

Wireless Device Products 2016-2017





Sumitomo Electric Industries

Reliable, Advanced Technology Generating Value for the Customer

As an industry pioneer for over 30 years, Sumitomo Electric Industries has overcome many technical challenges to become the most respected supplier of compound semiconductor products.

Our advanced technologies and solutions continue to meet the demand of growing and diverse markets in the area of information/communications and sensor/radar. At Sumitomo Electric Industries, we are committed to providing the best value for our customers while protecting the global environment.



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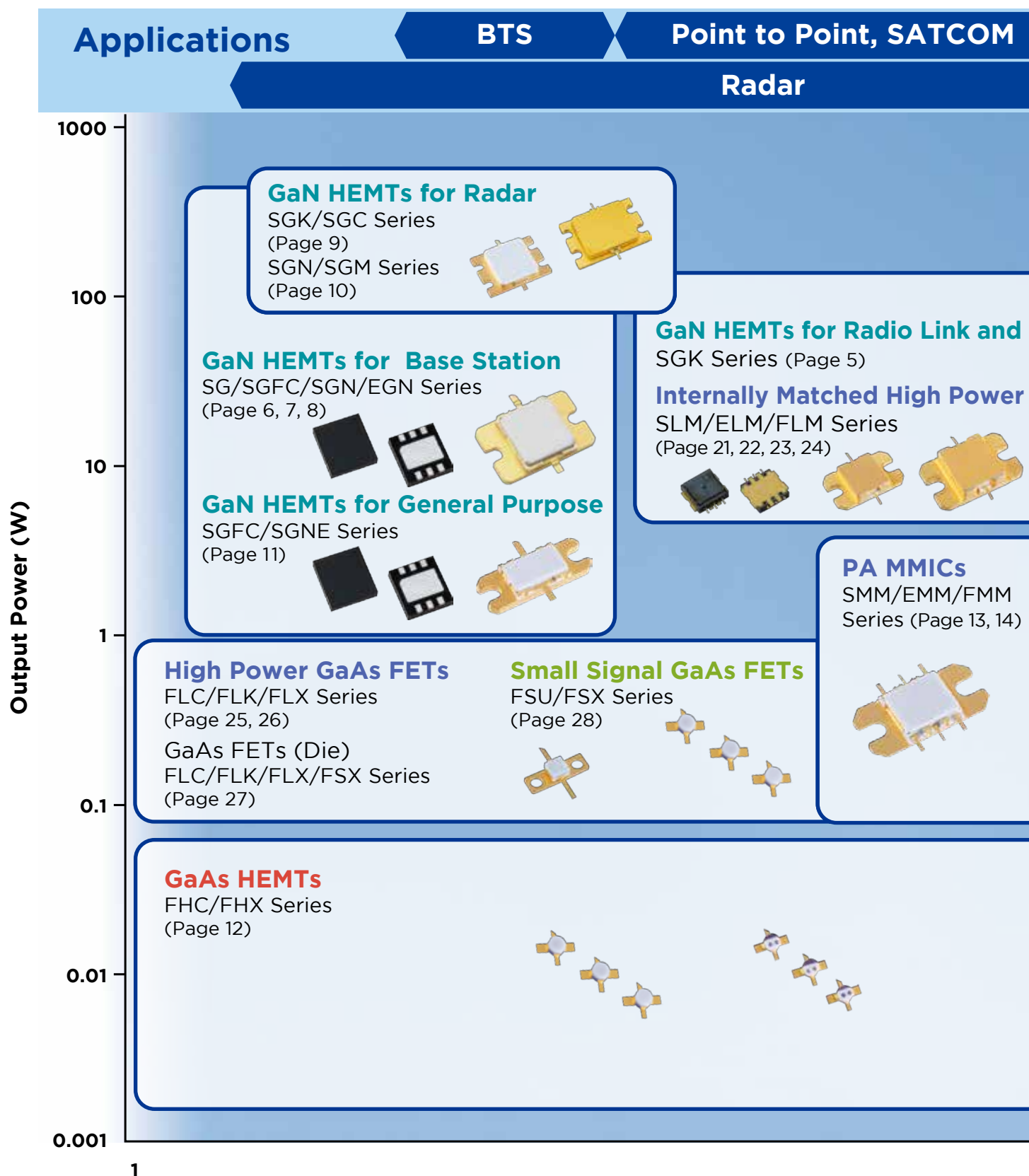
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Total RF Solutions from SUMITOMO ELECTRIC

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VSAT

Point to Point

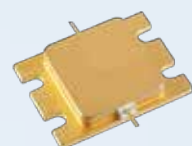
VSAT

Point to Point, FWA



SATCOM

GaAs FETs



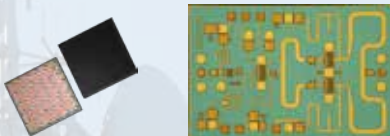
PA MMICs

SMM/EMM/FMM Series
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LNA MMICs

SMM/EMM/FMM Series
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Mix/MLT MMICs

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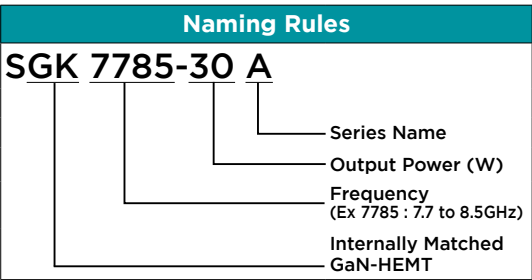
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Frequency (GHz)

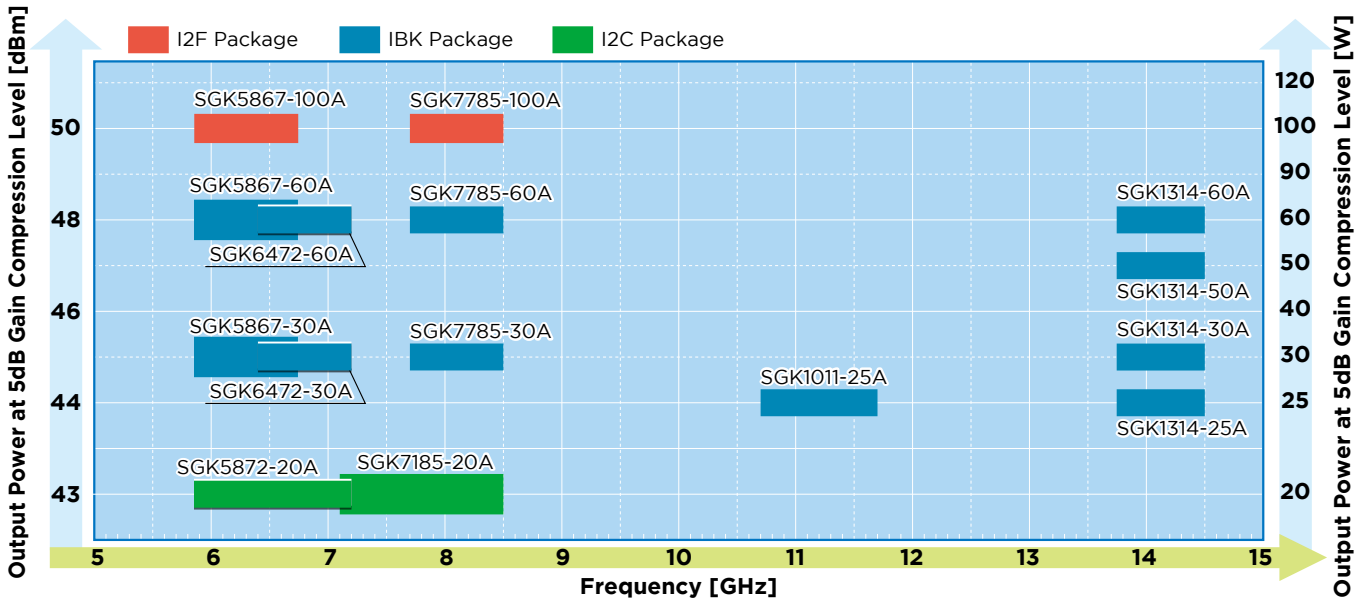
Power GaN

GaN HEMTs for Radio Link and SATCOM

- Features
- High Output Power
 - High Gain
 - High Efficiency
 - Internally Matched



GaN HEMTs for Satcom Lineup



Specifications

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	Pout (dBm)	GL (dB)	η_{add} (%)	VDS (V)	IDS(DC) (A)	IDS(RF) (A)	Rth (°C/W)	Condition	Package
SGK5867-30A	5.85-6.75	-45	29.5	45	13.5	45	24	1.75	2.7	2.2	CW Operation	IBK
SGK5867-60A	5.85-6.75	-	32	48	12.5	40	24	2.6	5.4	1.3		I2F
SGK5867-100A	5.85-6.75	-25	44	50	13.5	45	24	4	10	0.55		I2C
SGK5872-20A	5.85-7.2	-43	27.5	43	12	41	24	1.0	1.6	2.7		I2C
SGK6472-30A	6.4-7.2	-45	29.5	45	12.5	40	24	1.75	2.7	2.2		IBK
SGK6472-60A	6.4-7.2	-	32	48	12	39	24	2.6	5.4	1.3		I2C
SGK7185-20A	7.1-8.5	-43	27.5	43	11	39	24	1.0	1.7	2.7		IBK
SGK7785-30A	7.7-8.5	-45	29.5	45	12	39	24	1.75	2.7	2.2		I2F
SGK7785-60A	7.7-8.5	-42	32	48	11	37	24	2.6	5.4	1.3		IBK
SGK7785-100A	7.7-8.5	-25	44	50	12	42	24	4	10	0.55		I2C
SGK1011-25A	10.7-11.7	-42	29	44	10	33	24	1.2	2.7	1.9		IBK
SGK1314-25A	13.75-14.5	-	-	44	8	29	24	0.75	2.5	1.8		IBK
SGK1314-30A	13.75-14.5	-	-	45	8.5	32	24	0.9	3.3	1.5		
SGK1314-50A	13.75-14.5	-	-	47	8	29	24	1.5	5	1.3		
SGK1314-60A	13.75-14.5	-	-	48	8.5	32	24	1.8	6.6	0.8		

Note: Tc (op)=+25°C
IM3: 3rd Order Intermodulation Distortion

Product Photo

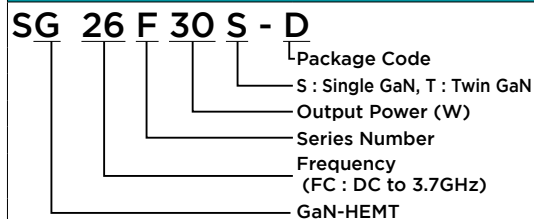


GaN HEMTs for Base Station

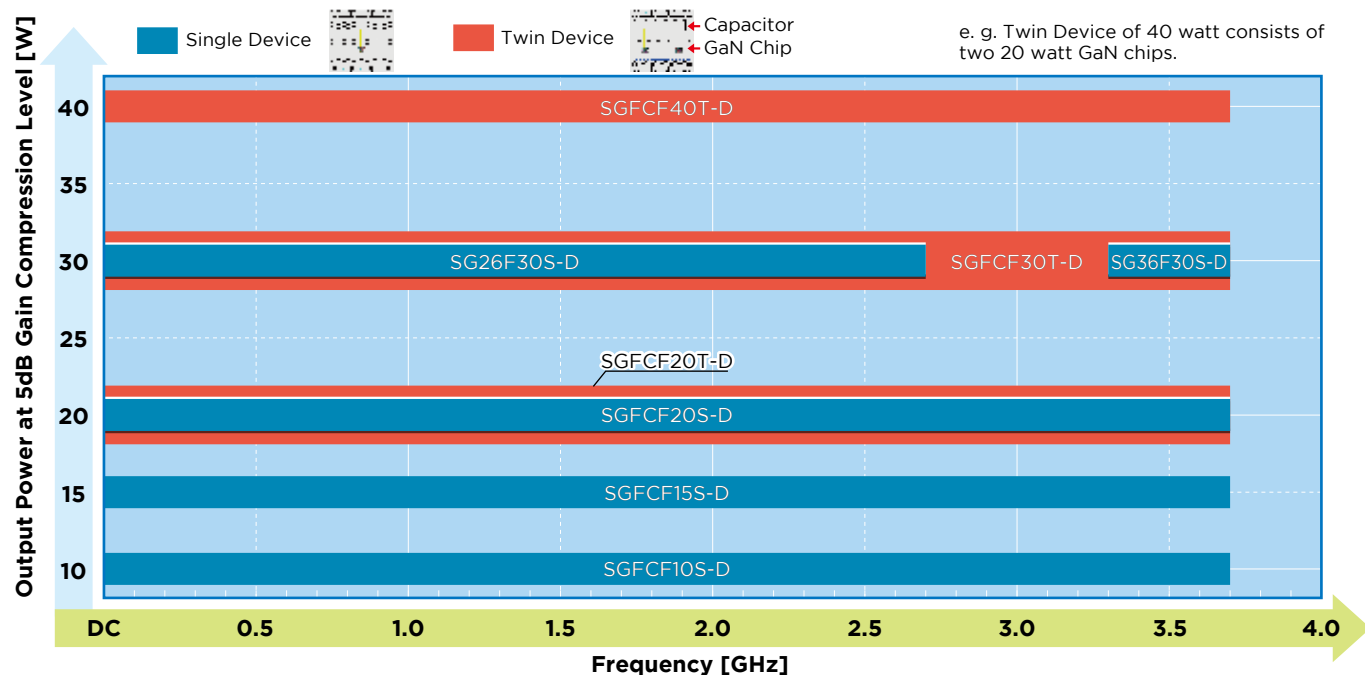
Features

- Designed for 3G/LTE/WiMAX Base Station
- Driver Stage for Macrocell & Final Stage for Microcell
- High Operating Voltage : 50V
- High Gain : $G_p=19\text{dB}$ @ $f=2.65\text{GHz}$, 20W (SGFCF20S-D)
- High Efficiency : 65% @ $f=2.65\text{GHz}$, 20W (SGFCF20S-D)
- Full Mold SMT Package (Z2D)

Naming Rules



"F Series" Lineup



Specifications (Driver and Final Stage)

Part Number	Single / Twin	Freq. (GHz)	Specified Freq. (GHz)	P_{sat}^1 (dBm)	P_{out}^2 (dBm)	G_p^2 (dB)	η_d^2 (%)	VDS (V)	IDS(DC) (mA)	R_{th}^3 ($^{\circ}\text{C}/\text{W}$)	Package
SG26F30S-D	Single	DC-2.7	2.65	46	32.5	18.5	13.5	50	150	5.5	Z2D
SGFCF10S-D	Single	DC-3.7	2.65	41	27.5	19.5	13.5	50	50	10	
SGFCF15S-D	Single	DC-3.7	2.65	42.5	29	19.5	13.5	50	75	9	
SGFCF20S-D	Single	DC-3.7	2.65	44	30.5	19	13.5	50	100	7	
SGFCF20T-D *4	Twin	DC-3.7	2.65	41	27.5	19.5	13.5	50	50	10	
SGFCF30T-D *4	Twin	DC-3.7	2.65	42.5	29	19.5	13.5	50	75	9	
SGFCF40T-D *4	Twin	DC-3.7	2.65	44	30.5	19	13.5	50	100	7	
SG36F30S-D	Single	3.3-3.7	3.6	45.5	32	17	12.5	50	150	5.5	

*1:10%-duty RF pulse(DC supply constant)

*2: $P_{out}=(Ave.)$, W-CDMA(3GPP3.4 12-00)BS-1 64ch 85% clipping modulation(PAR=8.5dB@0.01%)

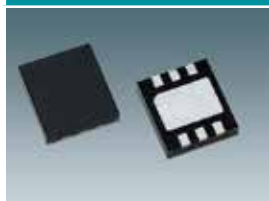
*3:Sampling Test : samples size 10pcs. Criteria(accept / reject)=(0 / 1)

