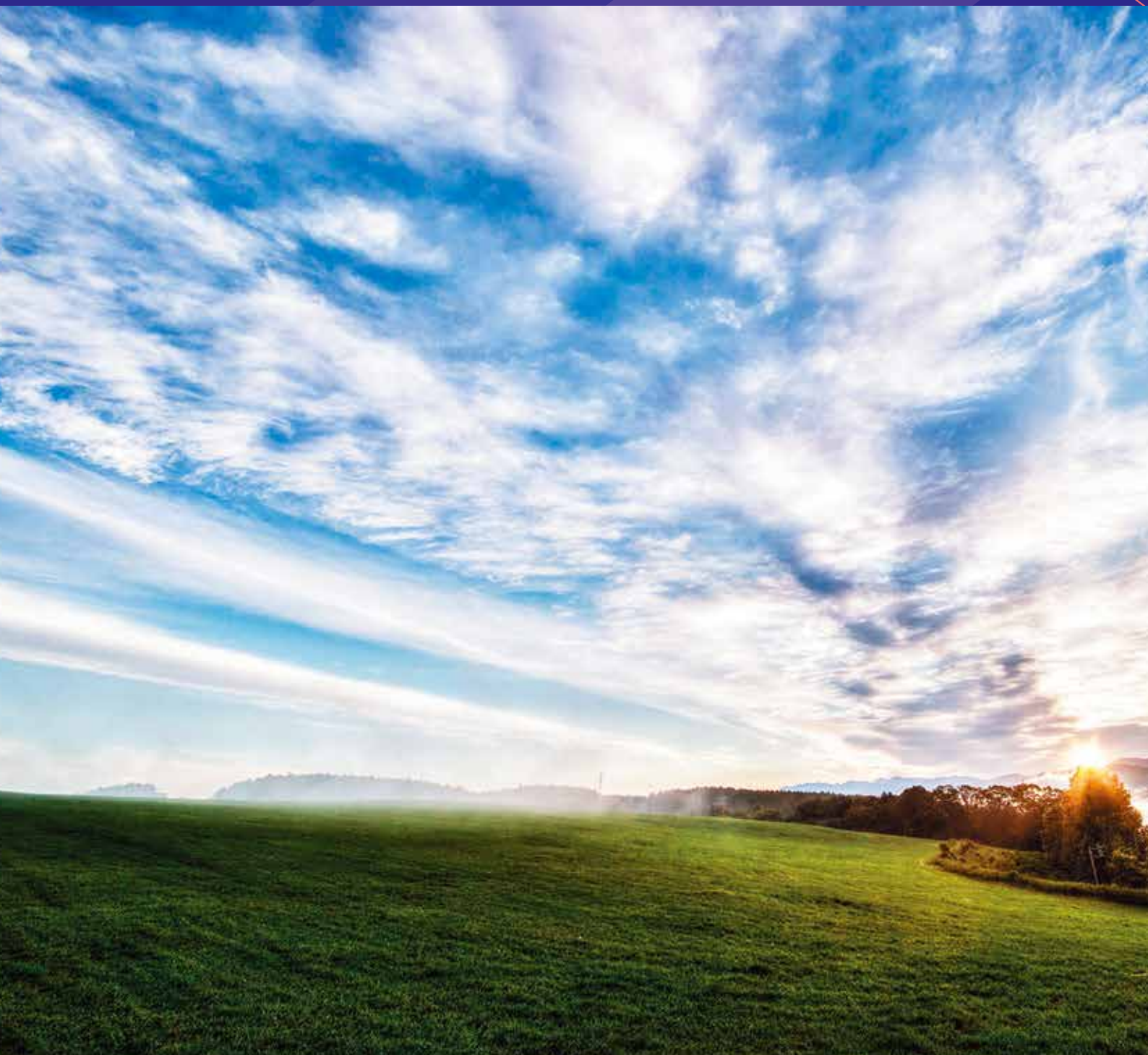
SUMITOMO ELECTRIC
Connect with Innovation

Wireless Device
Products 2019-2020



Sumitomo Electric

Reliable, Advanced Technology Generating Value for the Customer

As an industry pioneer for over 30 years, Sumitomo Electric 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, we are committed to providing the best value for our customers while protecting the global environment.

