~18	0.15	+0.3	+20	18
BE-SM-FAT-B002	0.01~18	1	±0.3	+20	18
BE-SM-FAT-B003	0.01~18	2	±0.3	+20	18
BE-SM-FAT-B004	0.01~18	3	±0.3	+20	18
BE-SM-FAT-B005	0.01~18	4	±0.4	+20	18
BE-SM-FAT-B006	0.01~18	5	±0.4	+20	18
BE-SM-FAT-B007	0.01~18	6	±0.4	+20	18
BE-SM-FAT-B008	0.01~18	8	±0.5	+20	18
BE-SM-FAT-B009	0.01~18	10	±0.5	+20	18
BE-SM-FAT-B010	0.01~18	15	±0.5	+20	18
BE-SM-FAT-B011	0.01~18	20	±0.8	+20	18

GaAs Fixed RF Attenuator MMIC

BE-DA-FAT Fixed RF Attenuator MMIC

B-Series

Model Number	Frequency (GHz)	Attenuation (dB)	Attenuation Accuracy (dB)	Withstand Power (dBm)	Return Loss (dB)
BE-DA-FAT-B001	12~18	0	±0.1	25	34
BE-DA-FAT-B002	12~18	1	±0.1	25	39
BE-DA-FAT-B003	12~18	2	±0.1	25	41
BE-DA-FAT-B004	12~18	3	±0.1	25	40
BE-DA-FAT-B005	0.01~20	1	0.3	40	15
BE-DA-FAT-B006	0.01~20	2	0.3	40	15
BE-DA-FAT-B007	0.01~20	3	±0.3	40	15
BE-DA-FAT-B008	0.01~20	4	±0.3	40	15
BE-DA-FAT-B009	0.01~20	5	±0.3	40	15
BE-DA-FAT-B010	0.01~20	6	±0.3	40	15
BE-DA-FAT-B011	0.01~20	7	±0.3	40	15
BE-DA-FAT-B012	0.01~20	8	±0.3	40	15
BE-DA-FAT-B013	0.01~20	10	±0.4	40	15
BE-DA-FAT-B014	0.01~20	15	±0.4	40	15
BE-DA-FAT-B015	0.01~20	20	±0.5	40	15
BE-DA-FAT-B016	0.01~40	0.15	0.3	-	20
BE-DA-FAT-B017	0.01~40	0.15	0.3	-	20
BE-DA-FAT-B018	0.01~40	0.5	±0.3	27	20
BE-DA-FAT-B019	0.01~40	1	±0.3	30	20
BE-DA-FAT-B020	0.01~40	2	±0.3	29	20
BE-DA-FAT-B021	0.01~40	3	±0.3	28	20
BE-DA-FAT-B022	0.01~40	5	±0.3	27	20
BE-DA-FAT-B023	0.01~40	6	±0.3	27	20
BE-DA-FAT-B024	0.01~40	10	±0.4	27	20
BE-DA-FAT-B025	0.01~40	15	±0.4	27	20
BE-DA-FAT-B026	0.01~40	20	±0.5	27	20
BE-DA-FAT-B027	0.01~40	1.5/0/3 Optional	±0.3	27	20
BE-DA-FAT-B028	0.01~40	1/0/2 Optional	±0.3	27	20
BE-DA-FAT-B029	0.01~40	0.5/0/1 Optional	±0.3	27	20
BE-DA-FAT-B030	0.01~40	3/0/5 Optional	±0.3	27	20
BE-DA-FAT-B031	0.01~40	2/0/4 Optional	±0.3	27	18

BE-DA-FAT Fixed RF Attenuator MMIC

N-Series

Model Number	Frequency (GHz)	Attenuation (dB)	Input Standing Wave	Output Standing Wave
BE-DA-FAT-N001	0.01~20	11	≤1.3	≤1.3
BE-DA-FAT-N002	0.01~20	10	≤1.3	≤1.3
BE-DA-FAT-N003	0.01~20	9	≤1.3	≤1.3
BE-DA-FAT-N004	0.01~20	6	≤1.3	≤1.3
BE-DA-FAT-N005	0.01~20	3	≤1.3	≤1.3
BE-DA-FAT-N006	0.01~20	2	≤1.3	≤1.3
BE-DA-FAT-N007	0.01~20	0	≤1.3	≤1.3
BE-DA-FAT-N008	0.01~20	1	≤1.3	≤1.3
BE-DA-FAT-N009	0.01~20	(0/1/2/3)	≤1.3	≤1.3
BE-DA-FAT-N010	0.01~20	(5/6/7/8)	≤1.3	≤1.3
BE-DA-FAT-N011	0.01~20	4	≤1.3	≤1.3
BE-DA-FAT-N012	0.01~20	5	≤1.3	≤1.3
BE-DA-FAT-N013	0.01~20	(0/0.5/1/1.5/2)	≤2	≤2
BE-DA-FAT-N014	0.01~20	(0/0.25/0.5/0.75/1/1.25/1.5/1.75)	1.5*	1.5*
BE-DA-FAT-N015	0.01~20	0.5	1.2*	1.2*
BE-DA-FAT-N016	0.01~20	1	1.2*	1.2*
BE-DA-FAT-N017	0.01~20	2	1.2*	1.2*
BE-DA-FAT-N018	0.01~50	0/0.2/0.5/1/2/3/5/6/9/10/11/(0/1/2/3)/(0/1/2/3)/(5/6/7/8)	≤1.6	≤1.6
BE-DA-FAT-N019	0.01~67	0/0.5/1/2/3/4/5/6/7/8/9/10/11/15/20/(0/1/2/3)/(5/6/7/8)	≤1.6	≤1.6
BE-DA-FAT-N020	0.1~20	0/0.25/0.5/0.75/1/1.25/1.5/1.75/2/2.25/2.5/2.75/3/3.25/3	2*	2*
BE-DA-FAT-N021	0.1~50	0/1/2/3	1.2*	1.2*
BE-DA-FAT-N022	1~20	0/0.5/1/1.5/2/2.5/3/3.5	1.5*	1.5*
BE-DA-FAT-N023	10~18	0/1/2/3	1.5*	1.5*
BE-DA-FAT-N024	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*
BE-DA-FAT-N025	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*
BE-DA-FAT-N026	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*
BE-DA-FAT-N027	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*
BE-DA-FAT-N028	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*
BE-DA-FAT-N029	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*
BE-DA-FAT-N030	75~110	0.5/1/1.5/2/2.5/3/4	1.2*	1.2*

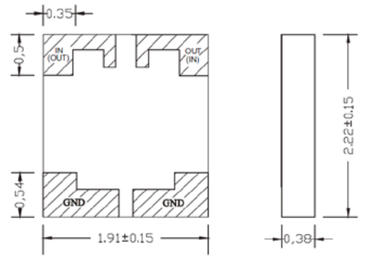
BEGIN Electronics

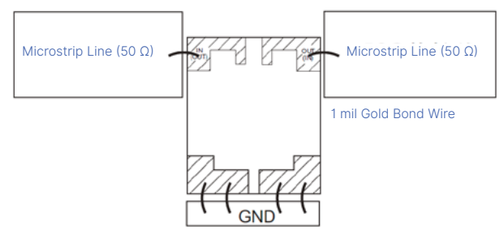
Available in bare die and module integration

DC to 20 GHz • Thick-Film Technology

TEMPERATURE VARIABLE ATTENUATORS

- Attenuation varies with temperature (dB/°C)
- Enables passive gain compensation (no bias required)
- Excellent repeatability and stability
- Low VSWR for good system matching





BE-SM-TAT-BT005 as Example

BE-SM-TAT Temperature Variable Attenuators

B-Series (Thick Film)

Model Number	Frequency (GHz)	Attenuation (dB)	Attenuation Accuracy (dB)	Rated Power (dBm)	Return Loss (dB)
BE-SM-TAT-BT001	0.01~8	3	±0.5	+23	15
BE-SM-TAT-BT002	0.01~8	4	±0.5	+23	15
BE-SM-TAT-BT003	0.01~8	5	±0.5	+23	15
BE-SM-TAT-BT004	0.01~8	6	±0.6	+23	15
BE-SM-TAT-BT005	0.01~18	3	±0.5	+23	15
BE-SM-TAT-BT006	0.01~18	4	±0.5	+23	15
BE-SM-TAT-BT007	0.01~18	4	±0.5	+23	15
BE-SM-TAT-BT008	0.01~18	5	±0.5	+23	15
BE-SM-TAT-BT009	0.01~18	6	±0.5	+23	15

BE-SM-TAT Temperature Variable Attenuators

B-Series

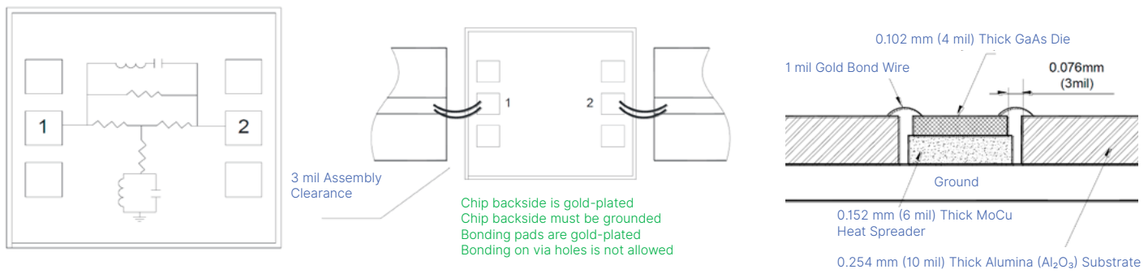
Model Number	Frequency (GHz)	Attenuation (dB)	Attenuation Temperature Compensation Coefficient (dB/dB/°C)	Return Loss (dB)	Maximum Input Power (mW)	Attenuation Accuracy (dB) 25°C Typical Value @1GHz	Attenuation Accuracy (dB) 25°C Typical Value @18GHz	Attenuation Accuracy (dB) 25°C Typical Value @20GHz
BE-SM-TAT-B001	0.01~20	2	-0.005	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B002	0.01~20	2	-0.007	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B003	0.01~20	3	-0.004	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B004	0.01~20	3	-0.005	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B005	0.01~20	3	-0.009	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B006	0.01~20	4	-0.005	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B007	0.01~20	4	-0.007	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B008	0.01~20	4	-0.009	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B009	0.01~20	5	-0.005	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B010	0.01~20	5	-0.009	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B011	0.01~20	6	-0.006	-15	200	±0.5	±1.0	±1.3
BE-SM-TAT-B012	0.01~20	6	-0.009	-15	200	±0.5	±1.0	±1.3

Available in bare die and module integration

DC to 18 GHz • Wideband Equalization MMICs for System Gain Flatness

GAIN EQUALIZER MMIC

- Wideband operation across RF/microwave frequencies
- Positive slope response to offset cable / component loss
- Low insertion loss at low frequencies
- Excellent amplitude linearity
- Stable performance over temperature



BE-DA-GEQ-B029 as Example

BE-DA-GEQ Gain Equalizer MMIC

B-Series

Model Number	Frequency (GHz)	Equilibrium Quantity (dB)	Insertion Loss (dB)	Balance Type	Return Loss (dB)
BE-DA-GEQ-B001	0.8~6.5	6.0	1	Negative slope	15
BE-DA-GEQ-B002	0.95~2.15	3.9	1	Negative slope	17
BE-DA-GEQ-B003	0.95~2.15	4.5	1	Negative slope	17
BE-DA-GEQ-B004	1~2	3	0.8	Negative slope	17
BE-DA-GEQ-B005	1~6	3	0.8	Negative slope	17
BE-DA-GEQ-B006	1~8	3.5	0.9	Negative slope	17
BE-DA-GEQ-B007	1.7~2.7	3	0.8	Negative slope	17
BE-DA-GEQ-B008	1.7~2.7	4	1	Negative slope	17
BE-DA-GEQ-B009	1.7~2.7	5	1.1	Negative slope	17
BE-DA-GEQ-B010	2~4	3	1.1	Negative slope	17
BE-DA-GEQ-B011	2~4	4	1.1	Negative slope	17
BE-DA-GEQ-B012	2~18	8	1.5	Negative slope	15
BE-DA-GEQ-B013	5~13	5.6	1.5	Negative slope	14
BE-DA-GEQ-B014	5~18	3	1	Negative slope	20
BE-DA-GEQ-B015	6~12	2.8	1.5	Negative slope	17
BE-DA-GEQ-B016	6~12	5	1	Negative slope	18
BE-DA-GEQ-B017	6~12	6.8	1.1	Negative slope	18
BE-DA-GEQ-B018	6~18	3	0.9	Negative slope	20
BE-DA-GEQ-B019	6~18	4	0.9	Negative slope	22
BE-DA-GEQ-B020	6~18	5	0.9	Negative slope	23
BE-DA-GEQ-B021	6~18	6.0	1	Negative slope	15
BE-DA-GEQ-B022	6~18	2	1.1	Negative slope	20
BE-DA-GEQ-B023	8~12	2.0	0.8	Negative slope	20
BE-DA-GEQ-B024	8~12	2.9	1.2	Negative slope	17
BE-DA-GEQ-B025	8~12	4.0	0.8	Negative slope	20
BE-DA-GEQ-B026	8~12	4.6	1.5	Negative slope	15
BE-DA-GEQ-B027	8~12	5.0	1.1	Negative slope	20
BE-DA-GEQ-B028	8~12	5.8	1.4	Negative slope	17
BE-DA-GEQ-B029	12~18	2	1	Negative slope	20