*4:Specification of one path

Note: $T_c (op)=+25^{\circ}\text{C}$

Product Photo

Z2D Package



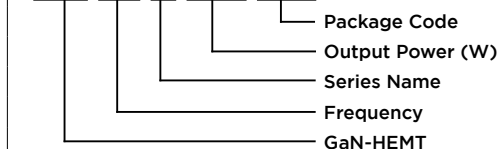
GaN HEMTs for Base Station

Features

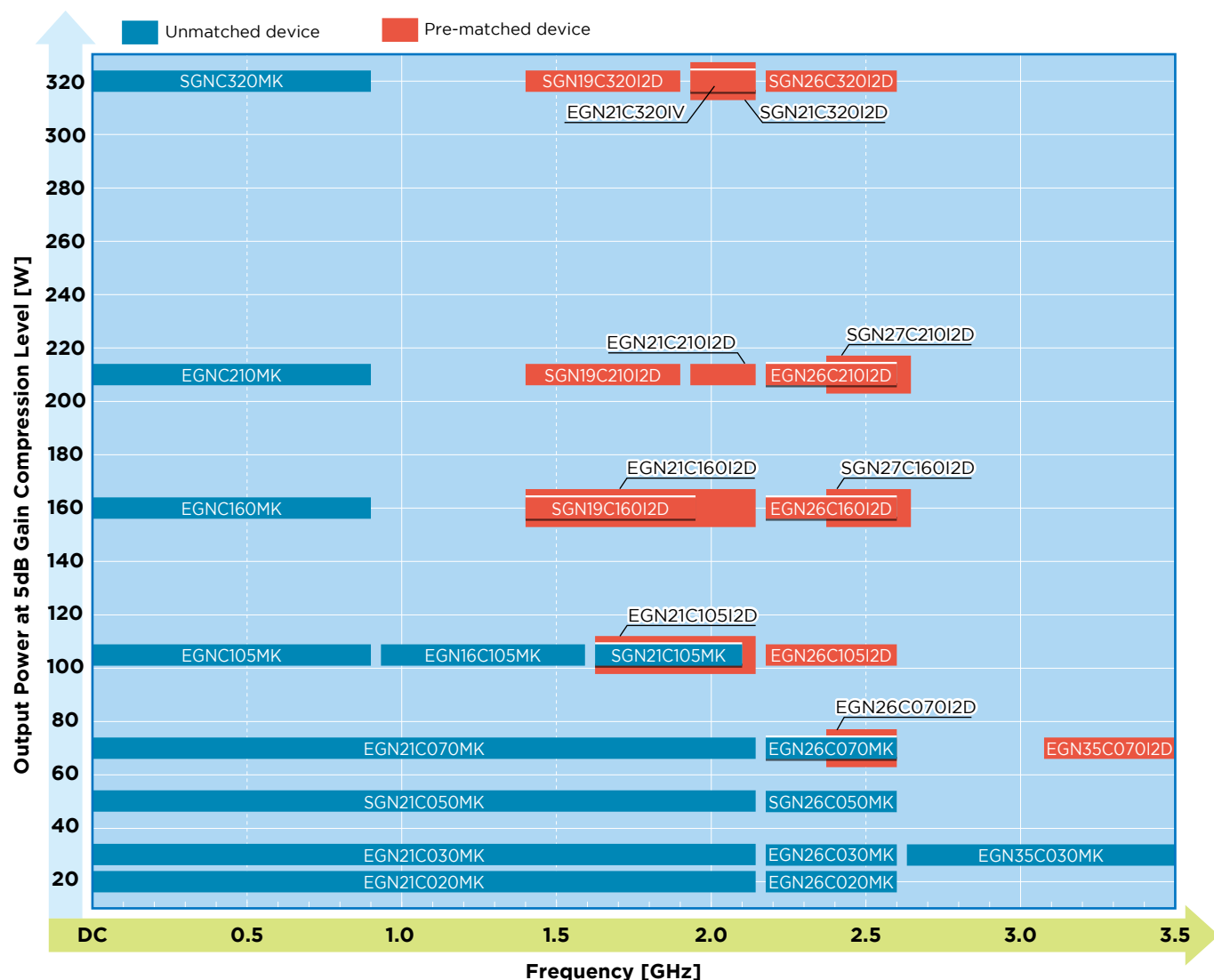
- Designed for 3G/LTE/WiMAX Base Station
- Optimized for Doherty Architecture
- Higher Load Impedance: 15 to 20 Ω @Final Stage (Easy Match, Wide Band)
- High Operating Voltage: 50V
- High Power: Up to 320W Psat Single Ended
- High Gain: Gp=16dB @f=2.6GHz, 210W Device
- High Efficiency: 60-70% with Internal Class F Matching

Naming Rules

SGN 27 C 210 I2D



"C Series" Lineup



Specifications (Driver Stage)

Part Number	Freq. (GHz)	Psat ^{*1} (dBm)	Pout ^{*2} (dBm)	Gp ^{*2} (dB)	η_d ^{*2} (%)	VDS (V)	IDS (DC) (mA)	Rth (°C/W)	Package
EGN21C020MK	2.14	43.5	30	19	12.5	50	100	6.0	MK
EGN21C030MK	2.14	45.0	31.5	19	12.5	50	150	5.0	
EGN26C020MK	2.6	43.5	30	18	12.5	50	100	6.0	
EGN26C030MK	2.6	45.0	31.5	18	12.5	50	150	5.0	
EGN35C030MK	3.5	45.0	31.5	16.5	11	50	150	5.0	

*1: 10%-duty RF pulse(DC supply constant)

*2: Pout=(Ave.), CW

Note: Tc (op)=+25°C

Specifications (Final Stage)

Part Number	Freq. (GHz)	Psat ^{*1} (dBm)	Pout (dBm)	Gp (dB)	η_d (%)	VDS (V)	IDS (DC) (mA)	Rth (°C/W)	Package
EGNC105MK	0.9	51.0	43.0 ^{⁻³}	20.0 ^{⁻³}	35 ^{⁻³}	50	400	2.0	MK
EGNC160MK	0.9	52.5	44.5 ^{⁻³}	18.0 ^{⁻³}	35 ^{⁻³}	50	600	1.4	
EGNC210MK	0.9	53.5	45.5 ^{⁻³}	17.5 ^{⁻³}	35 ^{⁻³}	50	750	1.1	
EGN16C105MK	1.6	50.5	42.5 ^{⁻³}	19.0 ^{⁻³}	33 ^{⁻³}	50	400	2.0	
SGN19C210I2D	1.9	53.0	45.0 ^{⁻³}	18.5 ^{⁻³}	32 ^{⁻³}	50	750	1.1	I2D
SGN19C160I2D	1.96	52.3	44.5 ^{⁻³}	18.0 ^{⁻³}	35 ^{⁻³}	50	600	1.4	
SGN21C105MK	2.1	50.3	42.5 ^{⁻³}	17.0 ^{⁻³}	32 ^{⁻³}	50	400	2.0	MK
EGN21C070MK	2.14	49.5	41.5 ^{⁻³}	17.0 ^{⁻³}	33 ^{⁻³}	50	300	2.5	
EGN21C105I2D	2.14	50.3	42.0 ^{⁻²}	18.0 ^{⁻²}	32 ^{⁻²}	50	400	2.0	I2D
EGN21C160I2D	2.14	52.5	44.5 ^{⁻²}	18.0 ^{⁻²}	32 ^{⁻²}	50	600	1.4	
EGN21C210I2D	2.14	53.0	45.0 ^{⁻²}	18.0 ^{⁻²}	32 ^{⁻²}	50	750	1.1	
EGN21C320IV	2.14	55.0	47.0 ^{⁻²}	18.0 ^{⁻²}	31 ^{⁻²}	50	1100	0.8	IV
SGN21C050MK	2.14	47.0	39.0 ^{⁻³}	18.5 ^{⁻³}	33 ^{⁻³}	50	200	3.0	MK
EGN26C070I2D	2.6	48.8	40.8 ^{⁻³}	18.0 ^{⁻³}	35 ^{⁻³}	50	300	2.5	I2D
EGN26C070MK	2.6	48.8	40.8 ^{⁻³}	16.5 ^{⁻³}	30 ^{⁻³}	50	300	2.5	MK
EGN26C105I2D	2.6	50.3	42.0 ^{⁻³}	17.0 ^{⁻³}	32 ^{⁻³}	50	400	2.0	I2D
EGN26C160I2D	2.6	52.5	44.5 ^{⁻³}	16.0 ^{⁻³}	30 ^{⁻³}	50	600	1.4	
EGN26C210I2D	2.6	53.0	45.0 ^{⁻³}	16.0 ^{⁻³}	30 ^{⁻³}	50	750	1.1	
SGN26C050MK	2.6	47.0	39.0 ^{⁻³}	17.5 ^{⁻³}	33 ^{⁻³}	50	200	3.0	
SGN27C160I2D	2.65	52.5	44.5 ^{⁻³}	16.3 ^{⁻³}	30 ^{⁻³}	50	600	1.4	I2D
SGN27C210I2D	2.65	53.0	45.0 ^{⁻³}	16.3 ^{⁻³}	30 ^{⁻³}	50	750	1.1	
EGN35C070I2D	3.5	48.8	40.8 ^{⁻³}	15.5 ^{⁻³}	28 ^{⁻³}	50	300	2.5	

*1: 10%-duty RF pulse(DC supply constant)

*2: Pout=(Ave.), f0=2.135GHz, f1=2.145GHz, W-CDMA (3GPP3.4 12-00) BS-1 64ch 47.5% clipping modulation (PAR=8.5dB@0.01%)

*3: Pout=(Ave.), W-CDMA (3GPP3.4 12-00) BS-1 64ch 65% clipping modulation (PAR=8.5dB@0.01%)

Note: Tc (op)=+25°C

Specifications (Peak Stage of Doherty Amplifier)

Part Number	Freq. (GHz)	Psat ^{*1} (dBm)	Gp ^{*2} (dB)	VDS (V)	Rth (°C/W)	Package
SGNC320MK	0.9	55.0	16.5	50	1.2	MK
SGN19C320I2D	1.9	55.0	18	50	1.2	I2D
SGN21C320I2D	2.14	55.0	17.5	50	1.2	
SGN26C320I2D	2.6	55.0	16	50	1.2	

*1: 10%-duty RF pulse (DC supply constant : IDS(DC)=10mA)

*2: Pout=3dB back off point, 10%-duty RF pulse (DC supply constant : IDS(DC)=10mA)

Note: Tc (op)=+25°C

Product Photo

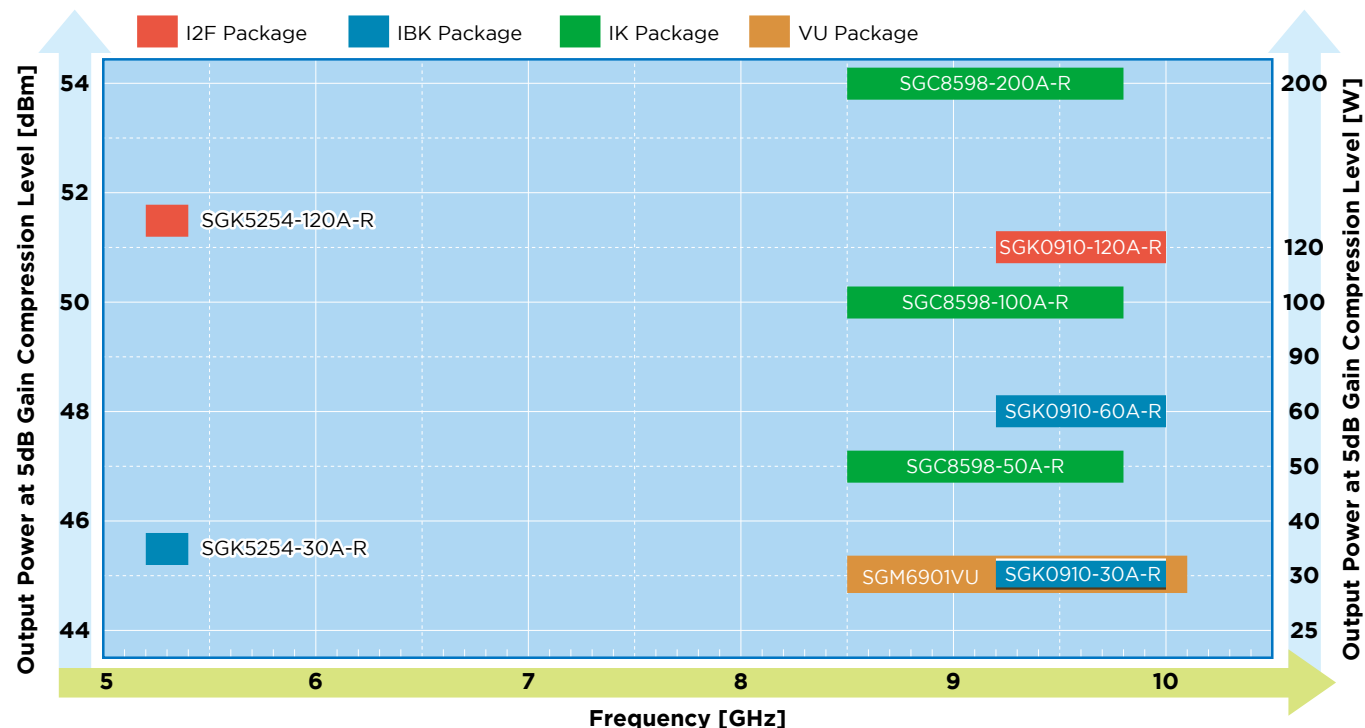


GaN HEMTs for Radar C/X

Features

- High Output Power
- High Gain
- High Efficiency
- Internally Matched

GaN HEMTs for Radar C/X Lineup



Specifications

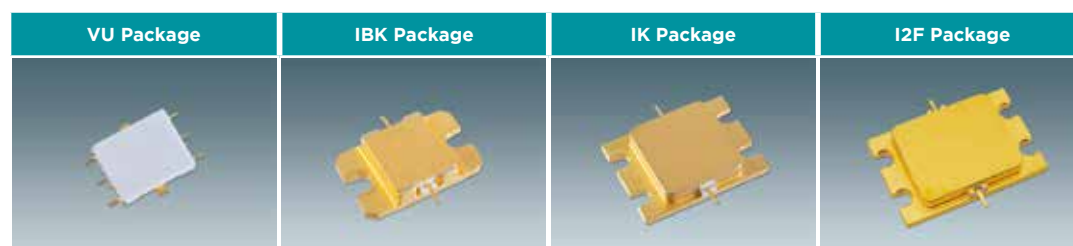
Part Number	Freq. (GHz)	Pout (dBm)	GL (dB)	η_{add} (%)	VDS (V)	IDS(RF) (A)	Rth (°C/W)	Condition	Package
SGK5254-30A-R	5.2-5.4	45.5	16.5	49	24	2.8	2.2	Pulse Width:100μsec,Duty:10%	IBK
SGK5254-120A-R	5.2-5.4	51.5	16.5	47	24	11.6	0.65		I2F
SGC8598-50A-R	8.5-9.8	47	11 ^{*2}	40	50	2.8	2.4		IK
SGC8598-100A-R	8.5-9.8	50	10 ^{*2}	40	50	5.7	1.4		
SGC8598-200A-R	8.5-9.8	54	10 ^{*2}	38	50	11.8	0.6		IBK
SGK0910-30A-R	9.2-10	45	11.5	35	24	3	2.2		
SGK0910-60A-R	9.2-10	48	11.5	35	24	5.9	1.1		I2F
SGK0910-120A-R	9.2-10	51	11.5	35	24	11.6	0.65		
SGM6901VU ^{*1}	8.5-10.1	45	23.3 ^{*2}	38	50	1.8	2.8		VU

^{*1}: Under Development

^{*2}: Power Gain

Note: Tc (op)=+25°C

Product Photo

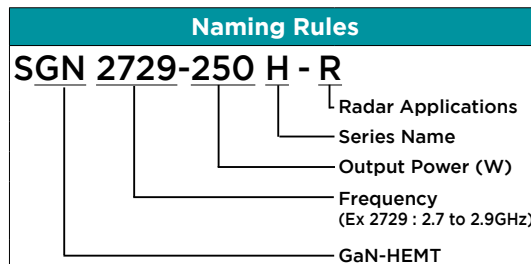
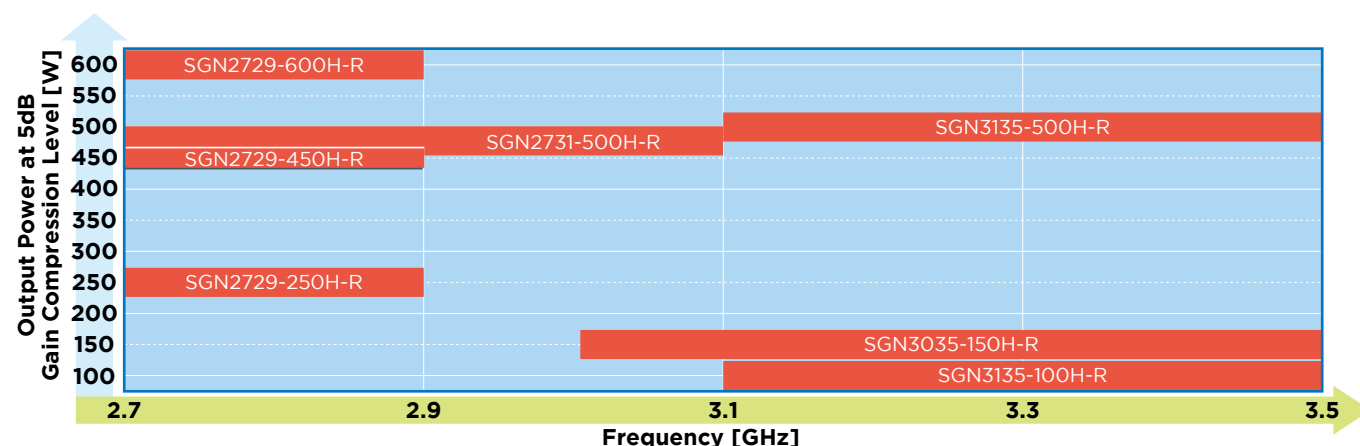