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Total RF Solutions from SUMITOMO ELECTRIC

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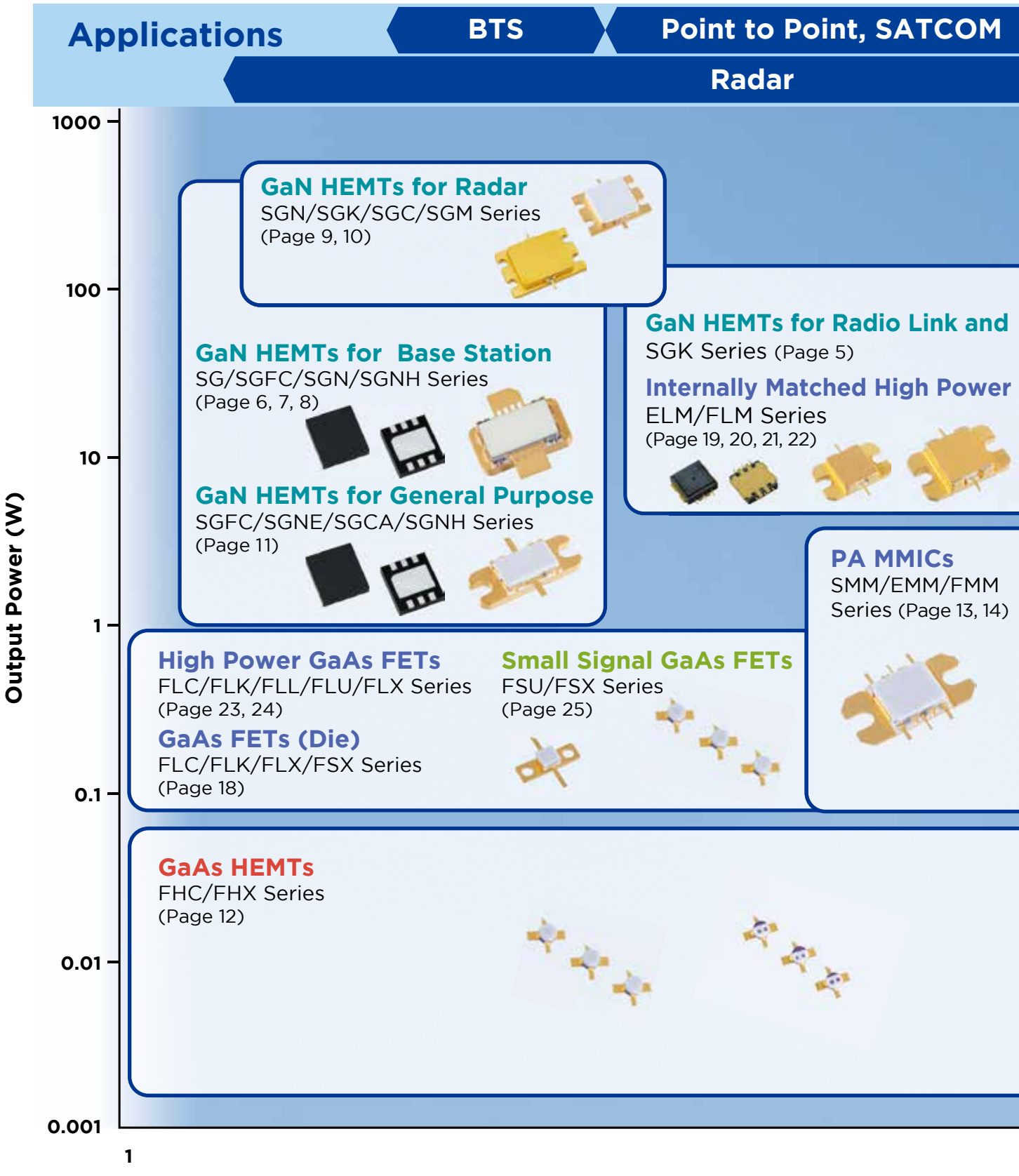