BE-DA-GEQ Gain Equalizer MMIC

N-Series

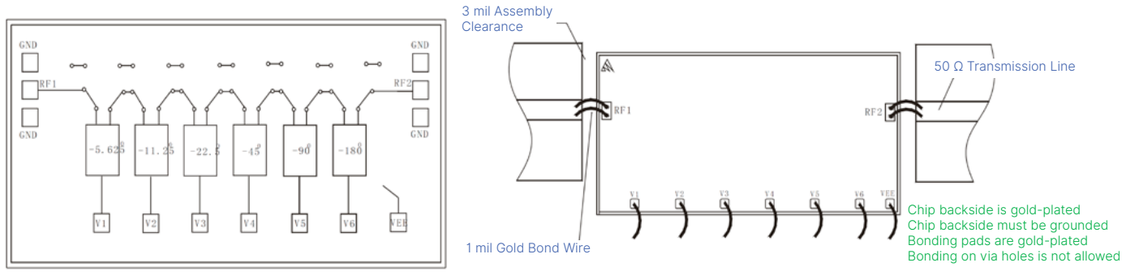
Model Number	Frequency (GHz)	Equilibrium Quantity (dB)	Insertion Loss (dB)	Input Standing Wave	Output standing wave
BE-DA-GEQ-N001	0.05~2	1.5	0.6dB@2GHz	1.1*	1.1*
BE-DA-GEQ-N002	0.1~2	5	0.5dB@2GHz	1.3*	1.3*
BE-DA-GEQ-N003	0.1~3	4	0.7dB@3GHz	1.3*	1.3*
BE-DA-GEQ-N004	0.1~3	9.5	0.7dB@3GHz	1.2*	1.2*
BE-DA-GEQ-N005	0.1~4	7.5	0.7dB@4GHz	1.5*	1.5*
BE-DA-GEQ-N006	0.1~5.5	5.4	0.8dB@5.5GHz	1.3*	1.3*
BE-DA-GEQ-N007	0.1~40	6	1dB@40GHz	1.3*	1.3*
BE-DA-GEQ-N008	0.1~40	7.5	1dB@40GHz	1.5*	1.5*
BE-DA-GEQ-N009	0.5~1.5	3.5	0.5dB@1.5GHz	1.2*	1.2*
BE-DA-GEQ-N010	0.5~3.0	4	1.35dB@3GHz	1.3*	1.3*
BE-DA-GEQ-N011	0.5~3.0	5	1.1dB@3GHz	1.3*	1.3*
BE-DA-GEQ-N012	0.5~8.0	10	0.9dB@8GHz	1.2*	1.2*
BE-DA-GEQ-N013	0.5~20	12	1.4dB@20GHz	1.3*	1.3*
BE-DA-GEQ-N014	0.5~20	14	1.4dB@20GHz	1.3*	1.3*
BE-DA-GEQ-N015	0.5~20	16	1.2dB@20GHz	1.3*	1.3*
BE-DA-GEQ-N016	0.9~1.2	0.9	0.45dB@1.2GHz	1.2*	1.2*
BE-DA-GEQ-N017	1.3~2.3	3.5	0.9dB@2.3GHz	1.2*	1.2*
BE-DA-GEQ-N018	2~6	2	0.5dB@2GHz	1.5*	1.5*
BE-DA-GEQ-N019	2~6	4	0.8dB@6GHz	1.4*	1.4*
BE-DA-GEQ-N020	2~6	5.5	0.4dB@2GHz	1.4*	1.4*
BE-DA-GEQ-N021	2~12	2.5	0.95dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N022	2~12	1.5	0.95dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N023	2~12	4	0.4dB@12GHz	1.2*	1.2*
BE-DA-GEQ-N024	2~12	6	0.6dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N025	2~12	8	0.6dB@12GHz	1.2*	1.2*
BE-DA-GEQ-N026	2~12	10	0.7dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N027	2~12	3.7/5.8/8	1.0dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N028	2~18	2	1.4dB@18GHz	1.2*	1.2*
BE-DA-GEQ-N029	2~18	2.5	1.7dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N030	2~18	3.5	1.4dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N031	2~18	4	0.5dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N032	2~18	4.5	0.5dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N033	2~18	5.5	0.5/0.7/0.7dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N034	2~18	6.5	0.5/0.7/0.7dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N035	2~18	7	0.5/0.7/0.7dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N036	2~18	8	0.8dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N037	2~18	0.9	0.65dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N038	2~18	0.9	0.65dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N039	2~18	0.9	0.65dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N040	2~18	0.9	1.1dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N041	2~18	0.9	0.95dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N042	2~18	0.9	0.95dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N043	2~18	0.9	0.95dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N044	2~18	0.9	1.1dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N045	2~18	0.9	0.95dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N046	2~18	5	8dB@18GHz	1.5*	1.5*
BE-DA-GEQ-N047	2.7~3.1	1.5	1.35dB@3.1GHz	1.3*	1.3*
BE-DA-GEQ-N048	2.7~3.5	1.2	0.7dB@3.5GHz	1.4*	1.4*
BE-DA-GEQ-N049	2.7~14.5	0.9	0.5dB@14.5GHz	1.2*	1.2*
BE-DA-GEQ-N050	2.7~14.5	1.9	0.5dB@14.5GHz	1.2*	1.2*
BE-DA-GEQ-N051	2.7~14.5	2.8	0.7dB@14.5GHz	1.2*	1.2*
BE-DA-GEQ-N052	3.1~3.4	0.9	1.5dB@3.4GHz	1.2*	1.2*
BE-DA-GEQ-N053	5~7	1.2	0.65dB@5GHz	1.3*	1.3*
BE-DA-GEQ-N054	5~9	2.4	0.6dB@9GHz	1.2*	1.2*
BE-DA-GEQ-N055	5~13	2	0.3dB@5GHz	1.4*	1.4*
BE-DA-GEQ-N056	5~15	8	0.95dB@15GHz	1.3*	1.3*
BE-DA-GEQ-N057	5~20	1.2	0.55dB@20GHz	1.4*	1.4*
BE-DA-GEQ-N058	5~20	2.2	0.7dB@20GHz	1.4*	1.4*
BE-DA-GEQ-N059	5~20	3.4	0.6dB@20GHz	1.4*	1.4*
BE-DA-GEQ-N060	5~20	4.2	0.45dB@20GHz	1.4*	1.4*
BE-DA-GEQ-N061	5~20	5.1	0.5dB@20GHz	1.4*	1.4*
BE-DA-GEQ-N062	5~20	6.2	0.5dB@20GHz	1.4*	1.4*
BE-DA-GEQ-N063	6~12	1.5	0.25dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N064	6~12	3	0.6dB@12GHz	1.2*	1.2*
BE-DA-GEQ-N065	6~14	6	0.55dB@14GHz	1.3*	1.3*
BE-DA-GEQ-N066	6~18	3.6	0.3dB@6GHz	1.4*	1.4*
BE-DA-GEQ-N067	8~9	1.5	0.85dB@96GHz	1.1*	1.1*
BE-DA-GEQ-N068	8~12	3	1.1dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N069	8~12	4	1dB@12GHz	1.2*	1.3*
BE-DA-GEQ-N070	8~12	3.7	1.1dB@12GHz	1.3*	1.3*
BE-DA-GEQ-N071	8~12	2	1.1dB@12GHz	1.1*	1.2*
BE-DA-GEQ-N072	8~12	2	1.2dB@12GHz	1.7*	1.7*
BE-DA-GEQ-N073	8.5~10.5	2	1.3dB@10.5GHz	<1.5	<1.5
BE-DA-GEQ-N074	8.8~10.4	0.7	0.55dB@10.4GHz	1.3*	1.3*
BE-DA-GEQ-N075	12~18	5	1.75dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N076	12~18	4	1.6dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N077	14~18	2	0.75dB@18GHz	1.2*	1.2*
BE-DA-GEQ-N078	14~18	5	1.65dB@18GHz	1.3*	1.3*
BE-DA-GEQ-N079	17~20	1.8	1.1dB@20GHz	1.3*	1.3*
BE-DA-GEQ-N080	17~20	2.3	1.2dB@20GHz	1.3*	1.3*
BE-DA-GEQ-N081	17~21	5	1.2dB@21GHz	1.3*	1.3*
BE-DA-GEQ-N082	18.5~27.5	5.4	1.2dB@27.5GHz	1.5*	1.5*
BE-DA-GEQ-N083	21~25.5	4	1.2dB@25.5GHz	1.3*	1.2*
BE-DA-GEQ-N084	23~26	3.7	1.5dB@26GHz	1.4*	1.4*
BE-DA-GEQ-N085	24~28	3.7	1.0dB@28GHz	1.5*	1.5*
BE-DA-GEQ-N086	25~28	2.4	0.8dB@25GHz	1.4*	1.4*
BE-DA-GEQ-N087	27~30	1	1.2dB@30GHz	1.2*	1.2*
BE-DA-GEQ-N088	27~31	4.4	1.6	1.8*	1.8*
BE-DA-GEQ-N089	27~38	6.5	1.8dB@38GHz	1.8*	1.8*
BE-DA-GEQ-N090	27~38	5	1.6dB@38GHz	1.8*	1.8*
BE-DA-GEQ-N091	33~38	4.5	1.6dB@38GHz	1.8*	1.8*

Available in bare die and module integration

DC to 36 GHz Low-Loss Phase Control Devices

DIGITAL PHASE SHIFTERS

- Multi-bit digital control (typ. 1–6 bit configurations)
- Low insertion loss with excellent phase accuracy
- High power handling (especially GaN series)
- Fast switching speed for dynamic systems



BE-DA-DPS-B035 as Example

GaAs Digital Phase Shifter MMIC

- Optimized for low loss and high phase accuracy
- Suitable for medium power RF systems
- Compact and cost-effective MMIC solution

GaN Digital Phase Shifter MMIC

- Designed for high power and harsh environments
- Ideal for radar and high-power RF front-end systems

GaN Digital Phase Shifter MMIC

BE-DN-DPS GaN Digital Phase Shifter MMIC

N-Series

Model Number	Frequency (GHz)	Number of Phase Shifts (bit)	Insertion Loss (dB)	Root Mean Square Error (°)	Input Standing Wave	Output Standing Wave	Changes in Nominal Magnitude (dB)	Control Level (V)
BE-DN-DPS-N001	5~6	6	6*	2.5*	1.8*	1.8*	±0.5*	0/-28
BE-DN-DPS-N002	8~12	6	10.5*	2*	1.5*	1.5*	±0.8*	0/-10

GaAs Digital Phase Shifter MMIC

BE-DA-DPS GaAs Digital Phase Shifter MMIC

B-Series

Model Number	Frequency (GHz)	Number of Phase Shifts (bit)	Insertion loss (dB)	Remark	Return Loss (dB)	Phase Shift Accuracy (RMS)	Amplitude Fluctuation (dB)
BE-DA-DPS-B001	0.2~0.8	6	9	,LSB: 5.625°	12	3°	±1.0
BE-DA-DPS-B002	0.2~0.8	6	9	LSB: 5.625°,Integrated driver	12	3°	±1.0
BE-DA-DPS-B003	0.4~1.2	6	12	LSB: 5.625°,Integrated driver	15	2°	±0.5
BE-DA-DPS-B004	0.8~2	6	8	LSB: 5.625°,Integrated driver	12	1.5°	±0.5
BE-DA-DPS-B005	0.8~2	6	11	LSB: 5.625°,Integrated driver	15	2.5°	±0.5
BE-DA-DPS-B006	0.8~2	6	11	LSB: 5.625°	15	2.5°	±0.5
BE-DA-DPS-B007	1.2~1.4	6	4	LSB: 5.625°,Integrated driver	20	0.5°	±0.5
BE-DA-DPS-B008	1.2~1.4	6	4	LSB: 5.625°	20	0.5°	±0.5
BE-DA-DPS-B009	1.2~1.6	8	5	LSB: 14°	16	2.0°	±0.5
BE-DA-DPS-B010	1.5~1.8	8	5	LSB: 14°	15	2.0°	±0.5
BE-DA-DPS-B011	1.6~3.2	6	10	LSB: 5.625°	15	2.5°	±0.5
BE-DA-DPS-B012	1.6~3.2	6	10	LSB: 5.625°,Integrated driver	15	2.5°	±0.5
BE-DA-DPS-B013	2~6	1	2.5	LSB: 90°	15	2.0°	±0.4
BE-DA-DPS-B014	2~6	6	14	LSB: 5.625°,Integrated driver	12	2.5°	±0.7
BE-DA-DPS-B015	2.1~3.2	6	11.5	LSB: 5.625°	15	2.0°	±0.5
BE-DA-DPS-B016	2.5~3.7	6	5	LSB: 5.625°	16	1.5°	±0.4
BE-DA-DPS-B017	2.5~3.7	6	6	LSB: 5.625°,Integrated driver	15	1.5°	±0.5
BE-DA-DPS-B018	5~6	6	6	LSB: 5.625°	18	1.0°	±0.5
BE-DA-DPS-B019	5~13	6	11	LSB: 5.625°,Integrated driver	13	3°	±0.7
BE-DA-DPS-B020	6~7.5	6	7	LSB: 5.625°,Integrated driver	15	1.6°	±0.5
BE-DA-DPS-B021	6~18	6	12	LSB: 5.625°	15	8.0°	±2.0
BE-DA-DPS-B022	6~18	6	12	LSB: 5.625°	15	2.5°	±1.0
BE-DA-DPS-B023	8~12	6	8	LSB: 5.625°	15	2.0°	±0.5
BE-DA-DPS-B024	8~12	6	8	LSB: 5.625°,Integrated driver	15	2.0°	±0.5
BE-DA-DPS-B025	8~12	-	0.2	-	22	-	±0.1
BE-DA-DPS-B026	8~12	6	7	LSB: 22.5°	15	2.5°	±0.5
BE-DA-DPS-B027	8~12	6	8	LSB: 5.625°	15	1.3°	±0.5
BE-DA-DPS-B028	8~12	6	8	LSB: 5.625°,Integrated driver	15	1.3°	±0.5
BE-DA-DPS-B029	8.5~11.5	6	8	LSB: 5.625°	15	1.0°	±0.5
BE-DA-DPS-B030	11~17	6	9.5	LSB: 5.625°	15	2.5°	±0.5
BE-DA-DPS-B031	12~15	6	7.8	LSB: 5.625°	15	4.0°	±0.5
BE-DA-DPS-B032	14~18	1	0.7	LSB: 90°	25	-	±0.1
BE-DA-DPS-B033	14~18	1	2.5	LSB: 180°,Integrated driver	20	2.0°	±0.4
BE-DA-DPS-B034	14~18	6	8.5	LSB: 5.625°	15	1.5°	±0.5
BE-DA-DPS-B035	14~18	6	8.5	LSB: 5.625°,Integrated driver	15	1.5°	±0.5