GaN HEMTs for Radar L/S

Features

- Designed for S-band Radar Applications
- 50 ohm matched
- High Power: Up to 600W
- High Efficiency: 65%
- High Operating Voltage: 50V
- Broadband Operation
- High Gain
- Low Thermal Resistance (Rth)

GaN HEMTs for Radar L/S Lineup



Specifications

Part Number	Freq.(GHz)	Pout(W)	Gp(dB)	η_{add} (%)	VDS(V)	IDS(DC)(mA)	Rth(°C/W)	Condition	Package
SGN1214-220H-R	1.2-1.4	220	17.8	65	50	1000	0.55	Pulse Width:5msec, Duty:10%	IV
SGN21-120H-R	1.7-2.5*2	125	14.5	67.5	50	500	1.1		
SGN2729-250H-R	2.7-2.9	250	13	65	50	750	1.1	Pulse Width:200μsec, Duty:10%	
SGN2729-450H-R*1	2.7-2.9	450	13	65	50	1100	0.55		
SGN2729-600H-R	2.7-2.9	600	12.8	60	50	1500	0.55		
SGN2731-500H-R	2.7-3.1	480	11.8	57	50	1500	0.55		
SGN3035-150H-R	3.0-3.5	150	13.8	62	50	500	1.1	Pulse Width:5msec, Duty:10%	I2D
SGN3135-100H-R*1	3.1-3.5	100	12.5	57	50	500	1.3		
SGN3135-500H-R*1	3.1-3.5	500	11	58	50	1500	0.55	Pulse Width:200μsec, Duty:10%	IV

*1: Under Development

*2: test Frequency 2.1GHz

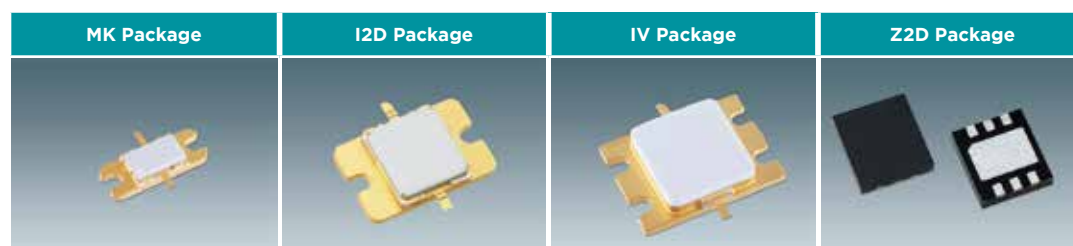
Note: Tc (op)=+25°C

Specifications (Driver Stage)

Part Number	Freq. (GHz)	P3dB (dBm)	GL (dB)	η_{add} (%)	VDS (V)	IDS (DC) (mA)	Rth (°C/W)	Package
SGFCF2002S-D	3	43.6	28.6	45	50	135	3.8	Z2D
SGN31E030MK	3.1	46	15	40	50	200	2	MK
SGNE010MK	3.5	40.5	16	55	50	100	4.5	

Note: Tc (op)=+25°C

Product Photo

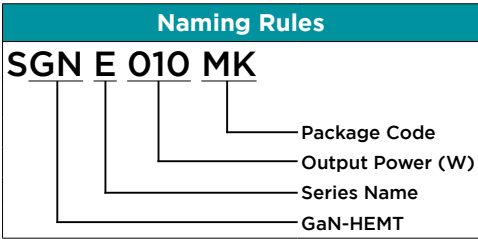


Power GaN

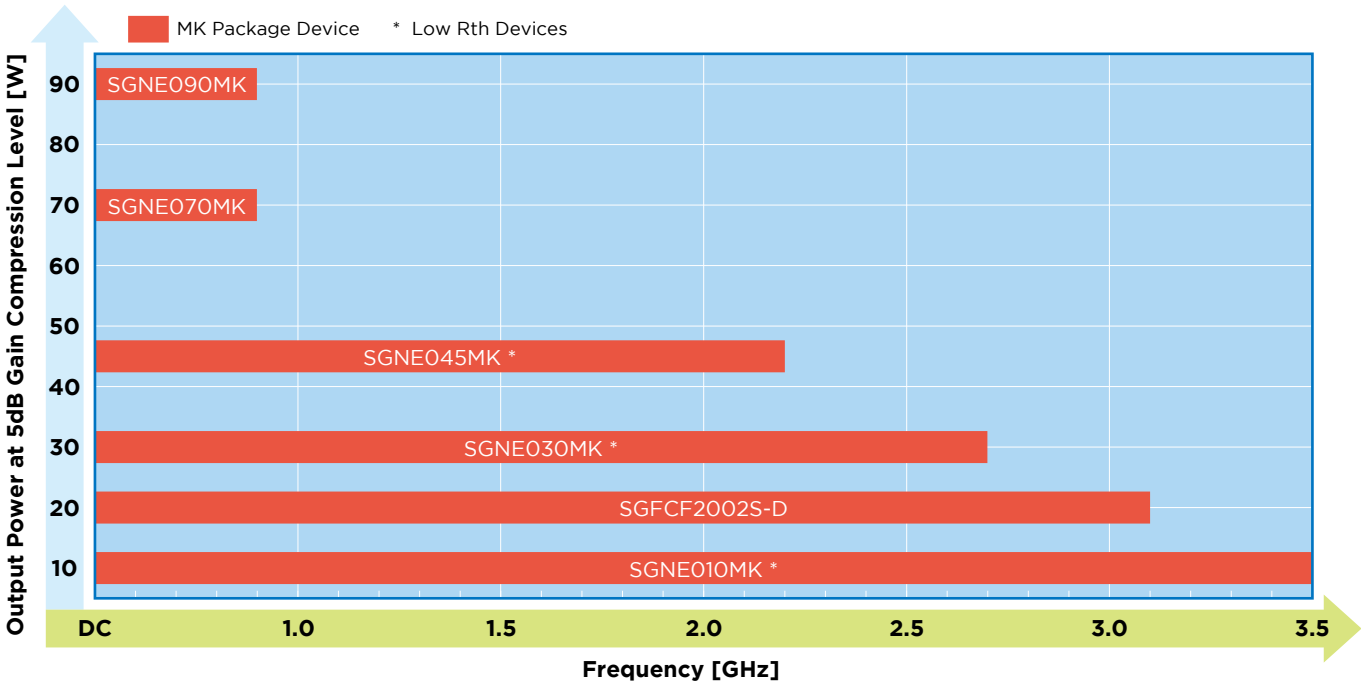
GaN HEMTs for General Purpose

Features

- Unmatched Broadband Operation up to 3.5GHz
- High Efficiency
- 50V Operation
- Low Thermal Resistance (Rth)



Lineup

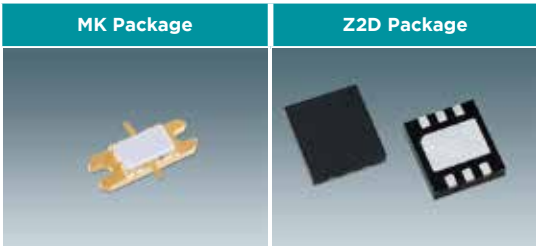


Specifications

Part Number	Freq. (GHz)	Psat (dBm)	GL (dB)	ηadd (%)	IDS (DC) (mA)	Rth (°C/W)	Package
SGNE070MK	0.9	49.5	20	65	400	1.5	MK
SGNE090MK	0.9	51.0	20	65	500	1.2	
SGNE045MK	2.2	47.5	15	55	250	1.4	
SGNE030MK	2.7	46.5	16	55	200	2	
SGNE010MK	3.5	40.5	16	55	100	4.5	
SGFCF2002S-D	3.0	43	26	43	135	3.8	Z2D

Note: Tc=+25°C

Product Photo



GaAs HEMTs

HEMT series of products was developed by Sumitomo Electric for a wide range of general purpose applications including, but not limited, to DBS converters, Handsets, Base Station, Radio-Telescope and many other applications where low-noise and gain is required. Sumitomo Electric has a full line-up of HEMT products specified for applications in the 4GHz to 12GHz frequency range.

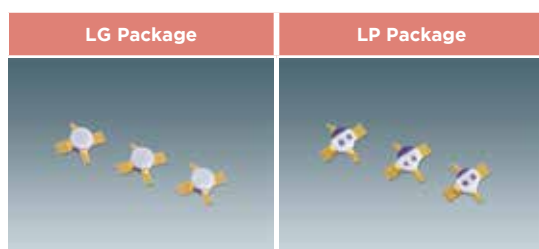
Naming Rules			
FH	X	13	LG
			Package Code
			Number
			Frequency Band
			HEMT

Specifications

Part Number	NF (dB)	Gas (dB)	VDS (V)	IDS(DC) (mA)	Specified Freq. (GHz)	Package	Application
FHC30LG	0.35	14.5	2	10	4	LG	Low Noise Amp, TVRO, BTS
FHC40LG	0.3	15.5	2	10	4		
FHX04LG	0.75	10.5	2	10	12		
FHX04X	0.75	10.5	2	10	12	-	Low Noise Amp
FHX05LG	0.9	10.5	2	10	12	LG	
FHX05X	0.9	10.5	2	10	12	-	
FHX06LG	1.1	10.5	2	10	12	LG	
FHX06X	1.1	10.5	2	10	12	-	
FHX13LG	0.45	13	2	10	12	LG	
FHX13X	0.45	13	2	10	12	-	
FHX14LG	0.55	13	2	10	12	LG	
FHX14X	0.55	13	2	10	12	-	
FHX35LG	1.2	10	3	10	12	LG	Low Noise Amp, Mixer, GPS
FHX35LP	1.2	10	3	10	12	LP	
FHX35X	1.2	10	2	10	12	-	Low Noise Amp
FHX45X	0.55	12	2	10	12		
FHX76LP	0.4	13.5	2	10	12	LP	

X: Conventional Chip
Note: Tc (op) = +25°C

Product Photo

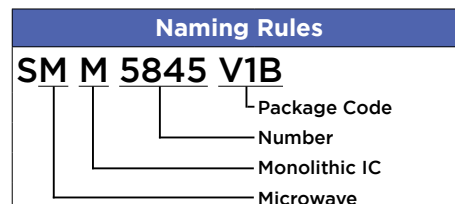


C to Ka Band Power Amplifier MMICs (Packages)

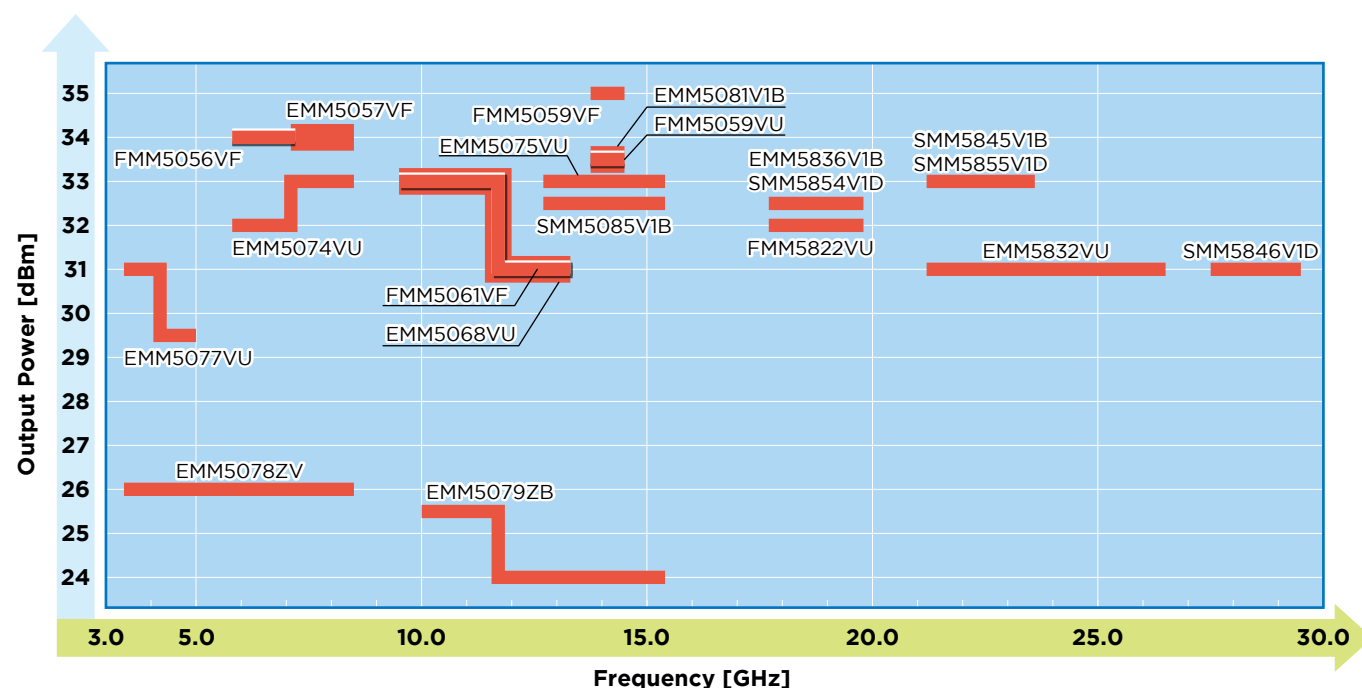
Sumitomo Electric provides GaAs power amplifier MMICs mounted in a suitable high frequency package with output power 50mW - 2W at frequencies ranging from C-band to Ka-band. Sumitomo Electric provides various types of packages including highly reliable hermetically sealed types, low cost surface mount types and very low cost QFN types. These MMICs can be packaged to meet the customer's cost/performance requirements.

Features

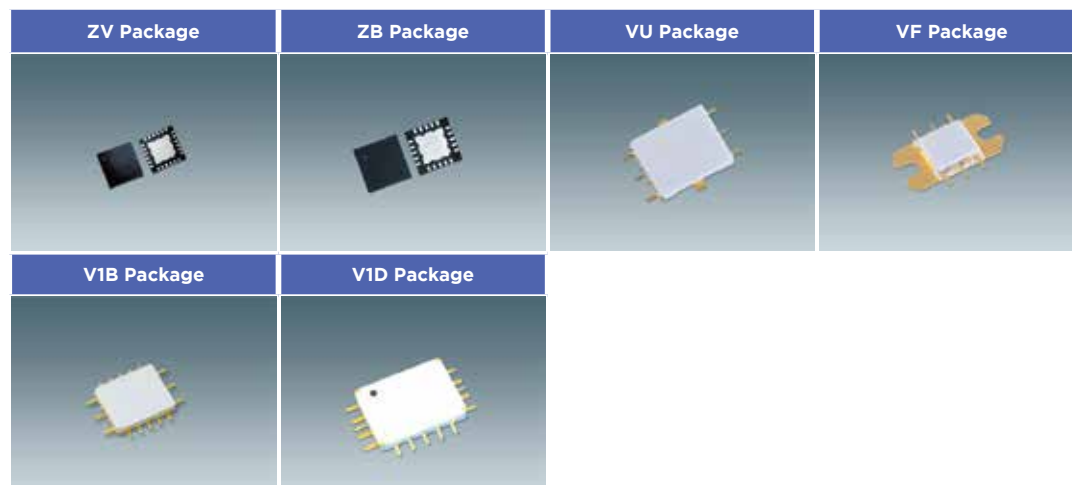
- Input and Output Internally Matched $Z_{in}/Z_{out} = 50\Omega$
- High Output Power (Up to 2W)
- High Gain
- Low Distortion
- Small Hermetically Sealed Package (V1B/V1D/VU/VF)
- Low Cost Surface Mount Package (ZV/ZB/V1B/V1D/VU)



Power Amplifier MMIC Lineup (Package)