VSAT Point to Point VSAT Point to Point, FWA

SATCOM

GaAs FETs

PA MMICs
SMM/EMM/FMM Series
(Page 13, 14, 15, 16)

LNA MMICs (Die)
EMM/FMM Series
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10 100

Frequency (GHz)

GaN HEMTs for Radio Link and SATCOM

Features

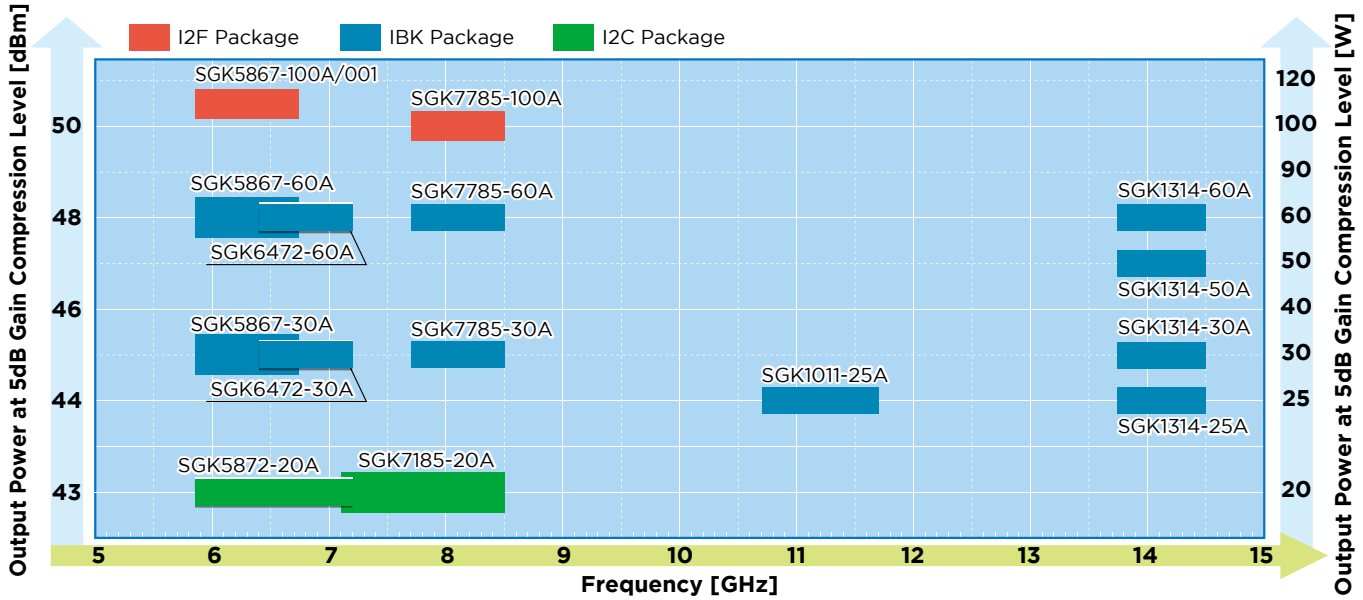
- High Output Power
- High Gain
- High Efficiency
- Internally Matched

Naming Rules

SGK 7785-30 A

- A — Series Name
- 30 — Output Power (W)
- 7785 — Frequency (Ex 7785 : 7.7 to 8.5GHz)
- SGK — Internally Matched GaN-HEMT

GaN HEMTs for Satcom Lineup

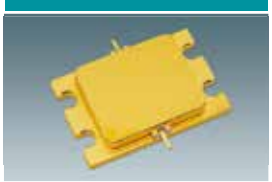


Specifications

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	Pout (dBm)	GL (dB)	ηadd (%)	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		
SGK5867-100A/001	5.85-6.75	-25	44	50.5	13.5	45	24	4	10	0.55		I2F
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		
SGK7185-20A	7.1-8.5	-43	27.5	43	11	39	24	1.0	1.7	2.7		I2C
SGK7785-30A	7.7-8.5	-45	29.5	45	12	39	24	1.75	2.7	2.2		IBK
SGK7785-60A	7.7-8.5	-42	32	48	11	37	24	2.6	5.4	1.3		
SGK7785-100A	7.7-8.5	-25	44	50	12	42	24	4	10	0.55		I2F
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		
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