BE-DA-DPS GaAs Digital Phase Shifter MMIC

N-Series

Model Number	Frequency (GHz)	Number of Phase Shifts (bit)	Insertion Loss (dB)	Root Mean Square Error (°)	Input Standing Wave	Output Standing Wave	Changes in Nominal Amplitude (dB)	Control Level (V)
BE-DA-DPS-N001	0.8~2.0	6	12*	3*	1.8*	1.8*	±0.5*	+5/0
BE-DA-DPS-N002	1~1.2	6	4.8*	1*	1.3*	1.4*	±0.15*	0/-5
BE-DA-DPS-N003	1~1.2	6	5.5*	1*	1.3*	1.3*	±0.3*	+5/0
BE-DA-DPS-N004	1.2~1.4	6	≤5.5	1*	≤1.7	≤1.7	±0.3*	+5/0
BE-DA-DPS-N005	1.2~1.4	6	≤5.5	1*	≤1.7	≤1.7	±0.3*	0/-5

BE-DA-DPS-N006	1.2~1.4	2	1.2*	-	1.4*	1.4*	0.2*	0/-5
BE-DA-DPS-N007	1.5~1.8	6	≤6	≤3	≤1.8	≤1.8	±0.5*	0/-5
BE-DA-DPS-N008	1.6~2.0	6	5*	3*	1.5*	1.5*	±0.3*	0/-5
BE-DA-DPS-N009	1.6~2.0	6	5*	3*	1.5*	1.5*	±0.5*	+5/0
BE-DA-DPS-N010	2~2.5	6	4.5*	2*	1.5*	1.5*	±0.5*	+5/0
BE-DA-DPS-N011	2~2.5	6	4.5*	1.5*	1.4*	1.4*	±0.3*	+5/0
BE-DA-DPS-N012	2~2.5	6	≤5.5	≤2.5	≤1.7	≤1.7	±0.5*	0/-5
BE-DA-DPS-N013	2~6	6	12*	3*	1.8*	1.8*	±0.5*	0/-5
BE-DA-DPS-N014	2~6	6	13*	4*	2.3*	2.3*	±0.5*	+5/0
BE-DA-DPS-N015	2~6	4	5.5*	3*	≤2	≤2	±0.8*	+5/0
BE-DA-DPS-N016	2.7~3.5	6	≤5.5	≤2	≤1.7	≤1.6	±0.4*	0/-5
BE-DA-DPS-N017	2.7~3.5	6	≤5.5	≤2	≤1.7	≤1.6	±0.4*	+5/0
BE-DA-DPS-N018	2.7~3.5	1	2*	3*	1.5*	1.5*	±0.2*	+5/0
BE-DA-DPS-N019	3.1~3.4	6	5*	1*	1.5*	1.5*	±0.5*	+5/0
BE-DA-DPS-N020	3.7~4.2	6	5.5*	1.2*	1.4*	1.4*	±0.2*	0/-5
BE-DA-DPS-N021	4~7	Fixed	0.3*	-	1.4*	1.3*	±0.2*	-
BE-DA-DPS-N022	4~14	Fixed	0.3*	-	1.3*	1.3*	±0.2*	-
BE-DA-DPS-N023	4.5~5.0	6	5.5*	1*	≤1.6	≤1.6	±0.4*	0/-5
BE-DA-DPS-N024	4.5~6.0	8	6*	2*	1.5*	1.5*	±0.4*	+5/0
BE-DA-DPS-N025	5~6	6	≤6.3	≤2	≤1.4	≤1.5	±0.35*	0/-5
BE-DA-DPS-N026	5~6	5	≤5.3	2*	≤1.5	≤1.5	±0.35*	+5/0
BE-DA-DPS-N027	5~6	6	≤6.0	≤2	≤1.5	≤1.5	±0.35*	+5/0
BE-DA-DPS-N028	6~14	6	11*	2.4*	1.7*	1.7*	±0.8*	+5/0
BE-DA-DPS-N029	6~18	6	≤14	≤6	≤2.3	≤2.3	±1.5*	0/-5
BE-DA-DPS-N030	6~18	6	≤14	≤6	≤2.3	≤2.3	±1.5*	+5/0
BE-DA-DPS-N031	6~18	6	14*	3.8*	2*	2*	±1*	+5/0
BE-DA-DPS-N032	6~18	Fixed	≤0.6	-	≤2	≤2	±0.25*	-
BE-DA-DPS-N033	7.4~11.8	6	8.5*	4*	1.5*	1.5*	±0.7*	+5/0
BE-DA-DPS-N034	6.5~8.5	6	7.3*	3*	1.7*	1.7*	±0.8*	0/-5
BE-DA-DPS-N035	8~10	5	7*	1*	1.4*	1.4*	±0.4*	+5/0
BE-DA-DPS-N036	8~10	5	6.5*	≤2.5	1.3*	1.4*	±0.4*	0/-5
BE-DA-DPS-N037	8~10	5	6.5*	≤2.5	1.3*	1.4*	±0.4*	0/-5
BE-DA-DPS-N038	8~12	6	8.5*	2.0*	1.6*	1.6*	±0.5*	0/-5
BE-DA-DPS-N039	8~12	4	4*	2*	≤1.5	≤1.5	±0.5*	+5/0
BE-DA-DPS-N040	8~12	6	8*	2.4*	1.6*	1.6*	±0.4*	0/-5
BE-DA-DPS-N041	8~12	6	8.5*	2.5*	1.5*	1.5*	±0.4*	+5/0
BE-DA-DPS-N042	9~10	2	0.7*	5*	1.6*	1.6*	0.3*	+5/0
BE-DA-DPS-N043	10~18	6	13*	4*	2*	2*	±1*	+5/0
BE-DA-DPS-N044	11~13	6	8*	1.5*	1.6*	1.6*	±0.5*	+5/0
BE-DA-DPS-N045	13~15	6	8*	1.5*	1.6*	1.6*	±0.5*	+5/0
BE-DA-DPS-N046	14~18	6	9*	3.5*	1.5*	1.6*	±0.6*	+5/0
BE-DA-DPS-N047	15~18	5	9*	3*	1.5*	1.5*	±0.6*	0/-5
BE-DA-DPS-N048	15~18	6	9*	2.5*	1.5*	1.5*	±0.5*	0/-5
BE-DA-DPS-N049	17~21	6	8*	2.5*	1.9*	1.6*	±0.6*	+5/0
BE-DA-DPS-N050	17~21	6	8*	2.5*	1.9*	1.6*	±0.6*	+5/0
BE-DA-DPS-N051	18.5~23.5	6	≤9.5	≤3	≤1.9	≤2	±0.9*	0/-5
BE-DA-DPS-N052	18.5~23.5	6	≤9.5	≤3	≤1.9	≤2	±0.9*	0/-5
BE-DA-DPS-N053	18.5~23.5	6	≤10	3*	1.7*	1.9*	≤1.0*	+5/0
BE-DA-DPS-N054	18.5~23.5	6	≤9.5	≤4	≤2	≤2.1	±0.9*	+5/0
BE-DA-DPS-N055	24~29	6	10*	2*	1.5*	1.5*	±0.5*	0/-5
BE-DA-DPS-N056	29~32	6	≤11	≤3	≤2.0	≤2	±0.6*	0/-5
BE-DA-DPS-N057	29~32	6	≤11	≤3	≤2.0	≤2	±0.6*	+5/0
BE-DA-DPS-N058	29~32	6	≤11	≤3	≤2.0	≤2	±0.6*	+5/0
BE-DA-DPS-N059	30~40	6	8*	4*	1.7*	1.6*	±0.75*	0/-5
BE-DA-DPS-N060	34~36	5	8.6*	3*	2.0*	2*	±0.5*	0/-5
BE-DA-DPS-N061	34~36	1	3.5*	3*	1.8*	1.8*	±0.3*	+5/0

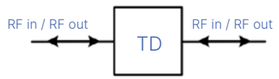
Available in bare die and module integration

Switchable RF Delay for Ka-Band Beamforming & Timing Applications

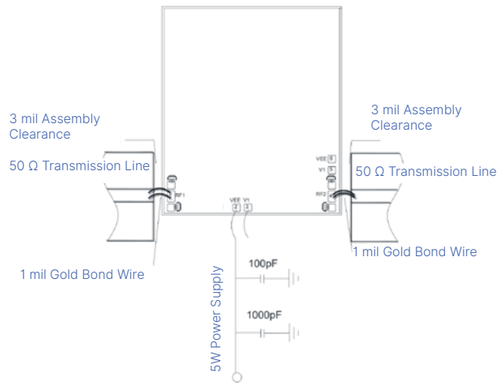
DELAY LINES

- Low insertion loss on RF path
- High RF-to-DC isolation
- High current handling capability
- Stable performance across temperature

Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed



TTL-Controlled Delay Line



BE-DA-DL-B002 as Example

BE-DA-DL GaAs Delay Lines MMIC

N-Series

Model Number	Frequency (GHz)	Delay Bits (bit)	Insertion Loss (dB)	Delay Step (ps)	Maximum Delay (ps)	Control Voltage (V)
BE-DA-DL-N001	0.35~2	6	12*	25	1575	0/-5
BE-DA-DL-N002	0.5~6	1	≤12	1428	1428	0/-5
BE-DA-DL-N003	0.5~6	3	≤13	178	1246	0/-5
BE-DA-DL-N004	0.5~6	8	≤18	5	1275	0/-5
BE-DA-DL-N005	0.5~7	6	≤14	14	882	0/-5
BE-DA-DL-N006	0.5~7	4	14*	80	1280	+5/0
BE-DA-DL-N007	0.5~8	1	12*	1280	1280	+5/0
BE-DA-DL-N008	1~2	2	6*	384.5	1153.5	0/-5
BE-DA-DL-N009	1~12	1	≤12	833	833	+5/0
BE-DA-DL-N010	1~12	1	2*	8	8	+5/0
BE-DA-DL-N011	1~12	1	2*	10	10	+5/0
BE-DA-DL-N012	1~12	1	2*	5	5	+5/0
BE-DA-DL-N013	1~12	1	2*	4	4	+5/0
BE-DA-DL-N014	0.8~12	1	12*	833	833	+5/0
BE-DA-DL-N015	2~6	1	6*	640	640	+5/0
BE-DA-DL-N016	2~12	5	22*	20.8	645.833	+5/0
BE-DA-DL-N017	2~18	6	≤22	10	630	0/-5
BE-DA-DL-N018	2~18	6	≤22	10	630	+5/0
BE-DA-DL-N019	2~18	6	≤18	5	315	0/-5
BE-DA-DL-N020	2~18	5	10.5*	1	31	0/-5
BE-DA-DL-N021	2~18	5	10.5*	1	31	+5/0
BE-DA-DL-N022	2.6~12	Fixed	4*	-	200	-
BE-DA-DL-N023	5~13	3	16.5*	111	777	0/-5
BE-DA-DL-N024	5~13	1	7.5*	416.66	416.66	0/-5
BE-DA-DL-N025	5~13	4	18.5*	52.083	781.25	0/-5
BE-DA-DL-N026	6~18	6	10.5*	1.3	82	0/-5
BE-DA-DL-N027	6~18	7	25*	6	762	+5/0
BE-DA-DL-N028	7~13	3	15*	104.16	729.16	0/-5
BE-DA-DL-N029	7.6~11.6	3	15*	104.16	729.16	+5/0
BE-DA-DL-N030	8~12	1	6.5*	416	416	0/-5
BE-DA-DL-N031	8~12	4	16*	50	750	+5/0
BE-DA-DL-N032	8~12	6	7.5*	1.56	98.4	0/-5
BE-DA-DL-N033	8~12	1	≤3	100	100	+5/0
BE-DA-DL-N034	8~12	1	≤3	102	102	0/-5
BE-DA-DL-N035	8~12	1	≤3.5	102	102	+5/0
BE-DA-DL-N036	8~12	2	7*	105	315	+5/0
BE-DA-DL-N037	9~10	2	6*	104	312	+5/0
BE-DA-DL-N038	10~18	3	14*	62.5	437.5	0/-5
BE-DA-DL-N039	10~18	3	15.5*	71.4	500	0/-5
BE-DA-DL-N040	10~18	3	16*	74.074	518	0/-5
BE-DA-DL-N041	14~18	2	≤8	62.5	187.5	+5/0
BE-DA-DL-N042	14~18	3	14.5*	60.6	424.24	0/-5
BE-DA-DL-N043	14~18	6	10	0.975	31	+5/0
BE-DA-DL-N044	17~21	4	25	51.948	779.22	+5/0
BE-DA-DL-N045	17~22	6	23	6	378PS	+5/0
BE-DA-DL-N046	17~22	7	33	6	762PS	+5/0
BE-DA-DL-N047	19~21	3	17*	50	350	+5/0
BE-DA-DL-N048	19~22	4	25*	49.02	735	+5/0
BE-DA-DL-N049	22~24	4	23*	43.5	652.5	0/-5
BE-DA-DL-N050	22~24	1	18*	696	696	0/-5
BE-DA-DL-N051	27~33	6	22*	5	378	+5/0
BE-DA-DL-N052	27.5~31	3	8.5*	17.1	119.7	+5/0
BE-DA-DL-N053	27.5~31	4	23*	34.2	512.82	+5/0
BE-DA-DL-N054	28~32	3	12*	33.11	299	0/-5
BE-DA-DL-N055	28~32	3	12*	33.11	299	+5/0
BE-DA-DL-N056	28~32	1	9*	264.9	264.9	0/-5
BE-DA-DL-N057	28~32	1	9*	264.9	264.9	+5/0
BE-DA-DL-N058	32~40	3	15*	28.57	200	0/-5
BE-DA-DL-N059	32~40	6	19*	0.446	28.13	0/-5
BE-DA-DL-N060	32~40	6	19*	0.446	28.13	+5/0
BE-DA-DL-N061	32~40	4	13*	7.1	107.148	+5/0