Product Photo



Specifications

Part Number	Freq. (GHz)	P1dB (dBm)	G1dB (dBm)	OIP3 (dBm)	VDD (V)	IDD (DC) (mA)	IDD (P1dB)	Package	Function/Application
EMM5077VU	3.4-5.0	31 (f=3.4-4.2GHz) 29.5 (f=4.2-5.0GHz)	25	39.5 (f=3.4-4.2GHz) 38 (f=4.2-5.0GHz)	6	1100	1200 (f=3.4-4.2GHz)	VU	Power Amp.Radio Link
EMM5078ZV	3.4-8.5	26	29	35	6	300	350	ZV	Driver Amp.,LO Buffer Amp.C-Band VSAT and Radio Link
FMM5056VF	5.8-7.2	34	28	-	10	1100	1100	VF	Power Amp.C-Band VSAT and Radio Link
EMM5074VU	5.8-8.5	32 (f=5.8-7.1GHz) 33 (f=7.1-8.5GHz)	26	41	6	1200	1400 (f=5.8-7.1GHz)	VU	Power Amp.C-Band VSAT and Radio Link
FMM5057VF	7.1-8.5	34	26	-	10	1100	1100	VF	Power Amp.Radio Link
EMM5068VU	9.5-13.3	33 (f=9.5-11.7GHz) 31 (f=11.7-13.3GHz)	25 (f=9.5-11.7GHz) 23 (f=11.7-13.3GHz)	40	6	1300	1500 (f=9.5-11.7GHz)	VU	
FMM5061VF	9.5-13.3	33 (f=9.5-11.7GHz) 31 (f=11.7-13.3GHz)	26 (f=9.5-11.7GHz) 24 (f=11.7-13.3GHz)	41.5	6	-	1700 (f=9.5-11.7GHz)	VF	
EMM5079ZB	10-15.4	25.5 (f=10-11.7GHz) 24 (f=11.7-15.4GHz)	22	31 (f=10-11.7GHz) 35 (f=11.7-15.4GHz)	6	350	380	ZB	Driver Amp.,LO Buffer Amp.Ku-Band VSAT and Radio Link
EMM5075VU	12.7-15.4	33	25	42	6	1200	1500	VU	Power Amp.Ku-Band VSAT and Radio Link
SMM5085V1B	12.7-15.4	32.5	24	42	6	1200	1500	V1B	Power Amp.Radio Link
EMM5081V1B	13.75-14.5	33.5	29	39.5	6	1200	1400	V1B	Power Amp.Ku-Band VSAT
FMM5059VF	13.75-14.5	35	28	40	7	1300	1600	VF	
FMM5059VU	13.75-14.5	33.5	29	39.5	6	1200	1400	VU	
EMM5836V1B	17.7-19.7	32.5	26	40	6	1400	1800	V1B	Power Amp.Radio Link
SMM5854V1D	17.7-19.7	32.5	26	40	6	1400	1800	V1D	
FMM5822VU	17.7-19.7	32	21	38.5	6	850	1100	VU	
SMM5855V1D	21.2-23.6	33	24	41	6	1400	1800	V1D	
SMM5845V1B	21.2-23.6	33	21	41	6	1400	1800	V1B	
EMM5832VU	21.2-26.5	31	19	36.5	6	800	1000	VU	
SMM5846V1D	27.5-29.5	31	19	39	6	1100	1450	V1D	

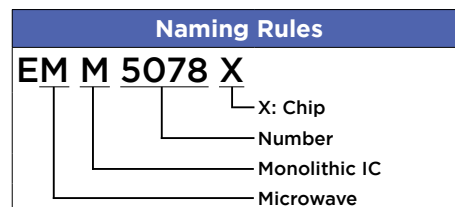
G.C.P.: Gain Compression Point
Note: Tc=+25°C

C to V Band Power Amplifier MMICs (Die)

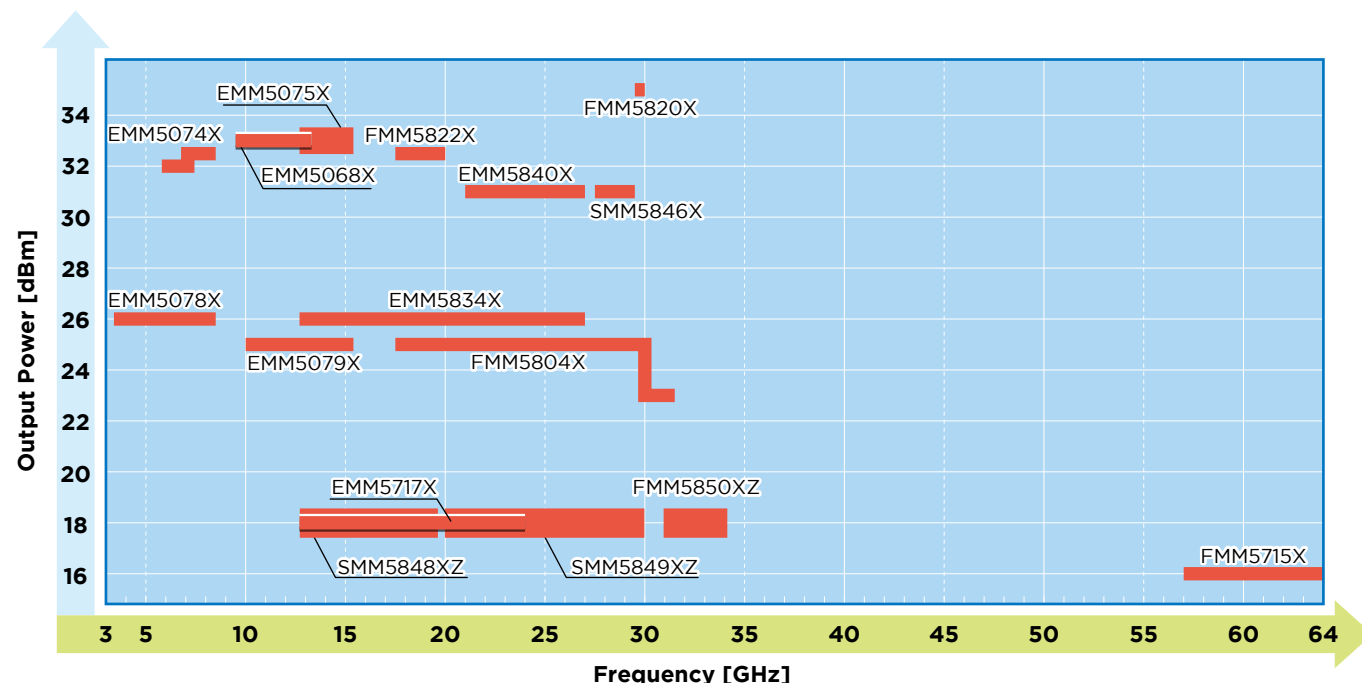
Sumitomo Electric is providing a full line-up of GaAs power amplifier MMIC chips with output power at 50mW to 3W. These MMICs are designed for VSAT (Very Small Aperture Terminal) and radio link transmitter applications that require high power, high gain and low distortion in a 50Ω system. Sumitomo Electric has a full line-up of MMIC products specified from C-band through V-band.

Features

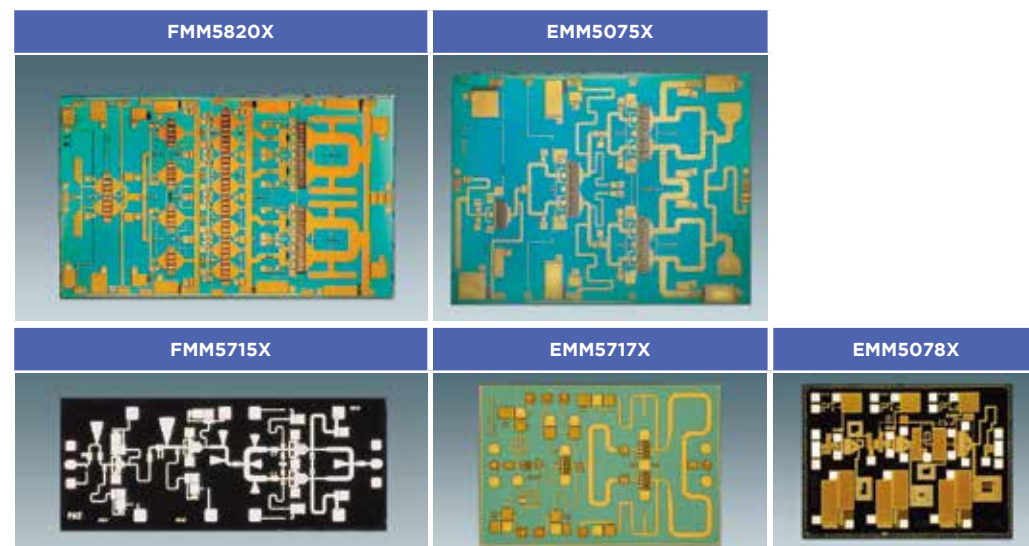
- Input and Output Internally Matched $Z_{in}/Z_{out} = 50\Omega$
- High Output Power (Up to 3W)
- High Gain
- Low Distortion
- High Reliability



Power Amplifier MMIC Lineup (Die)



Product Photo



Specifications

Part Number	Freq. (GHz)	P1dB (dBm)	G1dB (dBm)	OIP3 (dBm)	VDD (V)	IDD (DC) (mA)	IDD (P1dB) (mA)	Function/Application
EMM5078X	3.4-8.5	26	29	35	6	300	350	Driver Amp., LO Buffer Amp. C-Band VSAT and Radio Link
EMM5074X	5.8-8.5	32 (f=5.8-7.1GHz) 32.5 (f=7.1-8.5GHz)	27	41	6	1400	1450	Power Amp.C-Band VSAT and Radio Link
EMM5068X	9.5-13.3	33	25	42.5	6	1500	1500	Power Amp.Radio Link
EMM5079X	10-15.4	25	22.5	31 (f=10-11.7GHz) 35 (f=11.7-15.4GHz)	6	350	350	Driver Amp., LO Buffer Amp.Ku-Band VSAT and Radio Link
EMM5075X	12.7-15.4	33	26	43.5	6	1200	1300	Power Amp.Ku-Band VSAT and Radio Link
SMM5848XZ	12.7-19.7	18	22	28	3	280	300	Power Amp.Radio Link
EMM5717X	12.7-24	18	22	-	3	-	180	Driver Amp., LO Buffer Amp.Ku-Band VSAT and Radio Link
EMM5834X	12.7-27	26	23	32.5	6	300	370	
FMM5822X	17.5-20	32.5	21	41	6	850	1000	Power Amp.Radio Link
FMM5804X	17.5-31.5	25 (f=17.5-30GHz) 23 (f=30-31.5GHz)	18	-	6	250	300	Driver Amp.Ka-Band VSAT and Radio Link
SMM5849XZ	20-30	18	29	27	3	300	320	Power Amp.Radio Link
EMM5840X	21-27	31	24	39	6	800	1000	
SMM5846X	27.5-29.5	31	19	39	6	1100	1450	
FMM5820X	29.5-30	35	23	-	7	1500	2200	Power Amp.Ka-Band VSAT and Radio Link
SMM5850XZ	31-34	18	19	27	3	300	320	Power Amp.Radio Link
FMM5715X	57-64	16	17	-	3	150	150	Power Amp.Radio Link

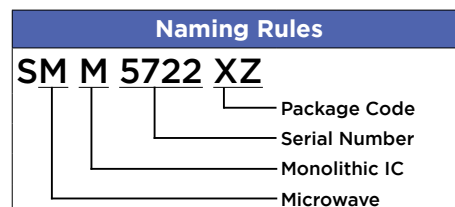
G.C.P.: Gain Compression Point
Note: Ta=+25°C

Ku to V Band Low Noise Amplifier MMICs

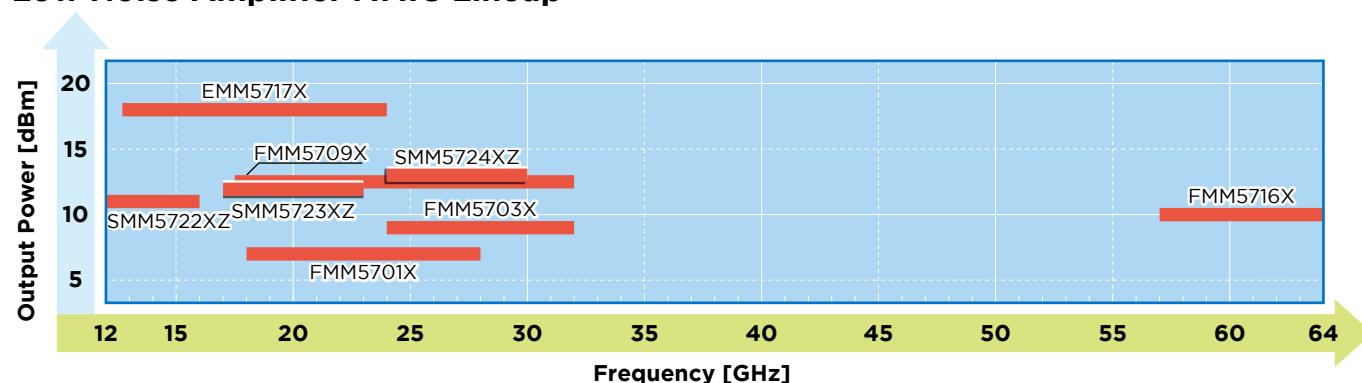
Sumitomo Electric provides GaAs Low Noise amplifier MMICs designed for VSAT and radio link receiver applications. The performance of low noise figure and high associated gain are achieved using pHEMT technology and EB lithography process. Sumitomo Electric has line-ups of MMIC products specified from Ku-band through V-band.

Features

- Input and Output Internally Matched $Z_{in}/Z_{out} = 50\Omega$
- Low Noise Figure
- High Gain
- Wide Band
- High Reliability Bare Die (X)
- Low Cost Surface Mount Device (XZ)
- RoHS Compliance (XZ)



Low Noise Amplifier MMIC Lineup



Specifications

Part Number	Freq. (GHz)	P1dB (dBm)	Gas (dB)	IIP3 (dBm)	NF (dB)	VDD(DC) (V)	IDD (DC) (mA)	IDD(RF) (mA)	Package	Application
SMM5722XZ	12-16	11	20	5	2.3	5	30	30	WLCSP	VSAT and Radio Link
EMM5717X	12.7-24	18	23	-	2.5	3	-	180	Die	
SMM5723XZ*	17-23	12	20	4	2.7	5	35	35	WLCSP	
FMM5709X	17.5-32	12.5	23	-	2.5	3	-	60	Die	
FMM5701X	18-28	7	13.5	-	1.5	5	12	12	Die	
SMM5724XZ*	24-30	13	20	4	3.2	5	80	80	WLCSP	
FMM5703X	24-32	9	18	-	2	3	20	20	Die	
FMM5716X	57-64	10	22	-	5	3	30	30	Die	

G.C.P.: Gain Compression Point
Note: $T_c = +25^\circ\text{C}$ or $T_a = +25^\circ\text{C}$

*Under Development

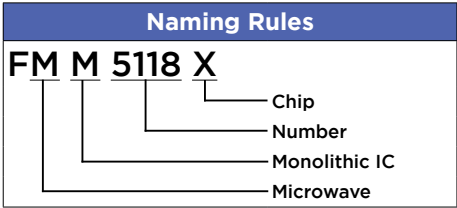
Product Photo



Ku to V Band Multiplier MMICs

Features

- Low Cost Surface Mount Type Devices
- Flip Chip Form with Solder Ball
Solder Ball Diameter : 140μm
Solder Ball Pitch : 300μm
- Small size
- High integrated
- Chip Level Protection against Humidity

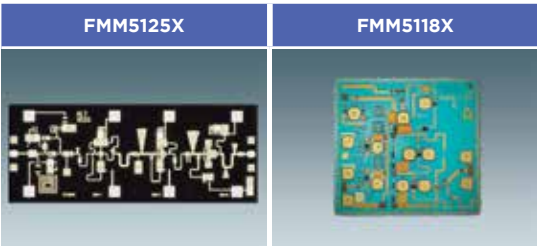


Specifications

Part Number	Input Freq. (GHz)	Output Freq. (GHz)	Pout (dBm)	Gc (dB)	VDD (V)	IDD (DC) (mA)	IDD (RF) (mA)	Function
FMM5118X	10-16	20-32	18	14	5	100	130	Doubler
FMM5125X	14.25-16	57-64	5	-5	5	-	100	Quadrupler

Note: Ta=+25°C

Product Photo



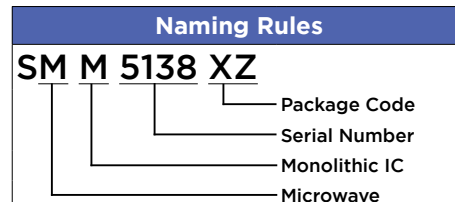
Ku to Ka Band Converter MMICs

Sumitomo Electric provides Mixer MMICs that are designed for VSAT and radio link applications. These devices use an up-converter for the transmitter and a down-converter for the receiver.

These MMICs include a local buffer amplifier integrated on MMIC chip.