IBK Package	I2F Package	I2C Package
		

GaN HEMTs for Base Station

Features

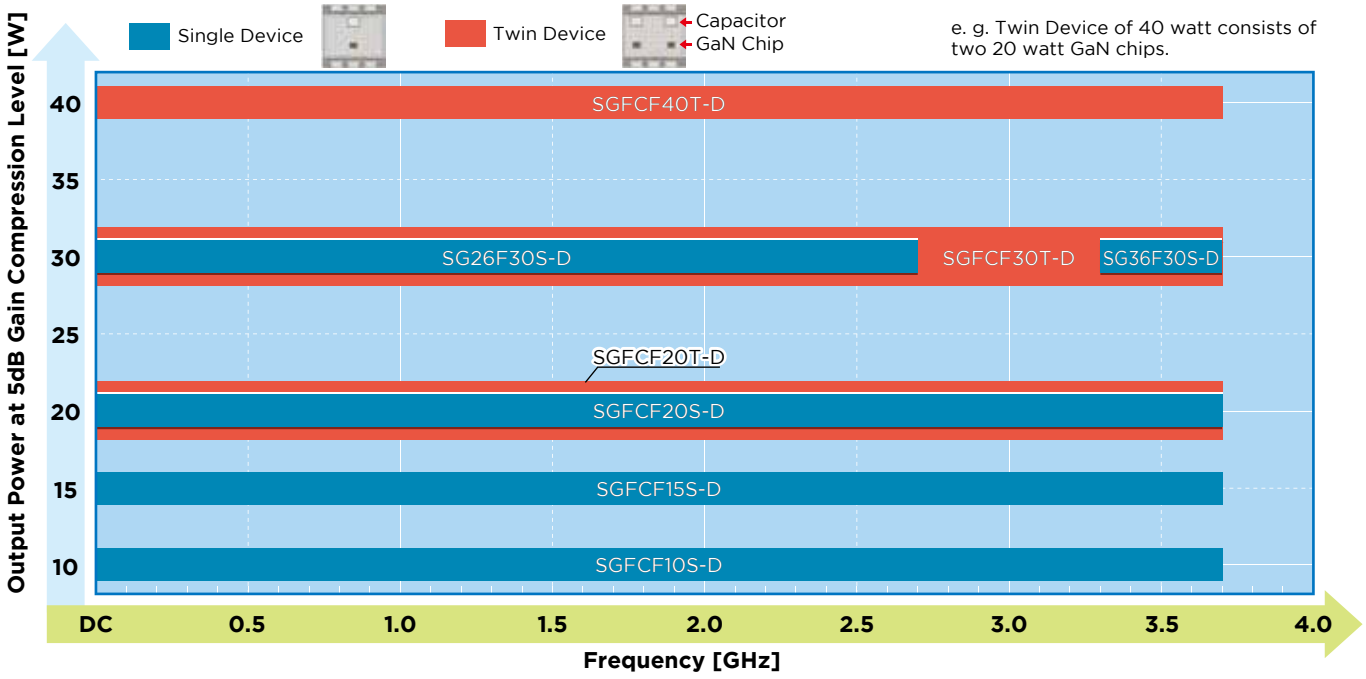
- Designed for 3G/LTE/WiMAX Base Station
- Driver Stage for Macrocell & Final Stage for Microcell
- High Operationg Voltage : 50V
- High Gain : Gp=19dB @f=2.65GHz, 20W (SGFCF20S-D)
- High Efficiency : 65% @f=2.65GHz, 20W (SGFCF20S-D)
- Full Mold SMT Package (Z2D)

Naming Rules

SG 26 F 30 S - D

- SG : GaN-HEMT
- 26 : Frequency (FC : DC to 3.7GHz)
- F : Series Number
- 30 : Output Power (W)
- S : Single GaN, T : Twin GaN
- D : Package Code