BE-DA-DL GaAs Delay Lines MMIC

B-Series (KA-Band)

Model Number	Frequency (GHz)	Delay Bits (bit)	Delay Configuration	Gain (dB)	Return Loss (dB)	Delay Accuracy (ps)	Control Voltage (V)
BE-DA-DL-B001	26~34	1	8λ	-10	15	±5	5/-5
BE-DA-DL-B002	26~34	3	1λ, 2λ, 4λ	-14	15	±3	5/-5

BE-DA-DL GaAs Delay Lines MMIC

B-Series

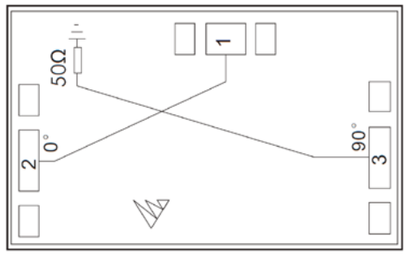
Model Number	Frequency (GHz)	Delay Bits (bit)	Insertion Loss (dB)	Delay Step (ps)	Maximum Delay (ps)	Control Voltage (V)
BE-DA-DL-B003	0.35~2	6	11	25	1575	0/-5
BE-DA-DL-B004	0.35~2	1	8	1600	1600	0/-5
BE-DA-DL-B005	0.35~2	1	10	2000	2000	0/-5
BE-DA-DL-B006	1~2	2	6.5	0.5λ@1.3G	1154	0/-5
BE-DA-DL-B007	1~2	7	14	14	1775	0/-5
BE-DA-DL-B008	5~13	3	16.5	1λ@1.0G	700	0/-5
BE-DA-DL-B009	6~18	4	13	1	71	0/-5
BE-DA-DL-B010	6~18	3	10	8	56	0/-5
BE-DA-DL-B011	6~18	5	17	6	186	0/-5
BE-DA-DL-B012	8~12	4	12	0.25λ@9.6G	390	0/-5
BE-DA-DL-B013	8~12	3	14	1λ@9.6G	730	0/-5
BE-DA-DL-B014	33~37	4	18	1λ@35G	429	0/-5

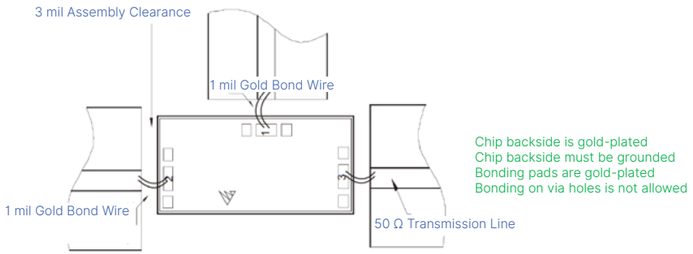
Available in bare die and module integration

Compact MMIC Hybrid Couplers for RF Signal Distribution

HYBRID COUPLERS MMIC

- Available in 90° (Quadrature) and 180° (Rat-Race / Balun) configurations
- Wide frequency coverage from MHz to mmWave bands
- Tight amplitude balance and phase accuracy
- High isolation between ports
- Low insertion loss for efficient signal distribution
- Suitable for balanced circuits and signal combining





BE-DA-H90-B005 as Example

90° Hybrid Couplers (Quadrature Couplers)

- I/Q systems
- image rejection mixers
- balanced amplifiers

180° Hybrid Couplers (Rat-Race / Balun)

- differential signal generation
- balanced mixers
- push-pull amplifiers

Directional Couplers

- power monitoring
- feedback loops
- RF measurement systems

GaAs 90° Hybrid Coupler MMIC

BE-DA-H90 90° Hybrid Coupler MMIC

B-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Amplitude balance (dB)	Phase balance (°)
BE-DA-H90-B001	0.8~2	0.8	23	±1.0	±6.0
BE-DA-H90-B002	1.3~2.6	0.7	23	±1.0	±4.0
BE-DA-H90-B003	2.7~3.5	0.7	23	±0.3	±3.0
BE-DA-H90-B004	6~18	0.9	25	±1.0	±2.0
BE-DA-H90-B005	22~32	1.5	20	±0.5	±2.0

BE-DA-H90 90° Hybrid Coupler MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Insertion Loss Flatness (dB)	Amplitude Imbalance (dB)	Phase Imbalance (°)
BE-DA-H90-N001	0.5~0.8	1.8*	16*	±0.2*	±0.2*	±2*
BE-DA-H90-N002	0.5~0.8	1.8*	16*	±0.2*	±0.2*	±2*
BE-DA-H90-N003	0.7~1.4	1.8*	16*	±0.2*	±0.2*	±2*
BE-DA-H90-N004	0.7~1.4	1.8*	16*	±0.2*	±0.2*	±2*
BE-DA-H90-N005	0.8~2.0	2	14*	±0.5*	±1.5*	±10*
BE-DA-H90-N006	1~4	2.2*	13*	±0.25*	1.5*	±5*
BE-DA-H90-N007	1.5~4.0	0.8*	17*	±0.35*	±1.0*	±3*
BE-DA-H90-N008	1.6~2.4	1.1*	20*	±0.1*	±0.2*	±2*
BE-DA-H90-N009	1.6~2.4	1.1*	20*	±0.1*	±0.2*	±2*
BE-DA-H90-N010	2.0~2.4	1.5*	15*	±0.5*	±0.5*	±3*
BE-DA-H90-N011	2~18	2.5*	15*	±1.0*	±1.5*	±10*
BE-DA-H90-N012	2.7~3.5	0.8	22*	±0.1*	±0.3*	±3*
BE-DA-H90-N013	2.7~3.5	0.9*	22	±0.1*	±0.3*	±3*
BE-DA-H90-N014	3~4.4	0.5*	20*	±0.1*	±0.1*	±2*
BE-DA-H90-N015	3~4.4	0.5*	20*	±0.1*	±0.1*	±2*
BE-DA-H90-N016	3~6	1*	18*	≤±0.3	±0.2*	±2*
BE-DA-H90-N017	4~8	0.7*	16*	≤±0.3	±0.3*	±3*
BE-DA-H90-N018	4~9	2.1*	18*	±0.35*	±0.8*	±3*
BE-DA-H90-N019	5~10	0.5*	19*	±0.3*	±0.5*	±2*
BE-DA-H90-N020	5~10	0.7*	20*	±0.2*	±0.5*	±2.5*
BE-DA-H90-N021	6~18	0.75*	22*	±0.3*	±1.0*	±1*
BE-DA-H90-N022	6~18	0.75*	22*	±0.3*	±1.0*	±1*
BE-DA-H90-N023	6~18	≤0.8	-	±0.2*	-	-
BE-DA-H90-N024	6~18	≤0.9	≥18	±0.35*	±0.9*	±2*
BE-DA-H90-N025	6~18	≤0.9	≥18	±0.35*	±0.9*	±2*
BE-DA-H90-N026	7~13	0.7*	20*	±0.2*	±0.4*	±2*
BE-DA-H90-N027	8~12	≤0.5	≥20	±0.1*	±0.3*	±1*
BE-DA-H90-N028	8~12	≤0.7	≥20	±0.2*	≤±0.3	±3*
BE-DA-H90-N029	8~12	0.9*	20*	≤±0.3	±0.2*	±1*
BE-DA-H90-N030	10~20	0.65*	19*	±0.2*	±0.4*	±3*
BE-DA-H90-N031	10~22	0.65*	20*	±0.3*	±0.4*	±1*
BE-DA-H90-N032	12~18	1.2*	35*	≤±0.2	±0.2*	±2*
BE-DA-H90-N033	14~18	0.5*	21*	±0.2*	±0.2*	±2*
BE-DA-H90-N034	14~28	0.6*	19*	±0.3*	±0.4*	±1.5*
BE-DA-H90-N035	14~28	0.65*	25*	±0.2*	±0.5*	±2*
BE-DA-H90-N036	17~32	0.8*	17*	±0.25*	±0.25*	±2*
BE-DA-H90-N037	20~42	0.55*	15*	±0.3*	±0.4*	±3*
BE-DA-H90-N038	20~42	0.6*	15*	±0.3*	±0.5*	±2*
BE-DA-H90-N039	28~55	0.6*	14*	±0.2*	±0.5*	±2*
BE-DA-H90-N040	28~55	0.9*	18*	±0.4*	±0.6*	±3.5*

GaAs 180° Hybrid Coupler MMIC

BE-DA-H180 180° Hybrid Coupler MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Insertion Loss Flatness (dB)	Amplitude Imbalance (dB)	Phase Imbalance (°)	Isolation (dB)
BE-DA-H180-N001	1.0~1.6	1.2*	±0.2*	±0.1*	±5	25
BE-DA-H180-N002	2~4	1.8*	±0.7*	±0.2*	±6	-
BE-DA-H180-N003	2~4	1.8*	±0.7*	±0.2*	±6	-
BE-DA-H180-N004	4~8	1.5*	±0.7*	±0.2*	±4	-
BE-DA-H180-N005	4~8	1.5*	±0.7*	±0.2*	±4	-
BE-DA-H180-N006	4~8	1.5*	±0.6*	±0.1*	±5	-
BE-DA-H180-N007	4~8	1.5*	±0.6*	±0.1*	±5	-
BE-DA-H180-N008	5~18	1.5*	±1*	±0.3*	±3	-
BE-DA-H180-N009	7~14	1.4*	±0.7*	±0.4*	±1	-
BE-DA-H180-N010	7~14	1.4*	±0.7*	±0.4*	±1	-
BE-DA-H180-N011	12~20	1.6*	±0.6*	±0.3*	±2	-
BE-DA-H180-N012	12~20	1.6*	±0.6*	±0.3*	±2	-
BE-DA-H180-N013	18~28	1.5*	±0.8*	±0.1*	±2	-
BE-DA-H180-N014	26~38	1.8*	±1*	±0.5*	±2	-

Directional Coupler MMIC

BE-DA-HDR Directional Coupler MMIC

B-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Coupling Degree (dB)	Isolation Degree (dB)	Return Loss (dB)
BE-DA-HDR-B001	1.2~1.4	0.1	25	55	20
BE-DA-HDR-B002	1.2~1.4	0.2	19	40	20
BE-DA-HDR-B003	1.2~1.4	0.1	25	45	20
BE-DA-HDR-B004	2~6	0.4	15	-	25
BE-DA-HDR-B005	2~6	0.4	20	-	25
BE-DA-HDR-B006	2~18	1.2	20	-	15
BE-DA-HDR-B007	2~18	0.8	15	-	15
BE-DA-HDR-B008	5~6	0.3	20	29	21
BE-DA-HDR-B009	6~18	0.5	15	-	20
BE-DA-HDR-B010	6~18	0.4	20	-	20
BE-DA-HDR-B011	8~12	0.4	10	-	21
BE-DA-HDR-B012	12~20	0.6	35	-	23
BE-DA-HDR-B013	14~18	0.4	19	30	15
BE-DA-HDR-B014	15~40	0.8	20	-	20