Features

- Wide Frequency Range
- High Conversion Gain
- High Integrated
- Low Distortion
- Low Cost Surface Mount Device (XZ)
- Flip Chip Form (XZ)
- RoHS Compliance

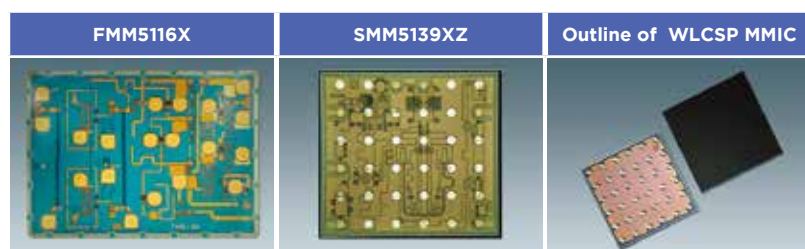


Specifications

Part Number	Freq. (GHz)	IF Freq. (GHz)	Gc (dB)	IIP3 (dBm)	LO-RF Isolation (dB)	VDD (V)	IDD (LO) (mA)	IDD (RF) (mA)	Package	Function
SMM5138XZ	12.7-15.4	DC-4	-12	22	30	5	35	35	WLCSP	Up Converter
SMM5139XZ	12.7-15.4	DC-4	10	2	-	5	-	75		Down Converter
SMM5145XZ	12.7-15.4	DC-2	-12	22	30	5	60	60		with Doubler, Up Converter
SMM5146XZ	12.7-15.4	DC-2	10	2	-	5	-	95		with Doubler, Down Converter
SMM5155XZ	17.7-23.6	DC-2	-12	22	25	5	80	80		with Doubler, Image-rejection Up Converter
SMM5141XZ*	17.7-23.6	DC-4	-12	22	30	5	100	100		with Doubler, Up Converter
SMM5142XZ	17.7-23.6	DC-4	10	2	-	5	100	135		with Doubler, Down Converter
SMM5143XZ	24-30	DC-4	-12	24	30	5	100	100		with Doubler, Up Converter
SMM5144XZ	24-30	DC-4	12	2	-	5	-	210		with Doubler, Down Converter
SMM5150XZ	24-30	DC-4	-13	22	25	5	100	100		with Doubler, Image-rejection Up Converter
SMM5151XZ	31-34	DC-4	-13	22	30	5	125	125		

*Under Development
Note: Tc=+25°C

Product Photo

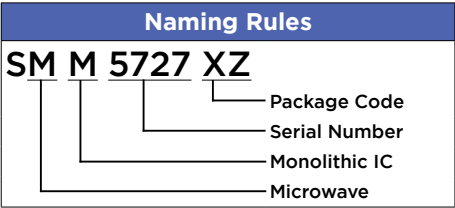


Power GaAs

E-Band MMICs

Features

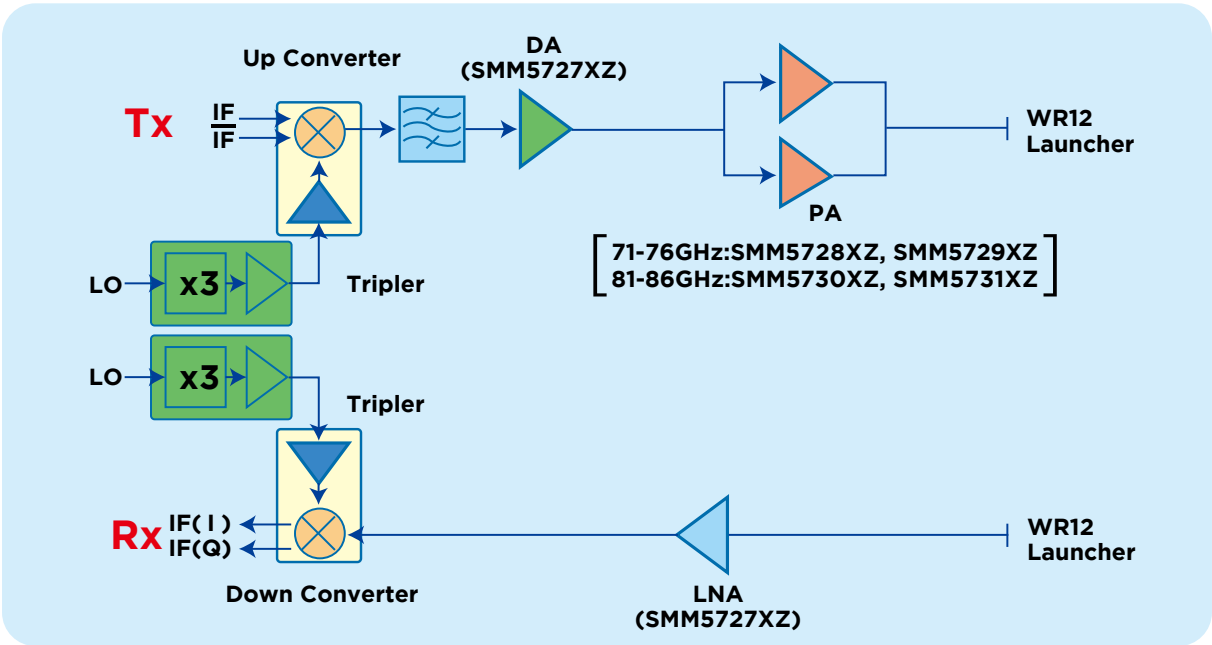
- Low Cost Surface Mount Type Devices
- Flip Chip Form with Solder Ball
 - Solder Ball Diameter : 140μm
 - Solder Ball Pitch : 300μm
- Small size
- High integrated
- Chip Level Protection against Humidity
- RoHS Compliance



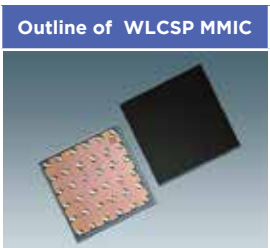
Specifications (PA and LNAs)

Part Number	Freq. (GHz)	NF (dB)	Gain (dB)	P1dB (dBm)	VDD (V)	IDD(RF) (mA)	Package	Function
SMM5727XZ	71-86	5 (71-76GHz) 5.5 (81-86GHz)	21.5 (71-76GHz) 20.5 (81-86GHz)	12(71-76GHz) 11(81-86GHz)	6	60	WLCSP	LNA and DA
SMM5728XZ	71-76	12	25	17	6	410		PA
SMM5729XZ	71-76	12	25	17	6	410		
SMM5730XZ	81-86	12	27	17	6	410		
SMM5731XZ	81-86	12	27	17	6	410		

Note: Tc=+25°C



Product Photo



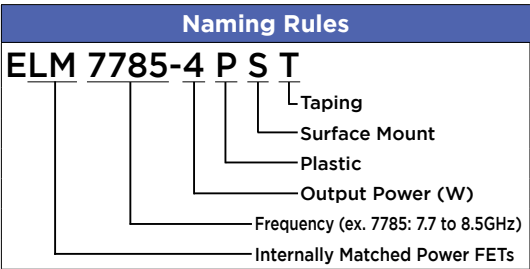
Internally Matched High Power GaAs FETs

FLM/ELM/SLM Series are internally matched power GaAs FETs developed for radio link applications which require high power, high gain, and low distortion in a 50Ω system that are available from 2GHz to 15.3GHz frequency bands.

PS-series are cost effective products of plastic package which can be surface-mounted to save assembly cost.
These products can be provided in both taping-reel and Tray.

Features: PS series

- Input/Output Internally Matched
- Plastic Package for SMT Applications (I2C)
- High Gain
- High Output Power
- High PAE
- Frequency Bands
(5.9 to 6.4GHz, 6.4 to 7.2GHz, 7.1 to 7.9GHz, 7.7 to 8.5GHz)

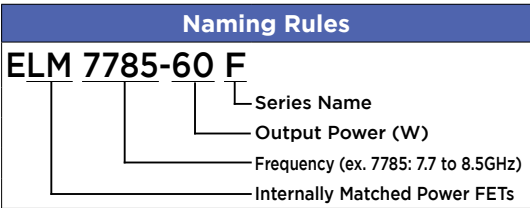


Product Photo

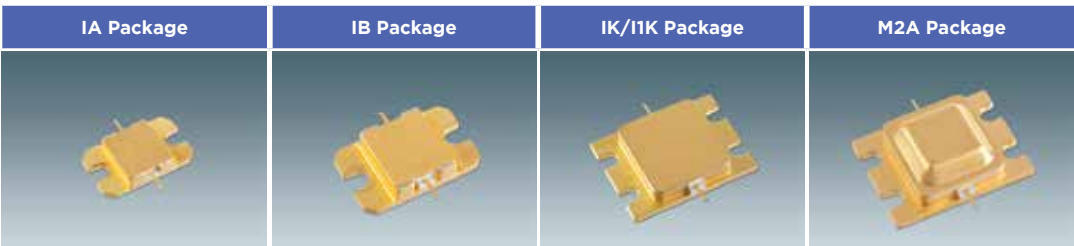


Features

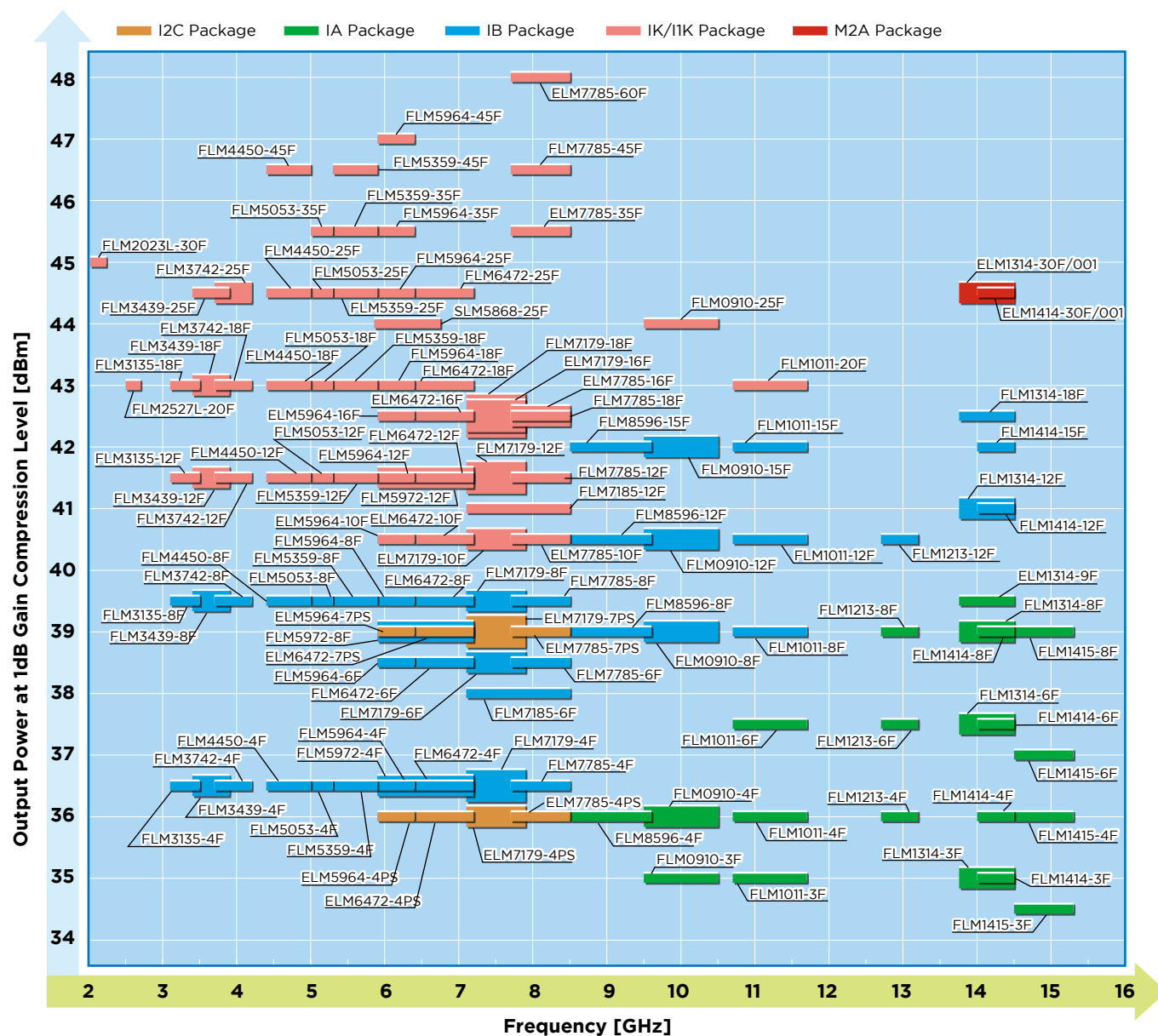
- Input/Output Internally Matched Zin/Zout = 50Ω
- Hermetic Metal Wall Package
- High Gain
- High Output Power (Up to 60W)
- Low Distortion
- Covers Wide Band



Product Photo



Internally Matched High Power GaAs FET Lineup



Specifications (PS series)

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	P1dB (dBm)	G1dB (dB)	η_{add} (%)	VDS (V)	IDS (DC) (mA)	IDS(RF) (mA)	Rth (°C/W)	Package	Feature
ELM5964-4PS	5.9-6.4	-43	25.5	36	11.5	37	10	1100	1100	4.5	I2C	- Internally matched - Optimized for each frequency band
ELM5964-7PS	5.9-6.4	-45	28	39	11	36	10	2200	2200	2.5		
ELM6472-4PS	6.4-7.2	-43	25.5	36	11	36	10	1100	1100	4.5		
ELM6472-7PS	6.4-7.2	-43	28	39	10.5	35	10	2200	2200	2.5		
ELM7179-4PS	7.1-7.9	-43	25.5	36	10.5	35	10	1100	1100	4.5		
ELM7179-7PS	7.1-7.9	-43	28	39	10	34	10	2200	2200	2.5		
ELM7785-4PS	7.7-8.5	-43	25.5	36	10	34	10	1100	1100	4.5		
ELM7785-7PS	7.7-8.5	-43	28	39	9.5	33	10	2200	2200	2.5		