"F Series" Lineup



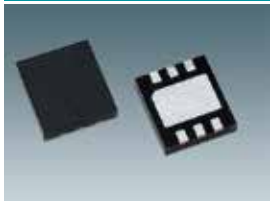
Specifications (Driver and Final Stage)

Part Number	Single / Twin	Freq. (GHz)	Specified Freq. (GHz)	Psat*1 (dBm)	Pout*2 (dBm)	Gp*2 (dB)	ηd*2 (%)	VDS (V)	IDS(DC) (mA)	Rth*3 (°C/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:Pout=(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: Tc (op)=+25°C

Product Photo

Z2D Package



GaN HEMTs for Base Station

Features

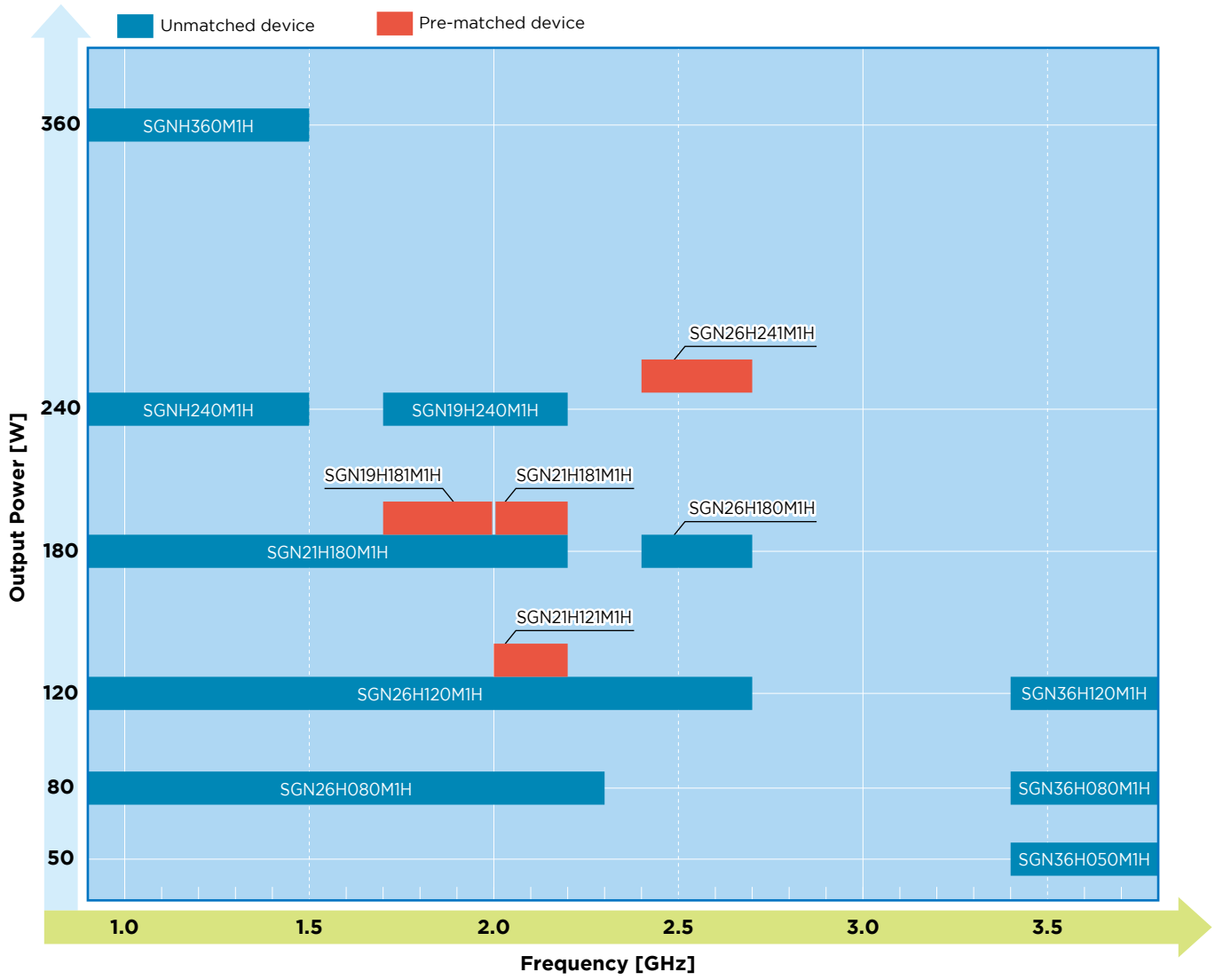
- Designed for 3G/LTE/WiMAX Base Station
- Optimized for Doherty Architecture
- Higher Load Impedance: 15 to 20Ω @Final Stage (Easy Match, Wide Band)
- High Operating Voltage: 50V
- High Power: Up to 360W Psat Single Ended
- High Gain: Gp=16.5dB @f=2.6GHz, 210W Device
- High Efficiency: 60-70% with Internal Class F Matching