BE-DA-HDR Directional Coupler MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Coupling Degree (dB)	Coupling Flatness (dB)	Port Standing Wave (dB)
BE-DA-HDR-N001	0.5~15	0.9*	20*	±1*	1.5*
BE-DA-HDR-N002	2~6	≤0.6	15*	±1.5*	≤1.2
BE-DA-HDR-N003	2~6	≤0.4	20*	±2*	≤1.2
BE-DA-HDR-N004	2.7~6.2	0.5*	15*	±1*	1.2*
BE-DA-HDR-N005	2.7~6.2	0.5*	15*	±1*	1.2*
BE-DA-HDR-N006	2~18	1*	12*	±3*	≤1.5
BE-DA-HDR-N007	4~20	1.8*	10*	±2*	1.5*
BE-DA-HDR-N008	4~20	1*	20*	±2*	1.5*
BE-DA-HDR-N009	4~25	0.8*	20*	±2*	1.5*
BE-DA-HDR-N010	4~25	0.8*	12*	±2*	1.5*
BE-DA-HDR-N011	6~18	≤0.7	15*	±2*	≤1.2
BE-DA-HDR-N012	6~18	≤0.6	20*	±2*	≤1.3
BE-DA-HDR-N013	7~13	0.25*	25*	±3*	1.2*
BE-DA-HDR-N014	7~13	0.3*	22*	±3*	1.2*
BE-DA-HDR-N015	7~13	0.2*	22*	±3*	1.25*
BE-DA-HDR-N016	18~40	≤1	14*	±1*	≤1.5
BE-DA-HDR-N017	18~40	≤1	14*	±1*	≤1.5
BE-DA-HDR-N018	18~50	≤0.6	20*	±1.5*	≤1.5
BE-DA-HDR-N019	18~50	≤0.6	20*	±1.5*	≤1.5
BE-DA-HDR-N020	18~50	≤0.7	15*	±1.5*	≤1.5
BE-DA-HDR-N021	18~50	≤0.7	15*	±1.5*	≤1.5
BE-DA-HDR-N022	18~50	≤1	10*	±1.5*	≤1.5
BE-DA-HDR-N023	18~50	≤1	10*	±1.5*	≤1.5
BE-DA-HDR-N024	90~96	0.5*	35*	±3*	2*

Available in bare die and module integration

DC to XX GHz Equal and Unequal Power Distribution for RF Signal Routing

POWER DIVIDERS / COMBINERS MMIC

- Available in 2-way, 3-way, 4-way, and multi-way configurations
- Low insertion loss and excellent amplitude balance
- High port-to-port isolation
- Supports both power splitting and combining applications

2-Way Power Dividers (0°)

BE-DA-2WPD 0° Two-Way Power Divider MMIC

B-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Static electricity level
BE-DA-2WPD-B001	0.01~40	3.8	6.6	22	1C
BE-DA-2WPD-B002	0.5~1.5	0.7	15	15	0
BE-DA-2WPD-B003	0.5~1.5	0.7	22	20	1B
BE-DA-2WPD-B004	1~2	0.7	30	20	0
BE-DA-2WPD-B005	1~3	0.7	18	18	0
BE-DA-2WPD-B006	1~3	0.7	22	20	1B
BE-DA-2WPD-B007	1~18	1.8	22	20	1C
BE-DA-2WPD-B008	2~6	0.6	15	18	0
BE-DA-2WPD-B009	2~6	0.6	22	20	1B
BE-DA-2WPD-B010	2~18	1.0	20	20	1C
BE-DA-2WPD-B011	3~9	0.6	20	15	0
BE-DA-2WPD-B012	3~9	0.6	22	20	1B
BE-DA-2WPD-B013	5~18	1	20	20	0
BE-DA-2WPD-B014	6~18	0.6	20	18	0
BE-DA-2WPD-B015	6~18	0.6	22	20	1C
BE-DA-2WPD-B016	8~12	0.4	20	15	1C
BE-DA-2WPD-B017	10~20	0.8	25	20	1C
BE-DA-2WPD-B018	12~18	0.6	25	20	1A
BE-DA-2WPD-B019	12~26.5	0.8	20	18	1C
BE-DA-2WPD-B020	15~17	0.6	28	18	1C
BE-DA-2WPD-B021	18~40	0.8	20	18	1C
BE-DA-2WPD-B022	27~31	0.9	25	22	1B
BE-DA-2WPD-B023	30~40	0.6	25	25	0

BE-DA-2WPD 0° Two-Way Power Divider MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Insertion Loss Flatness (dB)	Wave
BE-DA-2WPD-N001	0.5~1.5	≤1	≥13	±0.2*	≤1.6
BE-DA-2WPD-N002	0.5~2.7	4*	13*	±0.4*	1.8*
BE-DA-2WPD-N003	0.8~2	≤0.8	≥15	±0.2*	≤1.5
BE-DA-2WPD-N004	0.8~2.1	≤1	13*	±0.1*	≤1.4/1.2
BE-DA-2WPD-N005	0.8~4	≤1.1	≥14	±0.3*	≤1.8
BE-DA-2WPD-N006	1~3	≤1	≥14	±0.2*	≤1.5
BE-DA-2WPD-N007	1~4	0.8*	18*	±0.5*	1.4*
BE-DA-2WPD-N008	1.3~6.2	≤1.6	≥17	±0.4*	1.4*/1.3*
BE-DA-2WPD-N009	1.6~5.0	≤1	19*	±0.15*	≤1.5/1.3
BE-DA-2WPD-N010	1.8~9.5	≤1.6	18*	±0.45*	1.4*
BE-DA-2WPD-N011	2~6	≤0.9	≥17	±0.2*	≤1.5
BE-DA-2WPD-N012	2~8	≤1.1	≥16	±0.2*	≤1.7
BE-DA-2WPD-N013	2~18	1.5*	15*	±0.5*	1.8*/1.5*
BE-DA-2WPD-N014	2.8~7.2	≤0.8	19*	±0.15*	≤1.5/1.3
BE-DA-2WPD-N015	4~12	1.2*	20*	±0.2*	1.5*
BE-DA-2WPD-N016	5~14	1*	20*	±0.3*	1.5*
BE-DA-2WPD-N017	5~20	1.1*	17*	±0.4*	≤1.9
BE-DA-2WPD-N018	5~20	1.1*	17*	±0.4*	≤1.9
BE-DA-2WPD-N019	5.5~27	≤1.6	19*	±0.6*	≤1.8
BE-DA-2WPD-N020	6~18	≤1	≥17	±0.2*	≤1.6
BE-DA-2WPD-N021	7~20	1*	20*	±0.3*	1.4/1.63*
BE-DA-2WPD-N022	8~12	≤0.6	≥20	±0.1*	≤1.3
BE-DA-2WPD-N023	8~12	0.4*	20*	±0.1*	1.2*
BE-DA-2WPD-N024	10~20	0.9*	18*	±0.5*	1.4*/1.3*
BE-DA-2WPD-N025	10~35	0.8*	18*	±0.3*	1.5*
BE-DA-2WPD-N026	12~18	0.5*	20*	±0.1*	1.2*
BE-DA-2WPD-N027	18~26	1*	≥19	±0.2*	≤1.3
BE-DA-2WPD-N028	22~30	0.7*	18*	±0.3*	1.5*/1.2*
BE-DA-2WPD-N029	22~36	0.6*	20*	±0.5*	1.4/1.7*
BE-DA-2WPD-N030	22~36	0.7*	20*	±0.2*	1.3/1.5*
BE-DA-2WPD-N031	22~40	0.6*	22*	±0.3*	1.7*/1.6*
BE-DA-2WPD-N032	25~31	0.7*	20*	±0.3*	1.3*
BE-DA-2WPD-N033	26~31	0.6*	20*	±0.2*	1.4*
BE-DA-2WPD-N034	27~47	1*	17*	±0.5*	2*
BE-DA-2WPD-N035	29~31	0.6*	20*	±0.15*	1.5*
BE-DA-2WPD-N036	30~40	0.4*	20*	±0.2*	1.2*/1.1*
BE-DA-2WPD-N037	30~40	0.6*	16*	±0.2*	1.2*/1.1*
BE-DA-2WPD-N038	32~40	6*	15*	±0.5*	2*
BE-DA-2WPD-N039	34~36	≤0.7	≥17	±0.2*	≤1.6
BE-DA-2WPD-N040	40~50	0.7*	≥18	±0.25*	1.4*

3-Way Power Dividers (0°)

BE-DA-3WPD 0° Three-Way Power Divider MMIC

B-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Static electricity level
BE-DA-3WPD-B001	5~18	1.4	25	20	0
BE-DA-3WPD-B002	6~18	1.0	20	15	1C
BE-DA-3WPD-B003	8~12	0.7	22	20	1C
BE-DA-3WPD-B004	12~18	0.7	25	20	1A
BE-DA-3WPD-B005	14~18	0.7	22	18	1C

BE-DA-3WPD 0° Three-Way Power Divider MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Insertion Loss Flatness (dB)	Wave
BE-DA-3WPD-N001	0.8~2.7	0.8*	≥15	±0.2*	1.5*
BE-DA-3WPD-N002	2~3	≤0.6	≥19	±0.2*	≤1.6
BE-DA-3WPD-N003	3.5~6.5	≤0.8	≥14	±0.2*	≤1.9
BE-DA-3WPD-N004	8~12	≤0.8	≥15	±0.2*	≤1.5
BE-DA-3WPD-N005	12~18	≤0.8	≥18	±0.3*	≤1.8
BE-DA-3WPD-N006	18~26	1*	19*	-	1.4*
BE-DA-3WPD-N007	20~40	≤0.8	≥15	±0.2*	≤2

3-Way Power Dividers (0°)

BE-DA-4WPD 0° Four-Way Power Divider MMIC

B-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Static electricity level
BE-DA-4WPD-B001	2~18	2.0	20	15	1C
BE-DA-4WPD-B002	2.5~6	1.5	20	20	0
BE-DA-4WPD-B003	6~18	1.5	20	20	0
BE-DA-4WPD-B005	12~18	1.0	18	15	1B
BE-DA-4WPD-B006	20~40	2.0	20	20	0
BE-DA-4WPD-B007	22~32	0.8	17	18	1C
BE-DA-4WPD-B008	31~38	1.2	25	20	0

BE-DA-4WPD 0° Four-Way Power Divider MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Insertion Loss Flatness (dB)	Wave
BE-DA-4WPD-N001	2~18	2.5*	20*	±1*	2*/1.5*
BE-DA-4WPD-N002	8~12	0.7*	16*	±0.2*	1.3*
BE-DA-4WPD-N003	22~28	1.5*	25*	±0.2*	1.5*
BE-DA-4WPD-N004	29~31	1*	25*	±0.2*	1.3*

Special Phase Power Divider MMIC

BE-DA-SPD Special Phase Power Divider MMIC

Special Phase Power Divider MMIC

Model Number	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Remark	Return Loss (dB)	Static electricity level
BE-DA-SPD-B001	1.2~2.4	3.0	22	45°1′2″	20	1B
BE-DA-SPD-B002	1.2~2.4	3.0	22	90°1′2″	20	1B
BE-DA-SPD-B003	1.2~2.4	3.0	22	135°1′2″	20	1B
BE-DA-SPD-B004	1.2~2.4	3.0	22	180°1′2″	20	1B
BE-DA-SPD-B005	6~18	1.2	20	0°2′4″	18	1B

Available in bare die and module integration

Compact MMIC Hybrid Couplers for RF Signal Distribution

LIMITER MMIC

BE-DA-LIM Limiter MMIC

B-Series

Model Number	Frequency (GHz)	Insertion loss (dB)	Clipping Level (dBm)	Return Loss (dB)	Maximum Input Power (W)
BE-DA-LIM-B001	0.01~10	0.3	+15	-25	5
BE-DA-LIM-B002	0.01~18	0.5	+16	-20	2
BE-DA-LIM-B003	1~1.4	0.15	+14.5	-20	100
BE-DA-LIM-B004	1~2	0.4	+14.5	-15	100
BE-DA-LIM-B005	1~6	0.5	+16	-12	20
BE-DA-LIM-B006	2~4	0.4	+15	-15	40
BE-DA-LIM-B007	5~6	0.9	+18.5	-20	10
BE-DA-LIM-B008	5~6	0.4	+15.5	-15	20
BE-DA-LIM-B009	8~12	0.7	+15.5	-15	20(Pulse)
BE-DA-LIM-B010	10~18	0.7	+16	-15	20(Pulse)