Note: Tc(op)=+25°C

Internally Matched High Power GaAs FETs

Specifications

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	P1dB (dBm)	G1dB (dB)	η_{add} (%)	VDS (V)	IDS (DC) (mA)	IDS(RF) (mA)	Rth (°C/W)	Package	Feature
FLM2023L-30F	2.025-2.285	-45	34.5	45	13	43	10	7000	7000	1.2	IK	• 50Ω internally matched • No external matching • Optimized for each frequency band
FLM2527L-20F	2.5-2.7	-	-	43	11	38	10	4800	4800	1.6		
FLM3135-4F	3.1-3.5	-45	25.5	36.5	12	38	10	1100	1100	5	IB	
FLM3135-8F	3.1-3.5	-45	28.5	39.5	11	37	10	2200	2200	3		
FLM3135-12F	3.1-3.5	-45	30.5	41.5	11.5	40	10	3250	3250	2.3	IK	
FLM3135-18F	3.1-3.5	-45	32	43	10.5	37	10	4800	4800	1.6		
FLM3439-4F	3.4-3.9	-46	25.5	36.5	12	38	10	1100	1100	5	IB	
FLM3439-8F	3.4-3.9	-46	28.5	39.5	11	37	10	2200	2200	3		
FLM3439-12F	3.4-3.9	-46	30.5	41.5	11.5	40	10	3250	3250	2.3	IK	
FLM3439-18F	3.4-3.9	-46	32	43	10.5	37	10	4800	4800	1.6		
FLM3439-25F	3.4-3.9	-46	33.5	44.5	10.5	41	10	6200	6200	1.4	IB	
FLM3742-4F	3.7-4.2	-46	25.5	36.5	12	38	10	1100	1100	5		
FLM3742-8F	3.7-4.2	-46	28.5	39.5	11	37	10	2200	2200	3	IB	
FLM3742-12F	3.7-4.2	-46	30.5	41.5	11.5	40	10	3250	3250	2.3		
FLM3742-18F	3.7-4.2	-46	32	43	10.5	37	10	4800	4800	1.6	IK	
FLM3742-25F	3.7-4.2	-46	33.5	44.5	10.5	41	10	6200	6200	1.4		
FLM4450-4F	4.4-5.0	-46	25.5	36.5	11	37	10	1100	1100	5	IB	
FLM4450-8F	4.4-5.0	-46	28.5	39.5	10	36	10	2200	2200	3		
FLM4450-12F	4.4-5.0	-46	30.5	41.5	10.5	39	10	3250	3250	2.3	IK	
FLM4450-18F	4.4-5.0	-46	32	43	9.5	36	10	4800	4800	1.6		
FLM4450-25F	4.4-5.0	-46	33.5	44.5	9.5	40	10	6200	6200	1.4	IK	
FLM4450-45F	4.4-5.0	-	-	46.5	10	41	12	7000	8000	1.1		
FLM5053-4F	5.0-5.3	-46	25.5	36.5	10.5	37	10	1100	1100	5	IB	
FLM5053-8F	5.0-5.3	-46	28.5	39.5	9.5	36	10	2200	2200	3		
FLM5053-12F	5.0-5.3	-46	30.5	41.5	9.5	38	10	3250	3250	2.3	IK	
FLM5053-18F	5.0-5.3	-46	32	43	8.5	35	10	4800	4800	1.6		
FLM5053-25F	5.0-5.3	-46	33.5	44.5	8.5	39	10	6200	6200	1.4	IB	
FLM5053-35F	5.0-5.3	-45	34.5	45.5	8	35	10	-	8000	1.1		
FLM5359-4F	5.3-5.9	-46	25.5	36.5	10.5	37	10	1100	1100	5	IB	
FLM5359-8F	5.3-5.9	-46	28.5	39.5	9.5	36	10	2200	2200	3		
FLM5359-12F	5.3-5.9	-46	30.5	41.5	9.5	38	10	3250	3250	2.3	IK	
FLM5359-18F	5.3-5.9	-46	32	43	8.5	35	10	4800	4800	1.6		
FLM5359-25F	5.3-5.9	-46	33.5	44.5	8.5	39	10	6200	6200	1.4	IK	
FLM5359-35F	5.3-5.9	-	-	45.5	9	35	10	8500	8500	1.1		
FLM5359-45F	5.3-5.9	-	-	46.5	8.5	36	12	8000	8500	0.8	IB	
FLM5964-4F/001	5.85-6.75	-45	25.5	36.5	9.5	36	10	1100	1100	5		
FLM5964-8F/001	5.85-6.75	-45	28.5	39.5	9	35	10	2200	2200	3	IB	
FLM5964-12F/001	5.85-6.75	-45	30.5	41.5	9	37	10	3250	3250	2.3		
FLM5964-18F/001	5.85-6.75	-45	31.5	42.5	9	35	10	4400	4400	1.6	IK	
SLM5868-25F	5.85-6.75	-45	33	44	9	34	10	6500	6500	1.4		
FLM5964-4F	5.9-6.4	-46	25.5	36.5	10	37	10	1100	1100	5	IB	
FLM5964-6F	5.9-6.4	-46	27.5	38.5	10	37	10	1625	1625	4		
FLM5964-8F	5.9-6.4	-46	28.5	39.5	10	37	10	2200	2200	3	IB	
ELM5964-10F	5.9-6.4	-46	29	40.5	10	39	10	2600	2600	3		
FLM5964-12F	5.9-6.4	-46	30.5	41.5	10	37	10	3250	3250	2.3	IK	
ELM5964-16F	5.9-6.4	-45	31.5	42.5	10	40	10	2800	4000	2.7		
FLM5964-18F	5.9-6.4	-46	32	43	10	37	10	4875	4875	1.6	IK	
FLM5964-25F	5.9-6.4	-46	33.5	44.5	10	37	10	6500	6500	1.4		
FLM5964-35F	5.9-6.4	-40	35	45.5	9	36	10	8000	8500	1.1	IB	
FLM5964-45F	5.9-6.4	-40	35.5	47	8.5	39	10	8000	11000	1.1		
FLM5972-4F	5.9-7.2	-45	25.5	36.5	9.5	36	10	1100	1100	5	IB	
FLM5972-8F	5.9-7.2	-45	28	39	8.5	31	10	2200	2200	3		
FLM5972-12F	5.9-7.2	-45	30.5	41.5	9.5	37	10	3250	3250	2.3	IK	
FLM6472-4F	6.4-7.2	-46	25.5	36.5	9.5	36	10	1100	1100	5	IB	
FLM6472-6F	6.4-7.2	-46	27.5	38.5	9.5	37	10	1625	1625	4		
FLM6472-8F	6.4-7.2	-46	28.5	39.5	9.5	36	10	2200	2200	3	IB	
ELM6472-10F	6.4-7.2	-46	29	40.5	9.5	36	10	2600	2600	3		
FLM6472-12F	6.4-7.2	-46	30.5	41.5	9.5	37	10	3250	3250	2.3	IK	
ELM6472-16F	6.4-7.2	-45	31.5	42.5	9.5	40	10	2800	4000	2.7		
FLM6472-18F	6.4-7.2	-46	32	43	9.5	37	10	4875	4875	1.6		

Note: Tc (op) = +25°C IM3: 3rd Order Intermodulation Distortion

Specifications

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	P1dB (dBm)	G1dB (dB)	η_{add} (%)	VDS (V)	IDS (DC) (mA)	IDS(RF) (mA)	Rth (°C/W)	Package	Feature
FLM6472-25F	6.4-7.2	-46	33.5	44.5	9.5	38	10	6500	6500	1.4	IK	• 50Ω internally matched • No external matching • Optimized for each frequency band
FLM7179-4F	7.1-7.9	-46	25.5	36.5	9	35	10	1100	1100	5	IB	
FLM7179-6F	7.1-7.9	-46	27.5	38.5	9	34	10	1625	1625	4		
FLM7179-8F	7.1-7.9	-46	28.5	39.5	9	35	10	2200	2200	3	IK	
ELM7179-10F	7.1-7.9	-46	29	40.5	9	38	10	2600	2600	3		
FLM7179-12F	7.1-7.9	-46	30.5	41.5	9	38	10	3250	3250	2.3		
ELM7179-16F	7.1-7.9	-43	31.5	42.5	8.5	38	10	2800	4000	2.7		
FLM7179-18F	7.1-7.9	-46	32	42.5	8	30	10	4875	4875	1.6	IB	
FLM7185-6F	7.1-8.5	-45	27	38	8	30	10	1625	1625	4		
FLM7185-12F	7.1-8.5	-45	30	41	8	30	10	3500	3500	2.3	IK	
FLM7785-4F	7.7-8.5	-46	25.5	36.5	8.5	35	10	1100	1100	5	IB	
FLM7785-6F	7.7-8.5	-46	27.5	38.5	8.5	31	10	1750	1750	4		
FLM7785-8F	7.7-8.5	-46	28.5	39.5	8.5	34	10	2200	2200	3		
ELM7785-10F	7.7-8.5	-46	29	40.5	8.5	37	10	2600	2600	3	IK	
FLM7785-12F	7.7-8.5	-46	30.5	41.5	8.5	34	10	3500	3500	2.3		
ELM7785-16F	7.7-8.5	-43	31.5	42.5	8	37	10	2800	4000	2.7		
FLM7785-18F	7.7-8.5	-45	31.5	42.5	7	29	10	4700	4700	1.6		
ELM7785-35F	7.7-8.5	-	-	45.5	8.5	35	10	8000	8500	1.1		
FLM7785-45F	7.7-8.5	-	-	46.5	7	32.5	10	8000	11000	1.1		
ELM7785-60F	7.7-8.5	-	-	48	7	37	10	9500	14500	0.8	11K	
FLM8596-4F	8.5-9.6	-45	25.5	36	7.5	29	10	1100	1100	5	IA	
FLM8596-8F	8.5-9.6	-45	28.5	39	7.5	29	10	2200	2200	3	IB	
FLM8596-12F	8.5-9.6	-45	29.5	40.5	7.5	25	10	3600	3600	2.3		
FLM8596-15F	8.5-9.6	-	-	42	7.5	32	10	4000	4000	2.3		
FLM0910-3F	9.5-10.5	-46	24	35	7.5	29	10	900	900	5	IA	
FLM0910-4F	9.5-10.5	-46	25.5	36	7.5	29	10	1100	1100	5		
FLM0910-8F	9.5-10.5	-46	28.5	39	7.5	29	10	2200	2200	3	IB	
FLM0910-12F	9.5-10.5	-	-	40.5	7	25	10	3500	3500	2.3		
FLM0910-15F	9.5-10.5	-	-	42	7.5	32	10	4000	4000	2.3		
FLM0910-25F	9.5-10.5	-	-	44	7	30	10	6500	6500	1.4	IK	
FLM1011-3F	10.7-11.7	-46	24	35	7.5	29	10	900	900	5	IA	
FLM1011-4F	10.7-11.7	-46	25.5	36	7	29	10	1100	1100	5		
FLM1011-6F	10.7-11.7	-49	25	37.5	7.5	28	10	1800	1800	4		
FLM1011-8F	10.7-11.7	-46	28.5	39	7	29	10	2200	2200	3	IB	
FLM1011-12F	10.7-11.7	-45	29.5	40.5	6	25	10	3600	3600	2.3		
FLM1011-15F	10.7-11.7	-45	30	42	7	31	10	4000	4000	2.3		
FLM1011-20F	10.7-11.7	-45	31	43	7	27	10	6000	6000	1.4	IK	
FLM1213-4F	12.7-13.2	-46	25.5	36	6.5	28	10	1100	1100	5	IA	
FLM1213-6F	12.7-13.2	-49	25	37.5	7	28	10	1650	1650	4		
FLM1213-8F	12.7-13.2	-46	28.5	39	6.5	28	10	2200	2200	3		
FLM1213-12F	12.7-13.2	-45	28	40.5	5.5	24	10	3300	3300	2.3	IB	
FLM1314-3F	13.75-14.5	-45	24	35	5.5	27	10	900	900	5	IA	
FLM1314-6F	13.75-14.5	-45	26.5	37.5	5.5	22	10	1800	1800	4		
FLM1314-8F	13.75-14.5	-45	28	39	6	27	10	2400	2400	2.8		
ELM1314-9F	13.75-14.5	-30	33	39.5	6	30	10	1750	2400	3.5	IB	
FLM1314-12F	13.75-14.5	-45	29	41	6	23	10	4200	4200	1.8		
FLM1314-18F	13.75-14.5	-30	36	42.5	6	27	10	5000	5000	1.8		
ELM1314-30F/001	13.75-14.5	-30	38	44.5	5.5	22	10	7000	9000	1	M2A	
FLM1414-3F	14.0-14.5	-46	24	35	6.5	27	10	900	900	5	IA	
FLM1414-4F	14.0-14.5	-46	25.5	36	6	27	10	1100	1100	5		
FLM1414-6F	14.0-14.5	-46	26.5	37.5	6.5	24	10	1800	1800	4		
FLM1414-8F	14.0-14.5	-46	28.5	39	6	27	10	2200	2200	3		
FLM1414-12F	14.0-14.5	-	-	41	6	23	10	3600	3600	1.8	IB	
FLM1414-15F	14.0-14.5	-45	30	42	6	26	10	4200	4200	1.8		
ELM1414-30F/001	14.0-14.5	-30	38	44.5	6	22	10	7000	9000	1	M2A	
FLM1415-3F	14.5-15.3	-45	23.5	34.5	5.5	23	10	900	900	5	IA	
FLM1415-4F	14.5-15.3	-	-	36	5.5	26	10	1100	1100	5		
FLM1415-6F	14.5-15.3	-45	26	37	5.5	20	10	1800	1800	4		
FLM1415-8F	14.5-15.3	-	-	39	5	25	10	2200	2200	3		

Note: Tc (op) = +25°C IM3: 3rd Order Intermodulation Distortion

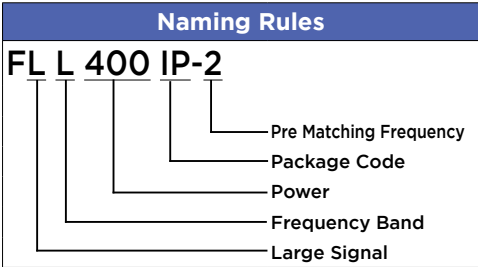
Power GaAs

High Power GaAs FETs

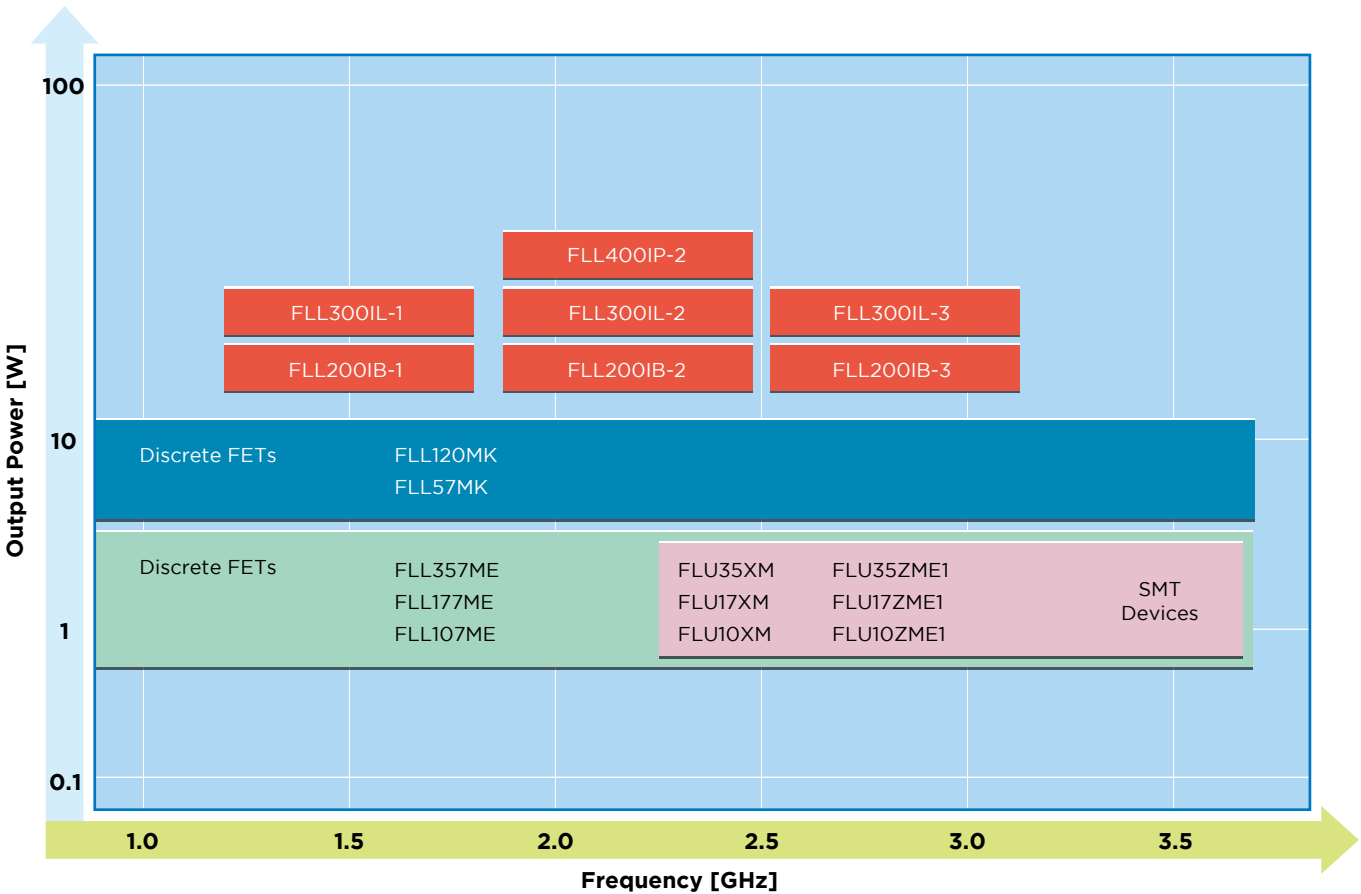
Sumitomo Electric has developed 40W - 80W high power Push-Pull GaAs FETs for Mobile Base Station applications such as Cellular, WCDMA, LTE and WiMAX. Additionally, plastic packaged devices are under development for cost driven systems.