Naming Rules

SGN 26 H 24 1 M1H

- M1H: Package Code
- 1: Circuit type (1:unmatched, 2:pre-matched)
- 24: Output Power (ex.24: 240W)
- H: Series Name
- 26: Frequency (ex.26: 2.6GHz)
- SGN: GaN-HEMT

"H Series" Lineup



Specifications (Final Stage)

Part Number	Freq. (GHz)	Psat*1 (dBm)	Pout (dBm)	Gp*2 (dB)	VDS (V)	IDS (DC) (mA)	Rth (°C/W)	Package
SGNH240M1H	0.9	54.6	46.0	17.5	50	800	1.2	M1H
SGN19H181M1H	1.88	52.6	44.5	16.5	50	600	1.4	
SGN19H240M1H	1.88	53.8	46.0	16.5	50	800	1.2	
SGN21H121M1H	2.17	50.8	43.0	16.0	50	400	1.7	
SGN21H180M1H	2.14	52.8	44.5	16.5	50	600	1.4	
SGN21H181M1H	2.17	52.6	44.5	16.0	50	600	1.4	
SGN26H080M1H	2.65	49.3	41.0	17.5	50	250	2.0	
SGN26H120M1H	2.65	50.8	43.0	17.0	50	400	1.7	
SGN26H180M1H	2.65	52.5	44.5	16.5	50	600	1.4	
SGN26H241M1H	2.65	54.0	46.0	15.0	50	800	1.2	
SGN36H050M1H	3.6	47.0	39.0	17.0	50	180	2.6	
SGN36H080M1H	3.6	49.1	41.0	16.0	50	250	2.0	
SGN36H120M1H	3.6	50.8	43.0	15.0	50	400	1.7	

*1: 10%-duty RF pulse(DC supply constant)
*2: Pout(ave), CW modulation Signal (W-CDMA)

Specifications (Peak Stage of Doherty Amplifier)

Part Number	Freq. (GHz)	Psat*1 (dBm)	Gp*2 (dB)	VDS (V)	Rth (°C/W)	Package
SGNH360M1H	0.9	55.6	18.5	50	1.2	M1H