BE-DA-LIM Limiter MMIC

N-Series

Model Number	Frequency (GHz)	Insertion Loss (dB)	Clipping Level (dBm)	Input Standing Wave	Output standing wave	Power Resistance (dBm)
BE-DA-LIM-N001	0.3~4.0	0.4*	16*	1.6*	1.6*	50*
BE-DA-LIM-N002	0.5~6.0	0.6*	15*	1.8*	1.8*	47*
BE-DA-LIM-N003	1~8	0.35*	15*	≤1.3	≤1.4	40*
BE-DA-LIM-N004	1.2~1.4	0.35*	16*	1.3*	1.3*	50*
BE-DA-LIM-N005	1.5~4.5	0.5*	15*	1.6*	1.6*	43*
BE-DA-LIM-N006	2~6	≤0.5	15*	≤1.5	≤1.5	37*
BE-DA-LIM-N007	2~6	0.6*	15*	1.6*	1.6*	49*
BE-DA-LIM-N008	2~18	0.6*	15*	≤2	≤2	36*
BE-DA-LIM-N009	2~18	0.8*	16*	1.6*	1.6*	41*
BE-DA-LIM-N010	2.6~6.2	1.5*	18*	1.4*	1.4*	45*
BE-DA-LIM-N011	2.7~13	1*	16*	2*	2*	49*
BE-DA-LIM-N012	2.7~13	0.6*	16*	1.7*	1.7*	46*
BE-DA-LIM-N013	5~6	0.5*	16*	1.3*	1.3*	50*
BE-DA-LIM-N014	5~8	1*	17*	1.2*	1.2*	37*
BE-DA-LIM-N015	5~12	0.7*	16*	1.6*	1.6*	44*
BE-DA-LIM-N016	5~13	0.8*	16*	1.7*	1.7*	51*
BE-DA-LIM-N017	6~18	≤0.5	15*	≤1.6	≤1.6	36*
BE-DA-LIM-N018	6~22	≤1	16*	≤2.1	≤2.1	38.5*
BE-DA-LIM-N019	7~13	0.7*	17*	1.6*	1.6*	44*
BE-DA-LIM-N020	8~11	≤0.35	15*	≤1.3	≤1.3	35*
BE-DA-LIM-N021	8~12	≤0.6	15*	≤1.5	≤1.5	40*
BE-DA-LIM-N022	8~12	0.6*	16*	1.6*	1.6*	48*
BE-DA-LIM-N023	8~12	1.2*	18*	1.4*	1.4*	43*
BE-DA-LIM-N024	8~12	0.4*	15*	1.3*	1.3*	44*
BE-DA-LIM-N025	8.5~10.5	0.6*	16*	1.3*	1.3*	49*
BE-DA-LIM-N026	9~14	0.5*	16*	1.5*	1.5*	40*
BE-DA-LIM-N027	10~18	0.6*	17.5*	1.5*	1.5*	43*
BE-DA-LIM-N028	12~18	0.6*	15*	1.4*	1.4*	40*
BE-DA-LIM-N029	18~26	≤1	17*	≤1.4	≤1.4	33*
BE-DA-LIM-N030	26~38	0.8*	17*	1.4*	1.4*	34*
BE-DA-LIM-N031	32~38	0.8*	17*	1.5*	1.5*	37*
BE-DA-LIM-N032	33~37	1.1*	15*	1.5*	1.5*	33*

Available in bare die and module integration

DC to 40 GHz • GaAs & GaN MMIC Solutions

SWITCHES MMIC

- Broadband coverage from DC to 40 GHz
- Available in GaAs pHEMT and GaN technologies
- Supports SPDT configurations (expandable to multi-throw systems)
- Absorptive and reflective architectures available
- Low insertion loss down to 0.6 dB typical
- High isolation up to 55 dB
- Control options: 0/+5V, 0/-5V, TTL, high-voltage (GaN)
- Designed for bare die, ceramic package, and module integration

BE-DA-SW GaAs Switch MMIC

B-Series

Model Number	Switch Type	Frequency (GHz)	Insertion loss (dB)	Isolation (dB)	Return Loss (dB)	P1dB (dBm)	Config
BE-DA-SW-B001	SPDT	0.1~4	0.6	45	20	28	Absorptive
BE-DA-SW-B002	SP4T	0.1~4	1	45	20	21	Absorptive
BE-DA-SW-B003	SP4T	0.1~4	0.7	40	18	25	Absorptive
BE-DA-SW-B004	SPDT	0.1~6	0.3	40	20	26	Reflective
BE-DA-SW-B005	SPDT	0.1~6	0.8	65	20	28	Absorptive
BE-DA-SW-B006	SPDT	0.1~6	0.6	50	20	25	Reflective
BE-DA-SW-B007	SPDT	0.1~6	0.5	35	20	25	Absorptive
BE-DA-SW-B008	SPST	0.1~6	0.6	45	15	23	Absorptive
BE-DA-SW-B009	SP3T	0.1~8	1.5	50	15	-	Reflective
BE-DA-SW-B010	SP8T	0.1~10	2.2	50	15	22	Absorptive
BE-DA-SW-B011	SPDT	0.1~12	0.7	40	25	23	Reflective
BE-DA-SW-B012	-	0.1~12	2.0	50	25	25	Y-Shaped Reflective
BE-DA-SW-B013	SPDT	0.1~15	1.2	40	25	22	Reflective
BE-DA-SW-B014	SPDT	0.1~15	1.4	60	20	25	Absorptive
BE-DA-SW-B015	SPST	0.1~20	1.5	25	15	22	Absorptive
BE-DA-SW-B016	SP3T	0.1~20	1.8	40	25	18	Reflective
BE-DA-SW-B017	SPST	0.1~20	1.5	50	25	28	Absorptive
BE-DA-SW-B018	SPST	0.1~20	1.4	40	15	25	Absorptive
BE-DA-SW-B019	SPDT	0.1~20	1.5	50	20	20	Absorptive
BE-DA-SW-B020	SP4T	0.1~20	2.0	45	17	20	Absorptive, Mirror design
BE-DA-SW-B021	SPDT	0.1~20	2	50	15	25	Absorptive
BE-DA-SW-B022	SPDT	0.1~30	1.5	30	20	25	Reflective
BE-DA-SW-B023	SPST	0.1~30	0.5	45	18	30	GaAs PIN ,Reflective
BE-DA-SW-B024	SP4T	0.1~30	0.6	45	23	23	GaAs PIN ,Reflective
BE-DA-SW-B025	SP4T	0.1~35	2.5	35	13	18	Reflective
BE-DA-SW-B026	SP4T	0.1~35	3	30	15	15	Reflective
BE-DA-SW-B027	SPDT	0.1~40	2.2	30	15	17	Reflective
BE-DA-SW-B028	SP4T	0.4~0.7	0.4	45	20	33	Reflective
BE-DA-SW-B029	SPDT	0.5~3	1	35	15	-	Absorptive
BE-DA-SW-B030	SPST	1~18	1.5	30	15	22	Absorptive
BE-DA-SW-B031	SP4T	2~12	2.0	40	18	29	Reflective
BE-DA-SW-B032	SP3T	2~18	0.7	48	20	22	Reflective, Built-in bias
BE-DA-SW-B033	SPDT	2~18	0.8	45	14	24	Reflective, Built-in bias
BE-DA-SW-B034	SPST	4~26	0.4	55	22	30	Reflective, Built-in bias
BE-DA-SW-B035	SPDT	6~24	0.8	50	15	23	Reflective, Built-in bias
BE-DA-SW-B036	SPDT	10~24	1.2	50	20	34	Reflective, Built-in bias
BE-DA-SW-B037	SPDT	11~17	0.9	40	17	35	Reflective
BE-DA-SW-B038	SPDT	32~38	1.2	20	18	-	Reflective
BE-DA-SW-B039	SPDT	20~40	1.4	25	15	21	Reflective

BE-DA-SW GaAs Switch MMIC

N-Series (FET Switch negative pressure control)

Model Number	Switch Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Switching Time (ns)
BE-DA-SW-NA001	SPST	0.01~12	≤1.2	35*	23*	10
BE-DA-SW-NA002	SPST	0.01~18	1.5*	40*	20@10GHz	30
BE-DA-SW-NA003	SPST	0.01~18	1.5*	40*	20@10GHz	10
BE-DA-SW-NA004	SPST	0.01~20	≤2	45*	23*	10
BE-DA-SW-NA005	SPST	0.01~40	≤1.3	≥14	-	10
BE-DA-SW-NA006	SPST	0.5~12	1.3*	40*	27*	-
BE-DA-SW-NA007	SPST	19~32	1.2*	42*	20*	10
BE-DA-SW-NA008	SPST	25~27	1.5*	40*	20*	30
BE-DA-SW-NA009	SPST	30~40	≤2	≥35	20*	10
BE-DA-SW-NA010	SPDT	0.01~4	≤0.8	≥26	-	10
BE-DA-SW-NA011	SPDT	0.01~5	≤2	65*	27*	≤50
BE-DA-SW-NA012	SPDT	0.01~6	≤1.2	≥55	20*	10
BE-DA-SW-NA013	SPDT	0.01~6	1.5*	40*	23*	-
BE-DA-SW-NA014	SPDT	0.01~6	1.2*	50*	27*	20
BE-DA-SW-NA015	SPDT	0.01~6	1.2*	30*	30*	30
BE-DA-SW-NA016	SPDT	0.01~12	≤1	≥35	23*	10
BE-DA-SW-NA017	SPDT	0.01~12	1.2*	40*	25*	10
BE-DA-SW-NA018	SPDT	0.01~12	1.2*	40*	25*	10
BE-DA-SW-NA019	SPDT	0.01~12	≤1.5	≥45	20*	10
BE-DA-SW-NA020	SPDT	0.01~12	1.3*	45*	20*	30
BE-DA-SW-NA021	SPDT	0.01~13	0.9*	30*	23*	-
BE-DA-SW-NA022	SPDT	0.01~18	≤2	60@10GHz, 45@18GHz	23*	10
BE-DA-SW-NA023	SPDT	0.01~20	≤2.4	40*	23*	10
BE-DA-SW-NA024	SPDT	0.1~20	1.7*	65*	26*	30
BE-DA-SW-NA025	SPDT	0.1~40	1.8*	30*	21*	20
BE-DA-SW-NA026	SPDT	0.01~40	3	20*	15*	25
BE-DA-SW-NA027	SPDT	0.01~67	7*	30*	12*	25
BE-DA-SW-NA028	SPDT	0.01~67	3.5*	20*	10*	25
BE-DA-SW-NA029	SPDT	0.1~6	0.7*	60*	29*	30
BE-DA-SW-NA030	SPDT	0.1~6	0.7*	60*	29*	40
BE-DA-SW-NA031	SPDT	0.1~12	1*	40*	27*	10
BE-DA-SW-NA032	SPDT	0.1~18	1.3*	49*	26*	30
BE-DA-SW-NA033	SPDT	0.5~18	1.3*	50*	20*	50
BE-DA-SW-NA034	SPDT	1~2	0.4*	40*	27*	25
BE-DA-SW-NA035	SPDT	1~4	0.55*	30*	28*	-
BE-DA-SW-NA036	SPDT	1~12	≤1	32*	25*	10
BE-DA-SW-NA037	SPDT	9~10	≤0.8	≥30	27*	8
BE-DA-SW-NA038	SPDT	12~18	1.7*	56*	27*	15
BE-DA-SW-NA039	SPDT	14~18	1.0*	30*	33*	30
BE-DA-SW-NA040	SPDT	14~18	1.2*	30*	33*	25
BE-DA-SW-NA041	SPDT	18~21	1.3*	20*	-	20
BE-DA-SW-NA042	SPDT	18~21	1.3*	20*	-	20
BE-DA-SW-NA043	SPDT	18~30	≤2.5	≥25	20*	10
BE-DA-SW-NA044	SPDT	22~27	1.4*	≥40	20*	30
BE-DA-SW-NA045	SPDT	22~27	≤2	≥37	20*	30
BE-DA-SW-NA046	SPDT	25~40	≤2.5	25*	20*	10
BE-DA-SW-NA047	SPDT	29~31	1.3*	20*	-	20

BE-DA-SW-NA048	SPDT	29~31	1.3*	20*	-	20
BE-DA-SW-NA049	SPDT	40~50	≤2	40*	15*	10
BE-DA-SW-NA050	SP3T	0.01~12	≤1.5	50@6GHz, 40@12GHz	23*	8
BE-DA-SW-NA051	SP3T	0.01~12	1.2/2.2	40*	23*	10
BE-DA-SW-NA052	SP3T	0.01~12	1.2/2.2	40*	23*	10
BE-DA-SW-NA053	SP3T	0.01~12	1.2/2.2	40*	23*	10
BE-DA-SW-NA054	SP3T	0.01~12	1.2/2.2	≥40	25*	10
BE-DA-SW-NA055	SP3T	0.01~18	≤2	≥35	20*	≤8
BE-DA-SW-NA056	SP3T	0.01~18	2.5*	40*	20*	8
BE-DA-SW-NA057	SP3T	0.01~18	≤3.4	≥40	23*	8
BE-DA-SW-NA058	SP3T	0.01~18	≤3.5	≥40	23*	8
BE-DA-SW-NA059	SP3T	0.01~18	≤3.5	≥40	23*	8
BE-DA-SW-NA060	SP3T	2~23	2.5*	30*	-	20
BE-DA-SW-NA061	SP3T	9~17	1.9*	25*	-	-
BE-DA-SW-NA062	SP3T	20~30	3*	25*	25*	10
BE-DA-SW-NA063	SP4T	0.01~20	3*	35*	15@15GHz	10
BE-DA-SW-NA064	SP4T	0.01~20	≤2.3	≥25	23*	10
BE-DA-SW-NA065	SP4T	0.01~20	≤2.3	≥20	23*	10
BE-DA-SW-NA066	SP4T	9~17	2.2*	30*	-	-