Features

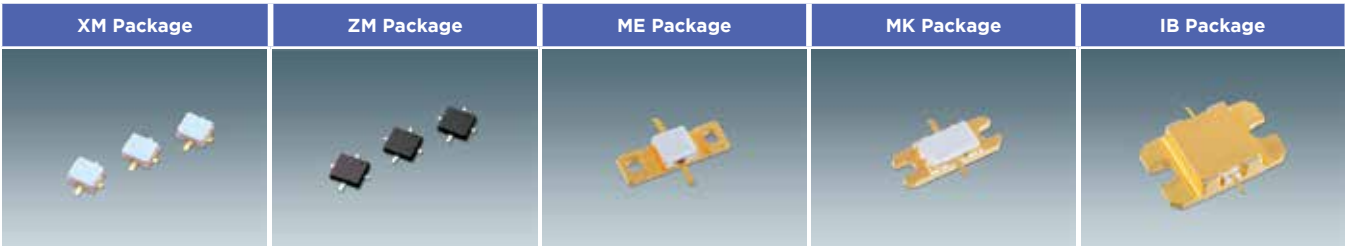
- High Output Power: Up to 40W
- High Gain
- Operating Voltage: 10V, 12V
- Proven Reliability



L-Band, S-Band High Output GaAs FET Lineup



Product Photo



Specifications

Part Number	Freq. Band	Series	P1dB (dBm)	G1dB (dB)	η_{add} (%)	Specified Freq. (GHz)	VDS (V)	IDS(DC) (mA)	Rth (°C/W)	Package
FLU10XM	L	FLU	29.5	14.5	47	2	10	180	25	XM
FLU10ZME1	L	FLU	29.5	13	46	2	10	180	15	ZM
FLU17XM	L	FLU	32.5	12.5	46	2	10	360	15	XM
FLU17ZME1	L	FLU	32.5	12.5	45	2	10	360	12	ZM
FLU35XM	L	FLU	35.5	12.5	46	2	10	720	7.5	XM
FLU35ZME1	L	FLU	35.5	11.5	45	2	10	720	5	ZM
FLL107ME	L	FLL	29.5	13.5	47	2.3	10	180	25	ME
FLL177ME	L	FLL	32.5	12.5	46	2.3	10	360	15	
FLL357ME	L	FLL	35.5	11.5	46	2.3	10	720	7.5	
FLL57MK	L	FLL	36.0	11.5	37	2.3	10	990	6.2	MK
FLL120MK	L	FLL	40.0	10	40	2.3	10	2200	3.3	
FLL200IB-1	L	FLL	42.5	13	35	1.5	10	4800	1.6	IB
FLL200IB-2	L	FLL	42.5	11	34	2.3	10	4800	1.6	
FLL200IB-3	L	FLL	42.5	11	34	2.6	10	4800	1.6	
FLL300IL-1	L	FLL	44.5	13	45	0.9	10	6000	1	IL
FLL300IL-2	L	FLL	44.5	12	44	1.8	10	6000	1	
FLL300IL-3	L	FLL	44.5	10	42	2.6	10	6000	1	
FLL400IP-2	L	FLL	45.5	10	44	1.96	12	2000	1	IP
FLC057WG	C	FLC	27.0	9	38	8	10	120	27	WG
FLC097WF	C	FLC	28.8	8.5	35	6	10	180	25	WF
FLC107WG	C	FLC	30.0	8	36	8	10	240	16	WG
FLC167WF	C	FLC	31.8	7.5	35	6	10	360	15	WF
FLC257MH-6*	C	FLC	34.0	9	36	6.4	10	600	8	MH
FLC257MH-8*	C	FLC	34.0	8	35	8.5	10	600	8	
FLX107MH-12*	X	FLX	30.0	7.5	33	12.5	10	240	15	
FLX207MH-12*	X	FLX	32.5	7	28	12.5	10	480	10	
FLK017WF	Ku	FLK	20.5	7.5	26	14.5	10	36	65	WF
FLK027WG	Ku	FLK	24.0	7	32	14.5	10	60	40	WG
FLK057WG	Ku	FLK	27.0	7	32	14.5	10	120	20	
FLK107MH-14*	Ku	FLK	30.0	6.5	31	14.5	10	240	15	MH

*: Partially Input/Output Matched

Product Photo



Power GaAs

GaAs FETs (Die)

Features

- High Gain, High Frequency Chip

Naming Rules

FL X 25 7 XV

Chip Form: XV (Via Hole PHS)
: XP (non Via Hole PHS)

Number

Output Power

Frequency Band

Large Signal

Specifications

Part Number	P1dB (dBm)	G1dB (dB)	η_{add} (%)	Freq. (GHz)	VDS (V)	IDS (mA)	Application
FLC087XP	28.5	7	31.5	8.0	10	180	C-band Amplifier
FLC157XP	31.5	6	29.5	8.0	10	360	
FSX017X	21.5	11	42	8.0	8	38	X-band Amplifier
FSX027X	24.5	10	41	8.0	8	77	
FLX257XV	33.5	7.5	31	10.0	10	600	Ku-band Amplifier
FLK017XP	20.5	8	26	14.5	10	36	
FLK027XP	24	7	32	14.5	10	60	
FLK027XV	24	7	32	14.5	10	60	
FLK057XV	27	7	32	14.5	10	120	
FLK107XV	30	6.5	31	14.5	10	240	
FLK207XV	32.5	6	27	14.5	10	480	

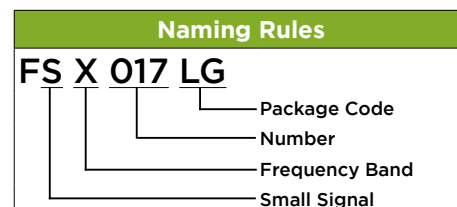
X: Conventional Chip, XP: PHS (Plated Heat Sink), XV: Via Hole PHS

Small Signal GaAs FETs

FSU/FSX series are GaAs FETs that are designed for medium output power amplifier and oscillator applications with a wide dynamic range up to X-band frequencies. Tape and reel is available for both LP/LG packages.

Features

- Medium Power: P1dB = 15 to 24.5dBm
- High Gain: G1dB = 8 to 19dB
- High Reliability
- Hermetic Metal/Ceramic Packages (WF/LG)



Specifications

Part Number	P1dB (dBm)	G1dB (dB)	Measurement Conditions 1			NF (dB)	Rth (°C/W)	Measurement Conditions 2			Package	Feature
			Specified Freq. (GHz)	VDS (V)	IDS (DC) (mA)			Specified Freq. (GHz)	VDS (V)	IDS (DC) (mA)		
FSU01LG	20	19	2	6	40	0.5	18.5	2	3	10	LG *	Medium Power
FSU02LG	23	17	2	6	80	1.5	17.5	2	3	20		
FSX017WF	21.5	11	8	8	39	2.5	10.5	8	3	10	WF	
FSX027WF	24.5	10	8	8	77	2.5	9.5	8	3	30		
FSX017LG	16	8	12	4	30	-	-	-	-	-	LG *	

*: FSU01LG, FSU02LG, FSX017LG are all in LG-pkg with short lead.

Note: Tc (op) = +25°C

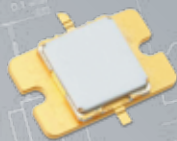
Product Photo



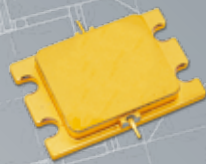
Packages



I2C



I2D



I2F



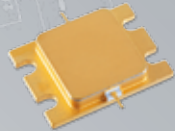
IA



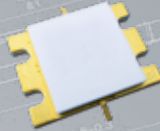
IB



IBK



IK



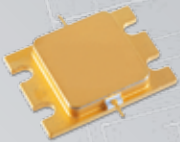
IL



IP



IV



I1K



LG/LP



M2A



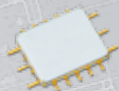
ME



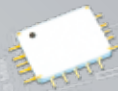
MH



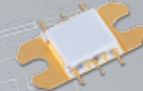
MK



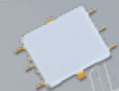
V1B



V1D



VF



VU



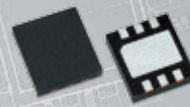
WF



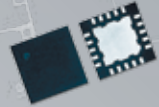
WG



XM



Z2D



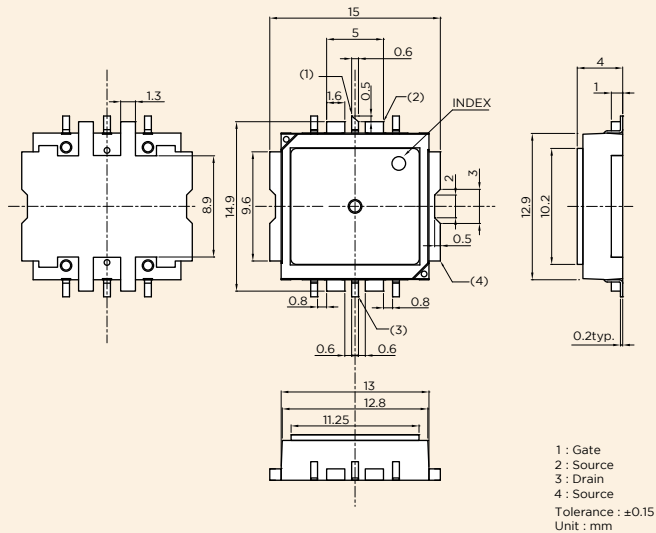
ZB



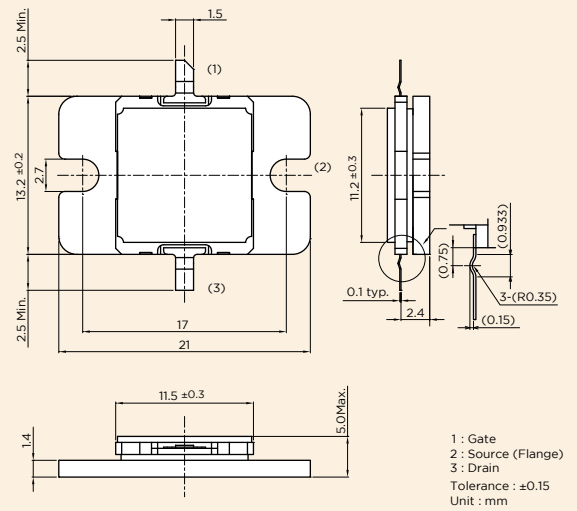
ZV

Packages

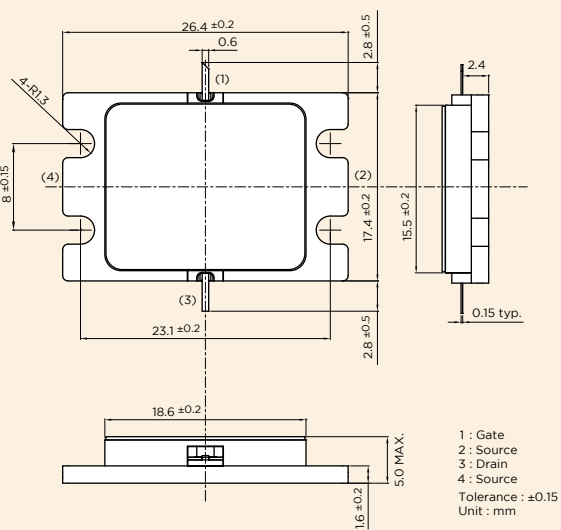
I2C



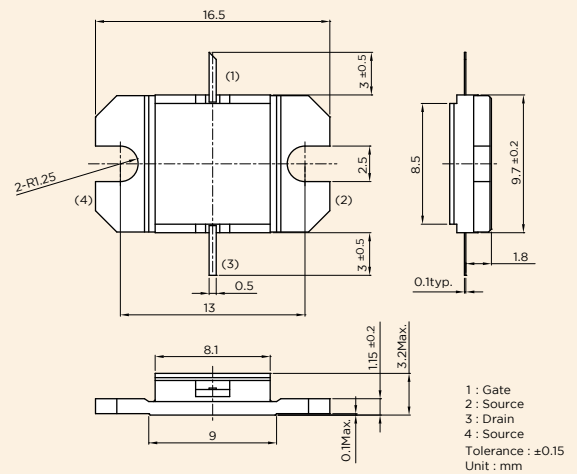
I2D



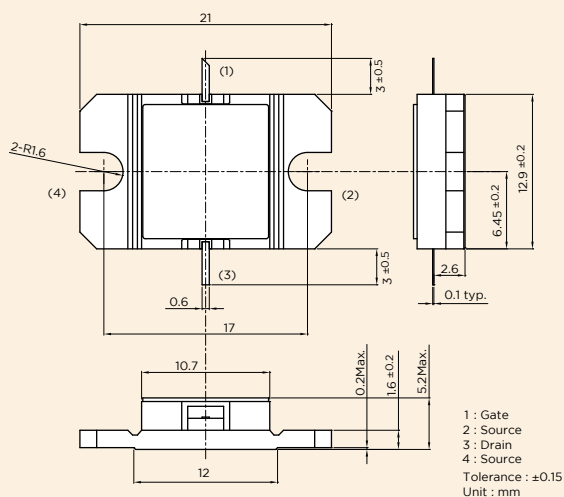
I2F



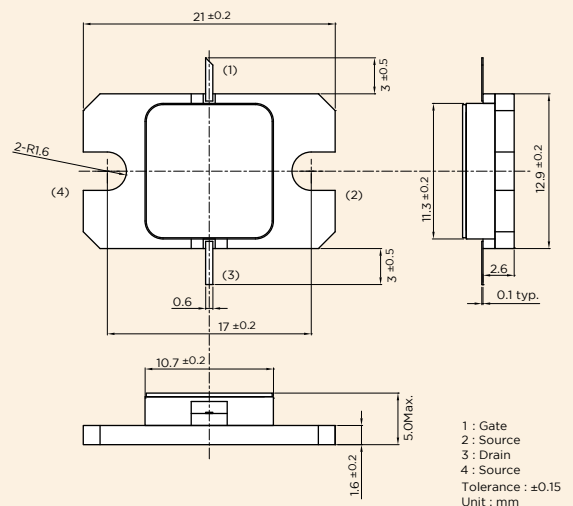
IA



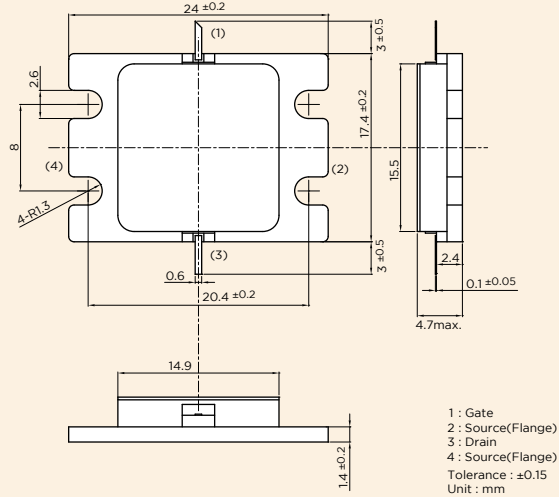
IB



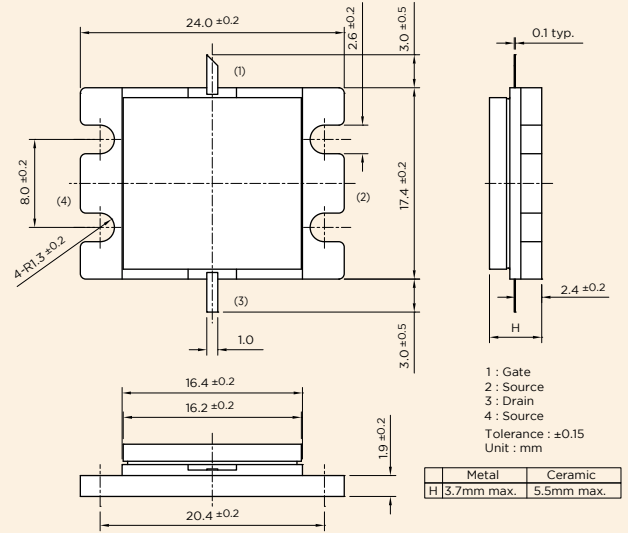
IBK



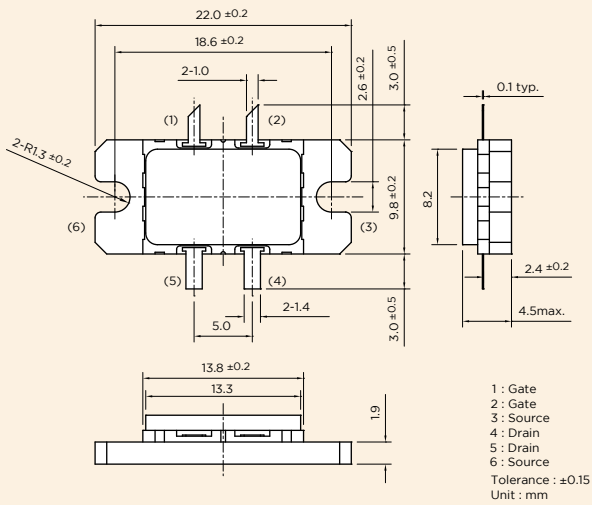
IK



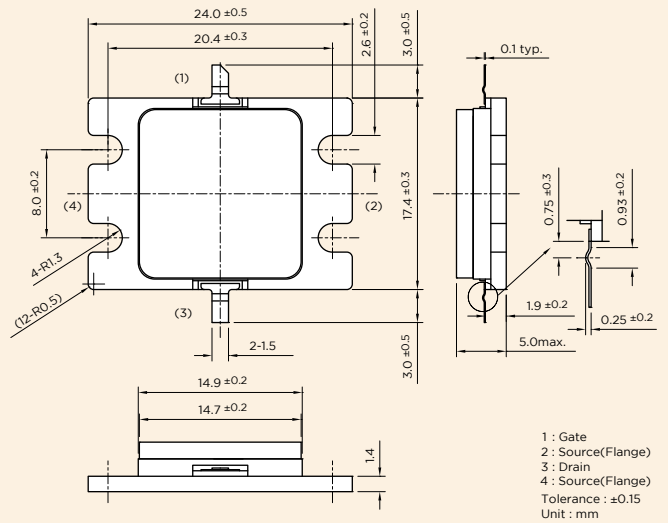
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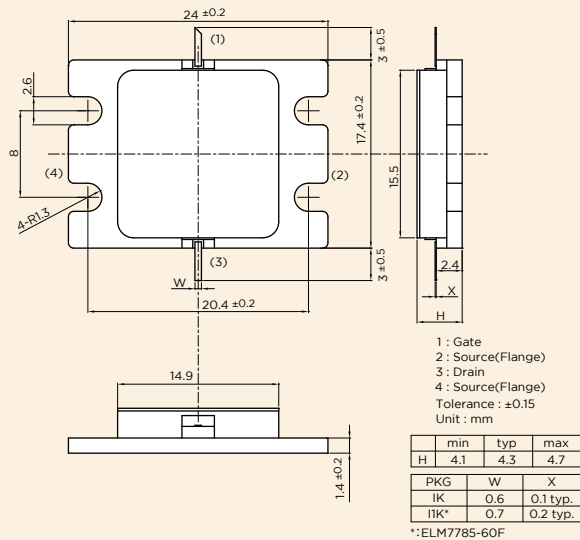
IP