BE-DA-SW GaAs Switch MMIC

N-Series (FET Integrated Decoding and Driver Switch)

Model Number	Switch Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	P1dB (dBm)	Switching Time (ns)	Control method (parallel/serial)
BE-DA-SW-NB001	SPST	0.1~30	1.1*	40*	28*	40	Parallel driver
BE-DA-SW-NB002	SPST	0.1~40	0.6*	27*	28*	40	Parallel driver
BE-DA-SW-NB003	SPST	1~20	1*	50*	26*	50	Parallel driver
BE-DA-SW-NB004	SPST	30~50	1.2*	36*	25*	40	Parallel driver
BE-DA-SW-NB005	SPDT	0.1~12	1.1*	55*	29*	50	Parallel driver
BE-DA-SW-NB006	SPDT	0.1~12	1.1*	55*	29*	50	Parallel driver
BE-DA-SW-NB007	SPDT	0.1~18	1.7*	55*	26*	50	Parallel driver
BE-DA-SW-NB008	SPDT	0.1~18	1.7*	55*	26*	50	Parallel driver
BE-DA-SW-NB009	SPDT	0.1~18	1.7*	63*	26*	40	Parallel driver
BE-DA-SW-NB010	SPDT	0.1~18	1.7*	63*	26*	40	Parallel driver
BE-DA-SW-NB011	SPDT	0.1~40	1.8*	30*	21*	30	Parallel driver
BE-DA-SW-NB012	SPDT	0.1~40	1.8*	30*	21*	30	Parallel driver
BE-DA-SW-NB013	SP4T	0.1~4	0.9*	48*	27*	90	Parallel driver
BE-DA-SW-NB014	SP4T	0.1~4	0.9*	48*	27*	90	Parallel driver
BE-DA-SW-NB015	SP4T	0.1~12	1.8*	41*	21*	40	Parallel decoding, driving
BE-DA-SW-NB016	SP4T	0.1~12	1.8*	41*	21*	40	Parallel decoding, driving
BE-DA-SW-NB017	SP4T	0.1~35	2.4*	35*	18*	40	Serial driver
BE-DA-SW-NB018	SP4T	0.1~35	2.4*	35*	18*	40	Serial driver
BE-DA-SW-NB019	SP8T	0.1~12	2*	63*	27*	80	Parallel driver
BE-DA-SW-NB020	SP8T	0.1~12	2*	63*	27*	80	Parallel driver
BE-DA-SW-NB021	SP8T	2~18	2.6*	52*	26*	80	Parallel driver
BE-DA-SW-NB022	SP8T	2~18	2.6*	52*	26*	80	Parallel driver
BE-DA-SW-NB023	DPDT	0.1~12	1.5*	47*	28*	30	Parallel driver
BE-DA-SW-NB024	DPDT	0.1~12	1.5*	65*	28*	30	Parallel driver
BE-DA-SW-NB025	DPDT	0.1~12	1.5*	60*	20*	16*	30

BE-DA-SW GaAs Switch MMIC

N-Series (FET Switch positive pressure control)

Model Number	Switch Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Return Loss (dB)	Power Resistance (dBm)	Switching Time (ns)
BE-DA-SW-NC001	DPDT	0.01~3	1.2*	30*	2*	30*	50*
BE-DA-SW-NC002	DPDT	0.01~3	1*	28*	2*	30*	50*
BE-DA-SW-NC003	DPDT	0.01~6	0.6*	38*	15*	27*	80*
BE-DA-SW-NC004	DPDT	0.01~6	0.7*	40*	15*	27*	80*
BE-DA-SW-NC005	Switch	1.3~2.5	4.5*	18*	1.5*	15*	-

BE-DA-SW GaAs Switch MMIC

N-Series (PIN Switch)

Model Number	Switch Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	Power Resistance (dBm)	Switching Time (ns)
BE-DA-SW-ND001	SPST	2~18	≤0.8	≥40	+33(CW)	20
BE-DA-SW-ND002	SPST	15~40	≤1	40*	-	20
BE-DA-SW-ND003	SPST	20~40	≤1	≥35	+33(CW)	20
BE-DA-SW-ND004	SPST	50~65	0.8*	35*	25	30
BE-DA-SW-ND005	SPST	90~96	1.8*	25*	-	20
BE-DA-SW-ND006	SPDT	0.8~2	0.5*	60*	+30(CW)	20
BE-DA-SW-ND007	SPDT	2~6	≤0.8	≥45	+30(CW)	20
BE-DA-SW-ND008	SPDT	2~18	≤1.2	≥45	+30(CW)	20
BE-DA-SW-ND009	SPDT	4~9	0.5*	70*	+30(CW)	20
BE-DA-SW-ND010	SPDT	4.5~7.5	0.6*	45*	+33(CW)	20
BE-DA-SW-ND011	SPDT	12~20	≤0.8	40*	+33(CW)	20
BE-DA-SW-ND012	SPDT	10~18	0.8*	55*	+34(CW)	20
BE-DA-SW-ND013	SPDT	18~30	≤1.3	≥40	+33(CW)	20
BE-DA-SW-ND014	SPDT	18~30	≤1.3	≥40	+33(CW)	20
BE-DA-SW-ND015	SPDT	20~40	0.9*	40*	23	20
BE-DA-SW-ND016	SPDT	24~32	≤0.7	≥43	-	20
BE-DA-SW-ND017	SPDT	25~40	≤1.3	≥40	+33(CW)	20
BE-DA-SW-ND018	SPDT	25~40	≤1.3	≥40	+33(CW)	20
BE-DA-SW-ND019	SPDT	28~38	≤1	≥30	+34(CW)	20
BE-DA-SW-ND020	SPDT	33~37	0.8*	24*	+33(CW)	20
BE-DA-SW-ND021	SPDT	33~37	1.1*	35*	+33(CW)	20
BE-DA-SW-ND022	SPDT	33~37	1.1*	35*	+33(CW)	20
BE-DA-SW-ND023	SPDT	33~37	0.8*	45*	34	20
BE-DA-SW-ND024	SPDT	34~36	0.8*	55*	+41.2(CW)	50
BE-DA-SW-ND025	SPDT	45~65	0.6*	25*	-	50
BE-DA-SW-ND026	SPDT	92~98	2.2*	30*	25	50
BE-DA-SW-ND027	SP3T	32~38	1*	30*	25	30
BE-DA-SW-ND028	SP3T	32~38	1*	30*	25	30

BE-DN-SW GaN Switch MMIC

B-Series

Model Number	Switch Type	Frequency (GHz)	Insertion loss (dB)	Isolation (dB)	Config.	Return Loss (dB)	P-0.1dB (dBm)
BE-DN-SW-B001	SPDT	0.1~2	0.7	33	-	18	48
BE-DN-SW-B002	SPDT	0.1~3	0.45	30	-	15	45
BE-DN-SW-B003	SPDT	0.1~2.5	0.8	30	60W Power	19	48
BE-DN-SW-B004	SPDT	0.1~6	0.5	32	10W Power	20	40
BE-DN-SW-B005	SPDT	0.1~8	0.9	50	10W Power	20	40
BE-DN-SW-B006	SPDT	0.1~18	1.6	35	10W Power	20	37
BE-DN-SW-B007	SPDT	1~5	1.1	40	20W Positive power, absorptive	15	43
BE-DN-SW-B008	SPDT	2~6	0.8	28	-	15	40.5
BE-DN-SW-B009	SPDT	6~18	1.0	35	10W Power	15	40
BE-DN-SW-B010	SPDT	8~12	0.6	35	10W Power	20	40
BE-DN-SW-B011	SPDT	8~12	0.7	37	20W Power	20	43
BE-DN-SW-B012	SPDT	8~12	0.8	30	40W Power	16	46
BE-DN-SW-B013	SPDT	8~12	0.75	35	40W Power	18	46
BE-DN-SW-B014	SPDT	8~12	0.88	36	60W Power	16	48
BE-DN-SW-B015	SPDT	12~18	0.85	36	10W Power	17	40

BE-DN-SW GaN Switch MMIC

N-Series

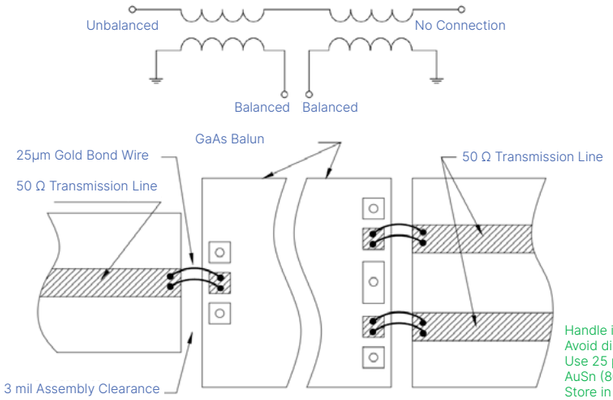
Model Number	Switch Type	Frequency (GHz)	Insertion Loss (dB)	Isolation (dB)	P-0.2dB (dBm)	Switching Time (ns)
BE-DN-SW-N001	SPST	0.01~18	0.5*	23*	46*	20*
BE-DN-SW-N002	SPST	33~37	1.5*	35*	43*	30*
BE-DN-SW-N003	SPDT	0.01~2	0.6*	30*	49.5*	25*
BE-DN-SW-N004	SPDT	0.01~6	0.8*	35*	45*	25*
BE-DN-SW-N005	SPDT	0.1~6	0.3~1.4	45*	48*	25*
BE-DN-SW-N006	SPDT	0.1~2	1*	30*	53*	25*
BE-DN-SW-N007	SPDT	0.1~3	0.35*	40*	48*	30*
BE-DN-SW-N008	SPDT	0.1~8	0.7*	35*	43*	25*
BE-DN-SW-N009	SPDT	0.1~13	1*	35*	43*	25*
BE-DN-SW-N010	SPDT	0.1~18	1.5*	25*	41*	20*
BE-DN-SW-N011	SPDT	0.8~2.0	0.4*	40*	49*	20*
BE-DN-SW-N012	SPDT	1~6	0.8*	40*	49*	25*
BE-DN-SW-N013	SPDT	1~8	1.1*	25*	41*	20*
BE-DN-SW-N014	SPDT	2~6	1.3*	35*	53*	25*
BE-DN-SW-N015	SPDT	5~6	0.6*	30*	46*	20*
BE-DN-SW-N016	SPDT	5~13	1*	35*	46*	25*
BE-DN-SW-N017	SPDT	6~18	1*	35*	36*	15*
BE-DN-SW-N018	SPDT	6~18	2*	27*	-	-
BE-DN-SW-N019	SPDT	6~18	1.5*	30*	50*	25*
BE-DN-SW-N020	SPDT	7~13	0.8*	30*	49*	20*
BE-DN-SW-N021	SPDT	8~12	0.8*	30*	49*	25*
BE-DN-SW-N022	SPDT	8~12	0.8*	-	41*	25*
BE-DN-SW-N023	SPDT	8~12	1*	35*	44*	50*
BE-DN-SW-N024	SPDT	8~12	0.8*	35*	50*	25*
BE-DN-SW-N025	SPDT	8~12	1*	30*	44*	20*
BE-DN-SW-N026	SPDT	8~12	0.9*	30*	51*	20*
BE-DN-SW-N027	SPDT	8~40	3*	20*	33*	20*
BE-DN-SW-N028	SPDT	10~18	0.8*	35*	43*	25*
BE-DN-SW-N029	SPDT	10~18	1*	27*	41*	20*
BE-DN-SW-N030	SPDT	12~18	1*	30*	46*	25*
BE-DN-SW-N031	SPDT	14~18	1*	25*	45*	25*
BE-DN-SW-N032	SPDT	32~38	1.8*	30*	45*	25*
BE-DN-SW-N033	SPDT	32~38	1.2*	30*	41*	25*
BE-DN-SW-N034	SPDT	32~40	1.2*	30*	43*	25*
BE-DN-SW-N035	SPDT	33~37	1.2*	24*	33*	15*
BE-DN-SW-N036	SP3T	0.1~2	1*	35*	52*	25*
BE-DN-SW-N037	SP3T	2~3	1.5*	35*	50*	20*
BE-DN-SW-N038	SP3T	8~12	1.3*	35*	51*	30*
BE-DN-SW-N039	SP5T	5~6	1.3*	45*	50*	30*
BE-DN-SW-N040	Switching filter	6~18	2*	-	-	-

Available in bare die and module integration

DC to 22 GHz Broadband Baluns for Differential Signal Conversion

BALUN

- Excellent amplitude and phase balance
- Low insertion loss across band
- Good return loss and impedance matching
- Compact designs for integration



Handle in ESD-controlled clean environment
Avoid direct contact with die surface
Use 25 μm Au wire bonds (dual bonding recommended)
AuSn (80/20) eutectic attach, ≤300°C, ≤30s
Store in dry nitrogen atmosphere

BE-DA-BL-B005 as Example

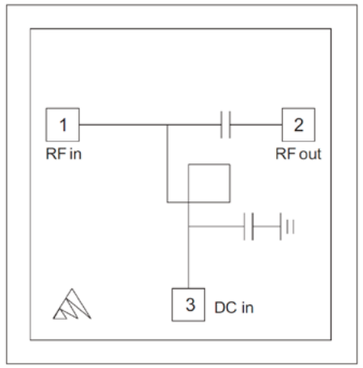
BE-DA-BL Balun				
B-Series				
Model Number	Frequency (GHz)	Insertion Loss (dB)	Amplitude Imbalance (dB)	Phase Imbalance (°)
BE-DA-BL-B001	0.52~1.2	5.8	≤0.8	≤±4.0
BE-DA-BL-B002	0.8~2	6	≤0.8	≤±1.5
BE-DA-BL-B003	1~2	4.5	≤0.8	≤±2.5
BE-DA-BL-B004	1~2.5	5.5	≤0.5	≤±1.5
BE-DA-BL-B005	1.3~3.5	5.2	≤0.5	≤±2.0
BE-DA-BL-B006	1.4~12	4.5	≤0.9	≤±4.0
BE-DA-BL-B007	1.8~4.5	5	≤0.5	≤±3.0
BE-DA-BL-B008	3~8	4.5	≤0.5	≤±4.0
BE-DA-BL-B009	16~22	4	≤±0.5	≤±4.0
BE-DA-BL-B010	6~14	4.5	≤0.8	≤±5.0

Available in bare die and module integration

DC to 40 GHz Broadband Bias Tees for RF Signal Injection

BIAS TEES

- Wideband frequency coverage from kHz to microwave range
- Low insertion loss on RF path
- High RF-to-DC isolation
- High current handling capability
- Stable performance across temperature



Chip backside is gold-plated
Chip backside must be grounded
Bonding pads are gold-plated
Bonding on via holes is not allowed

BE-DA-BT-B002 as Example

BE-DA-BT Bias Tees						
B-Series						
Model Number	Frequency (GHz)	Insertion loss (dB)	Input Return Loss (dB)	Output Return Loss (dB)	Max DC Current (mA)	Max RF Input Power (W)
BE-DA-BT-B001	1~11	0.2	25	25	150	5
BE-DA-BT-B002	10~40	0.5	18	18	200	5

Available in bare die and module integration

DC to XX GHz Equal and Unequal Power Distribution for RF Signal Routing

RF RESISTOR MMIC

- Wide resistance range for RF design flexibility
- Stable performance over frequency and temperature
- Low parasitic inductance and capacitance
- Suitable for high-frequency signal paths
- Compact MMIC and thin-film implementations

BE-DA-RES Resistor MMIC

B-Series

Model Number	Resistance (Ω)	Withstand Current (mA)
BE-DA-RES-B001	4/8/12	150
BE-DA-RES-B002	5/10/15	150
BE-DA-RES-B003	20/40/60	150
BE-DA-RES-B004	50/100/150	100
BE-DA-RES-B005	10/20/30	100
BE-DA-RES-B006	300/500/600/1000/2000/400/6000 Separate	2
BE-DA-RES-B007	100	250
BE-DA-RES-B008	200	200
BE-DA-RES-B009	430	150
BE-DA-RES-B010	470	100
BE-DA-RES-B011	5/Control 10	300
BE-DA-RES-B012	20	300
BE-DA-RES-B013	50	300
BE-DA-RES-B014	5	300
BE-DA-RES-B015	8	300
BE-DA-RES-B016	12	300

BE-DA-RES Resistor MMIC

N-Series

Model Number	Resistance (Ω)	Withstand Current (mA)
BE-DA-RES-N001	(25/50/100)/(25/50/100)/5/8/10/12/15/20/30/40/50/100/2	0.08/0.08/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.8
BE-DA-RES-N002	100/360/200/300/140/400	0.025
BE-DA-RES-N003	0.5K-3K	0.008
BE-DA-RES-N004	51.5	0.16
BE-DA-RES-N005	47	0.16
BE-DA-RES-N006	510	0.025
BE-DA-RES-N007	510	0.025

Available in bare die and module integration

DC to XX GHz Equal and Unequal Power Distribution for RF Signal Routing

POWER LOAD RESISTOR MMIC

- Designed for RF power absorption and termination
- High power handling capability in compact MMIC form
- Stable impedance for reliable system matching
- Low parasitic effects for high-frequency performance
- Suitable for chip-level and module-level integration

BE-DA-RES Resistor MMIC

B-Series

Model Number	Resistance (Ω)	Withstand Current (mA)
BE-DA-RES-B001	4/8/12	150
BE-DA-RES-B002	5/10/15	150
BE-DA-RES-B003	20/40/60	150
BE-DA-RES-B004	50/100/150	100
BE-DA-RES-B005	10/20/30	100
BE-DA-RES-B006	300/500/600/1000/2000/400/6000 Separate	2
BE-DA-RES-B007	100	250
BE-DA-RES-B008	200	200
BE-DA-RES-B009	430	150
BE-DA-RES-B010	470	100
BE-DA-RES-B011	5/Control 10	300
BE-DA-RES-B012	20	300
BE-DA-RES-B013	50	300
BE-DA-RES-B014	5	300
BE-DA-RES-B015	8	300
BE-DA-RES-B016	12	300

BE-DA-RES Resistor MMIC

N-Series

Model Number	Resistance (Ω)	Withstand Current (mA)
BE-DA-RES-N001	(25/50/100)/(25/50/100)/5/8/10/12/15/20/30/40/50/100/2	0.08/0.08/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.3/0.8
BE-DA-RES-N002	100/360/200/300/140/400	0.025
BE-DA-RES-N003	0.5K-3K	0.008
BE-DA-RES-N004	51.5	0.16
BE-DA-RES-N005	47	0.16
BE-DA-RES-N006	510	0.025
BE-DA-RES-N007	510	0.025

Available in bare die and module integration

From X-Band to mmWave Frequency Conversion Solutions

FREQUENCY MULTIPLIER MMIC

BE-DA-FM Frequency Multiplier MMIC

B-Series

Model Number	Frequency Multiplier	Fundamental Wave Frequency (GHz)	Fundamental Wave Suppression (dBc)	Triple Suppression (dBc)	Frequency Multiplier Gain (dBm)	Input Power (dBm)
BE-DA-FM-B001	Double frequency	10~20	37	32	6	0
BE-DA-FM-B002	Double frequency	16~25	32	40	12	-8
BE-DA-FM-B003	Quadruple frequency	2~4	25	20	6	-8
BE-DA-FM-B004	Double frequency	21~25	35	35	8	-8

Available in bare die and module integration

Compact MMIC Hybrid Couplers for RF Signal Distribution

POWER DETECTOR MMIC

BE-DA-DET Power Detector MMIC

N-Series

Model Number	Frequency (GHz)	Type	Detection Mode	Insertion Loss (dB)	Input Standing Wave	Output standing wave	Dynamic Range (dB)	Supply voltage (V)
BE-DA-DET-B001	0.01~3	Detection	Positive peak	-	-9*	-	30	5
BE-DA-DET-B002	0.01~3	Detection	Positive peak	-	-9*	-	30	5
BE-DA-DET-B003	0.01~3	Coupling	Positive peak	0.2*	-10*	-10*	30	5
BE-DA-DET-B004	0.2~10	Coupling	Positive peak	0.3*	1.2*	1.2*	30	5
BE-DA-DET-B005	0.2~10	Detection	Positive peak	-	-8.5*	-	30	5
BE-DA-DET-B006	0.2~10	Detection	Positive peak	-	-8.5*	-	30	5
BE-DA-DET-B007	1~15	Coupling	Positive peak	0.8*	1.8*	1.8*	30	5
BE-DA-DET-B008	1~25	Detection	Positive peak	-	≤2	-	30	5
BE-DA-DET-B009	1~25	Detection	Negative peak	-	≤2	-	30	5
BE-DA-DET-B010	2~40	Detection	Positive peak	-	2*	-	-	5
BE-DA-DET-B011	2~50	Detection	Negative peak	-	≤2	-	30	5
BE-DA-DET-B012	2~50	Detection	Positive peak	-	≤2	-	30	5
BE-DA-DET-B013	10~40	Detection	Negative peak	-	≤2	-	30	5
BE-DA-DET-B014	12~32	Orientation	Negative peak	0.9*	1.5*	1.5*	25	5
BE-DA-DET-B015	12~40	Detection	Positive peak	-	≤2	-	30	5
BE-DA-DET-B016	15~60	Detection	Negative peak	-	≤2	-	30	5
BE-DA-DET-B017	18~60	Detection	Positive peak	-	≤2	-	30	5
BE-DA-DET-B018	26~50	Orientation	Negative peak	1*	1.3*	1.3*	25	5

Available in bare die and module integration

Compact MMIC Hybrid Couplers for RF Signal Distribution

PHASE-LOCKED LOOPS MMIC

BE-DA-PLL Phase-Locked Loops MMIC

B-Series

Model Number	Frequency (GHz)	Reference Input (MHz)	Phase Detection Frequency (MHz)	Noise Floor (dBc/Hz)
BE-01DA3-B001	0.1375~4.4	105	32	-217
BE-01DA3-B002	0.8~6.5	350	100	-221

Available in bare die and module integration

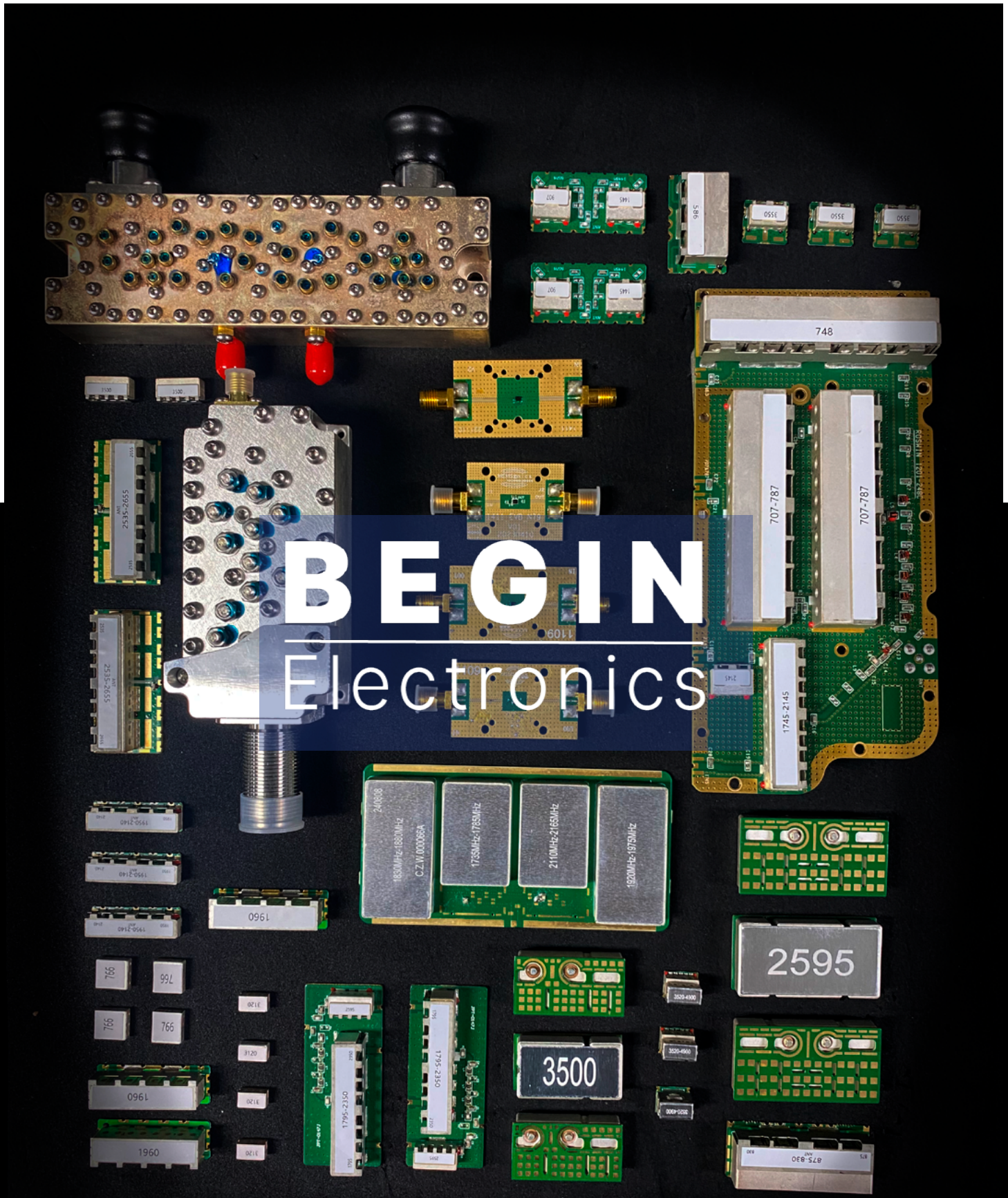
Compact MMIC Hybrid Couplers for RF Signal Distribution

MODULATOR MMIC

BE-DA-MOD QPSK Modulator MMIC

N-Series

Model Number	RF&LO Frequency (GHz)	EVM (-)	Carrier Suppression (dB)	Modulation Amplitude Error (dB)	Modulation Phase Error (°)
BE-DA-MOD-N001	0.9~1.3	4	40	≤0.5	≤3
BE-DA-MOD-N002	2.1~2.4	4	35	≤0.5	≤3
BE-DA-MOD-N003	22~24	4	26	≤0.5	≤5
BE-DA-MOD-N004	25~27	4	26	≤0.5	≤5



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