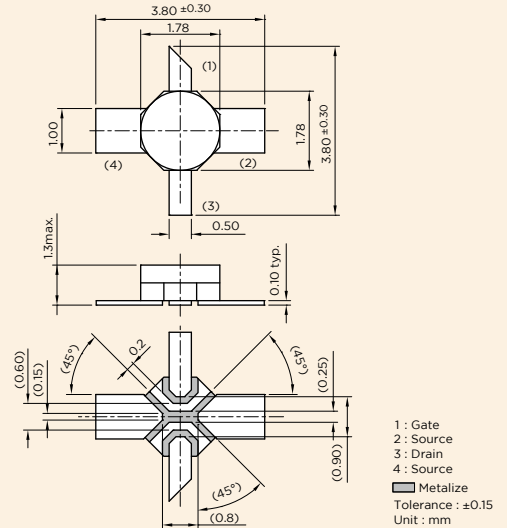
IV



IIK



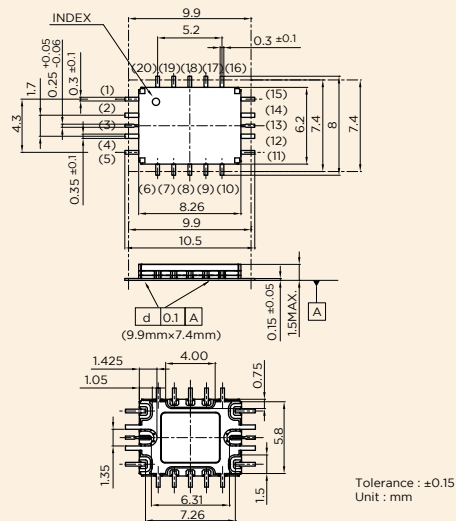
LG/LP (Shortlead)



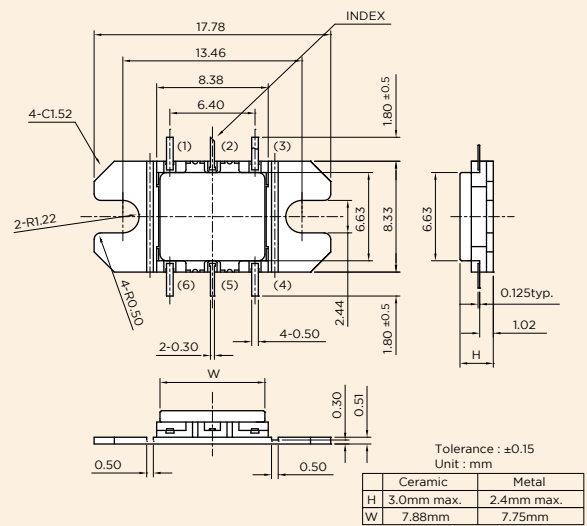
Packages

Technical drawing of the LG/LP package. The top view shows a square package with a central circular gate. Dimensions include a total width of 4.78 ± 0.5 mm, a central gate diameter of 1.5 ± 0.3 mm, and a central pad diameter of 1.78 mm. The side view shows a height of 1.0 mm and a central pad height of 0.5 mm. The cross-sectional view shows a central pad height of 1.3 mm max. and a central pad width of 0.1 mm typ. 1 : Gate 2 : Source 3 : Drain 4 : Source Tolerance : ±0.15 Unit : mm	Technical drawing of the M2A package. The top view shows a square package with a central gate. Dimensions include a total width of 24.0 ± 0.5 mm, a central gate diameter of 20.4 ± 0.3 mm, and a central pad diameter of 8.0 ± 0.2 mm. The side view shows a height of 15.5 ± 0.2 mm and a central pad height of 0.6 mm. The cross-sectional view shows a central pad height of 7.0 mm max. and a central pad width of 0.1 mm typ. 1 : Gate 2 : Source 3 : Drain 4 : Source Tolerance : ±0.15 Unit : mm
Technical drawing of the ME package. The top view shows a square package with a central gate. Dimensions include a total width of 16.0 mm, a central gate diameter of 12.0 mm, and a central pad diameter of 5.0 ± 0.2 mm. The side view shows a height of 4.0 ± 0.50 mm and a central pad height of 1.65 mm. The cross-sectional view shows a central pad height of 4.0 mm max. and a central pad width of 0.1 mm typ. 1 : Gate 2 : Source 3 : Drain 4 : Source Tolerance : ±0.15 Unit : mm	Technical drawing of the MH package. The top view shows a square package with a central gate. Dimensions include a total width of 10.0 ± 0.3 mm, a central gate diameter of 6.7 ± 0.2 mm, and a central pad diameter of 3.3 mm. The side view shows a height of 2.0 ± 0.5 mm and a central pad height of 1.65 mm. The cross-sectional view shows a central pad height of 2.8 mm max. and a central pad width of 0.1 mm typ. 1 : Gate 2 : Source (Flange) 3 : Drain 4 : Source (Flange) Tolerance : ±0.15 Unit : mm
Technical drawing of the MK package. The top view shows a square package with a central gate. Dimensions include a total width of 17.5 ± 0.2 mm, a central gate diameter of 14.3 ± 0.2 mm, and a central pad diameter of 6.35 ± 0.2 mm. The side view shows a height of 3.0 ± 0.5 mm and a central pad height of 2.28 ± 0.2 mm. The cross-sectional view shows a central pad height of 4.5 mm max. and a central pad width of 0.1 mm typ. 1 : Gate 2 : Source 3 : Drain 4 : Source Tolerance : ±0.15 Unit : mm	Technical drawing of the V1B package. The top view shows a square package with a central gate. Dimensions include a total width of 10.25 ± 0.05 mm, a central gate diameter of 0.30 ± 0.1 mm, and a central pad diameter of 7.86 mm. The side view shows a height of 4.30 mm and a central pad height of 1.425 mm. The cross-sectional view shows a central pad height of 1.50 mm and a central pad width of 0.1 mm typ. 1 : Gate 2 : Source 3 : Drain 4 : Source Tolerance : ±0.15 Unit : mm

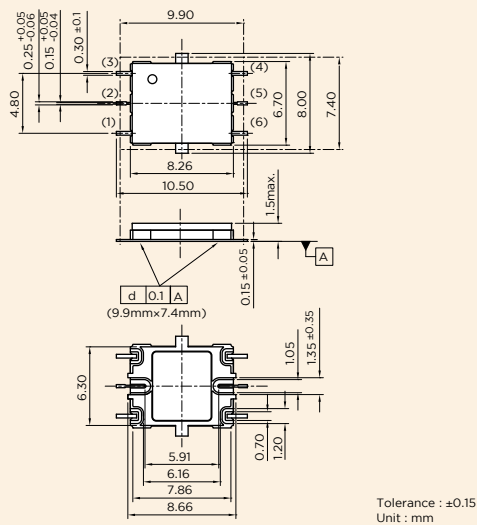
V1D



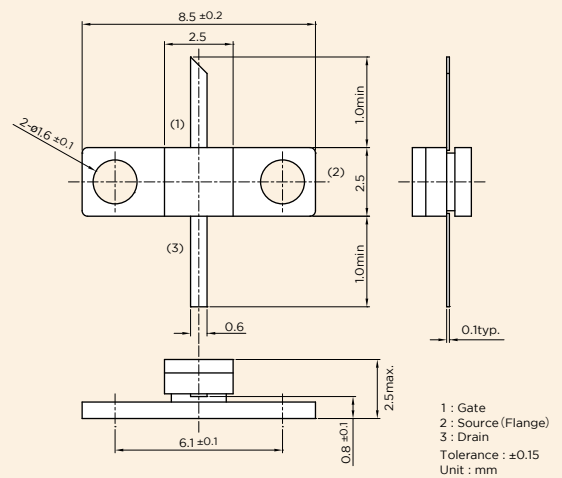
VF



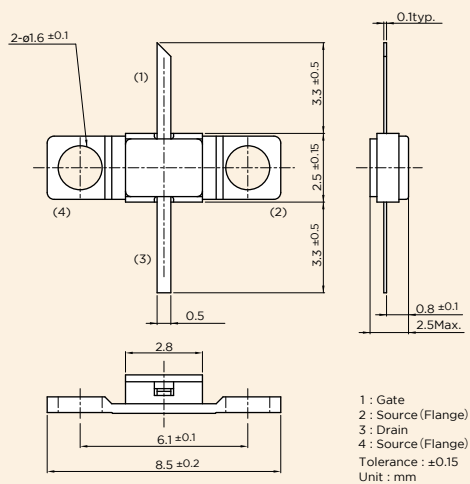
VU



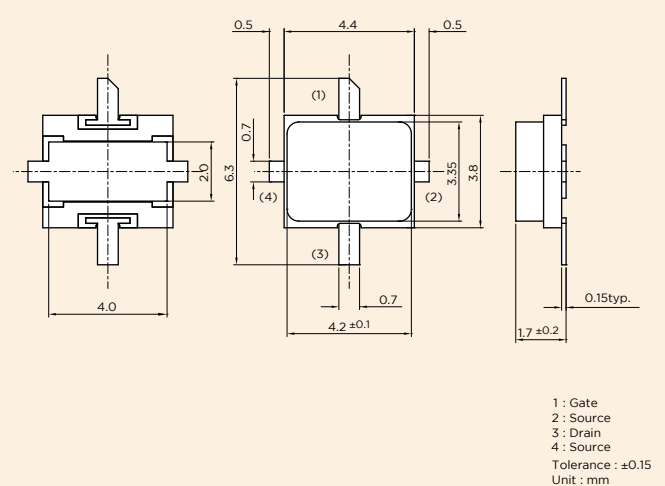
WF



WG

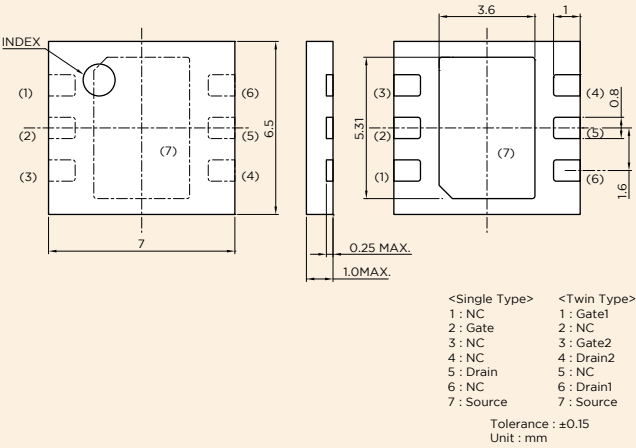


XM

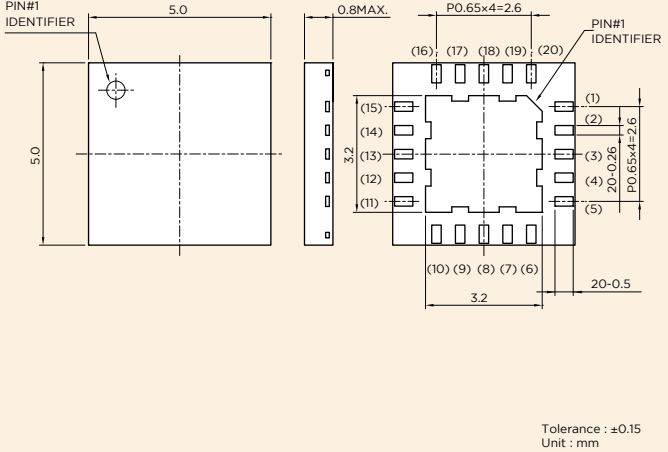


Packages

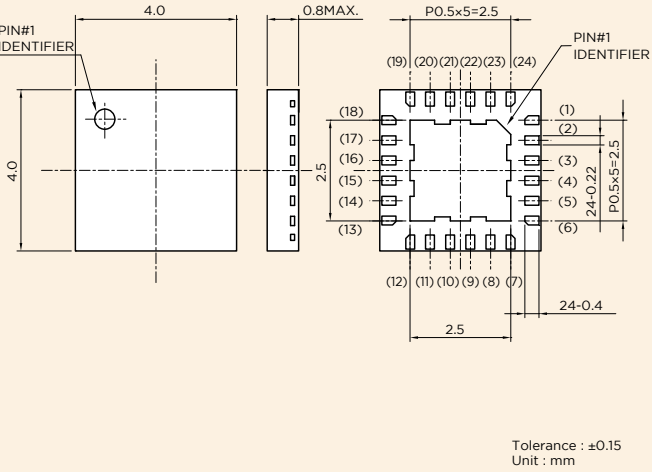
Z2D



ZB



ZV



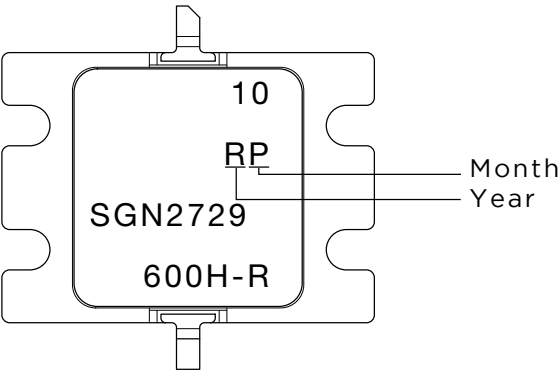
Sealing Rules

■ Year/Month code

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Code	P	R	S	T	U	V	W	X	Y	Z	A	B

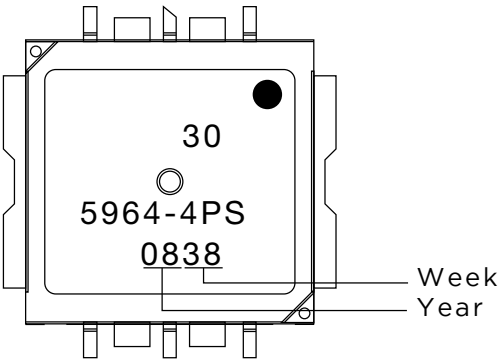
Note: Code letter is cycling 25 alphabet without Q.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	H	M	N	P	R	S	T	U	W	X	Y	Z



Note:
Year/Month code consist of two digit alphabet shown at the above table.
(e.g. "RP" stands for the device is manufactured in year 2009 (Year code "R") and April (Month code "P"). See the above table.)

■ Year/Week code



Note:
Year/week code consist of four digit number. The first two digits are last two digits of the year and last two digits show the week code following European International Standard.
(e.g. "0838" stands for the device is manufactured in year 2008, week 38. The week has first Thursday in the year is defined as week 1.)

Creating Value for Customers

Corporate Quality Assurance

Sumitomo Electric strives to achieve the highest quality and reliability performance on all the products it supplies. This is accomplished through a systemic approach that emphasizes quality at every stage of product development through the manufacturing process. Quality is built into the product from design to wafer fabrication, test, and assembly. Sumitomo Electric has a Quality Management System that is certified to ISO9000 (ISO9001: 2008) and Aerospace Quality Management System JIS Q 9100. This system assures customers the highest quality product with long term reliability required for their applications.

Quality Management

ISO9001 Record

- Sep. 1993 ISO9002 (Fujitsu Quantum Devices)
- Nov. 1998 ISO9001
- Sep. 2003 ISO9001: 2000
- Apr. 2004 Eudyna Device Inc.
- Oct. 2004 Expansion to Yokohama Factory
- Oct. 2005 Expansion to Eudyna Microwave Assembly
- Sep. 2009 ISO9001: 2008 (Sumitomo Electric Device Innovation, Inc.)
- Jul. 2010 ISO9001: 2008 Revision



JIS Q 9100(AS9100, prEN9100)Record

- Aug. 2010 AS9100 (JIS Q 9100): 2004
- Jan. 2012 AS9100 (JIS Q 9100): 2009
- OASIS Identification Number: 6131088186



Environmental Management

ISO14001 Record

- Aug. 1998 ISO14001
- Aug. 2004 Expansion to Eudyna Microwave Assembly (Kofu)
- Aug. 2007 Expansion to Eudyna Microwave Assembly (Matsushiro)
- Aug. 2010 ISO14001: 2004 (Sumitomo Electric Device Innovation, Inc.)



For Safety, Observe the Following Procedures Environmental Management

- Do not put this product into the mouth.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Respect all applicable laws of the country when discarding this product.
This product must be disposed in accordance with methods specified by applicable hazardous waste procedures.

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ATTENTION

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