*1: 10%-duty RF pulse(DC supply constant)
*2: Pout=51.5dBm, 10%-duty RF Pulse

Product Photo

M1H Package

Power GaN

GaN HEMTs for Radar

Features

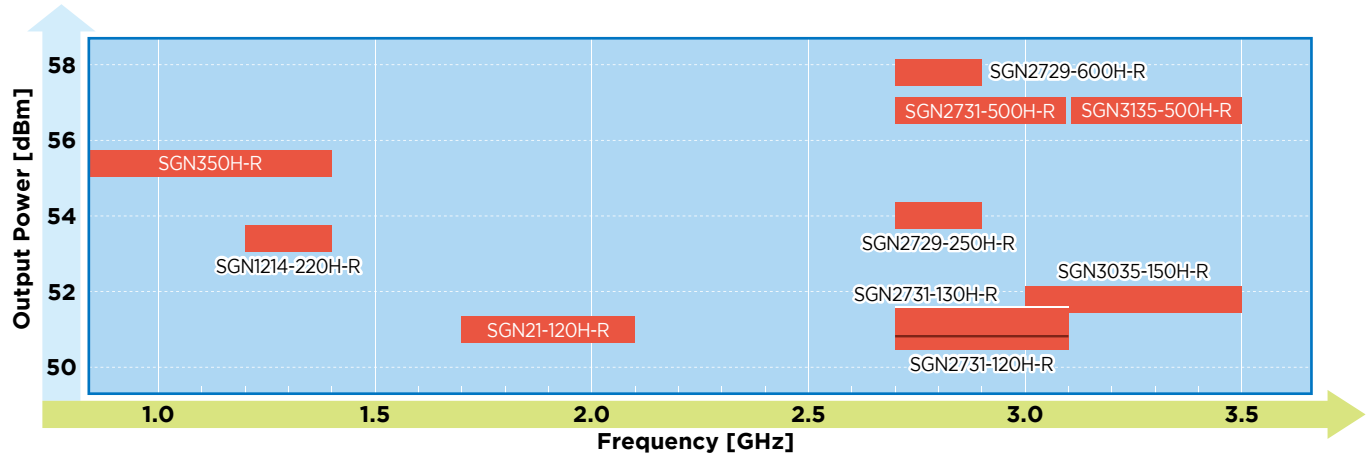
- Designed for S-band Radar Applications
- 50 ohm matched
- High Power: Up to 600W
- High Efficiency: 65%
- High Operating Voltage: 50V
- Broadband Operation
- High Gain
- Low Thermal Resistance (Rth)

Naming Rules

SGN 2729-600 H - R

- R: Radar Applications
- H: Series Name
- 600: Output Power (W)
- 2729: Frequency (Ex 2729 : 2.7 to 2.9GHz)
- SGN: GaN-HEMT

GaN HEMTs for Radar L/S Lineup



Specifications

Part Number	Freq. (GHz)	Pout Min. (dBm)	Gp Min. (dB)	ηD Typ. (%)	VDS (V)	IDS (DC) (A)	Rth (°C/W)	Condition	Package
SGN350H-R	DC-1.4	55.4	15.4	70	50	0.5	0.55	Pulse width: 150µsec, Duty 10%	M1H
SGN1214-220H-R	1.2-1.4	53.4	16.9	65	50	1	0.55	Pulse width: 200µsec, Duty 10%	IV
SGN21-120H-R	1.7-2.5*	51	14.5	67.5	50	0.5	1.1		
SGN2729-250H-R	2.7-2.9	54	13	65	50	0.75	1.1	Pulse width: 120µsec, Duty 10%	
SGN2729-600H-R	2.7-2.9	57.8	12.8	60	50	1.5	0.55	Pulse width: 200µsec, Duty 10%	
SGN2731-120H-R	2.7-3.1	50.8	11.8	63	50	0.5	1.1		I2D
SGN2731-130H-R	2.7-3.1	51.2	13.2	62	50	0.5	1.1	Pulse width: 400µsec, Duty 25%	IV
SGN2731-500H-R	2.7-3.1	56.8	11.8	57	50	1.5	0.55	Pulse width: 120µsec, Duty 10%	
SGN3035-150H-R	3.0-3.5	51.8	12.8	62	50	0.5	1.1	Pulse width: 200µsec, Duty 10%	
SGN3135-500H-R	3.1-3.5	56.8	10.8	58	50	1.5	0.55		

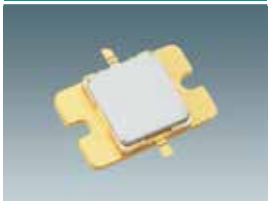
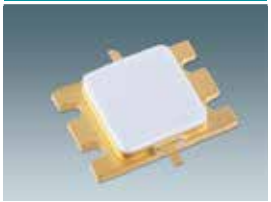
*: Test Frequency 2.1GHz
Note: Tc (op)=+25°C

Specifications (Driver Stage)

Part Number	Freq. (GHz)	P3dB (dBm)	GL (dB)	ηadd (%)	VDS (V)	IDS (DC) (mA)	Rth (°C/W)	Condition	Package
SGN31E030MK	3.1	46	15	40	50	200	2	CW	MK

Note: Tc (op)=+25°C

Product Photo

MK Package	M1H Package	I2D Package	IV Package
			

Features

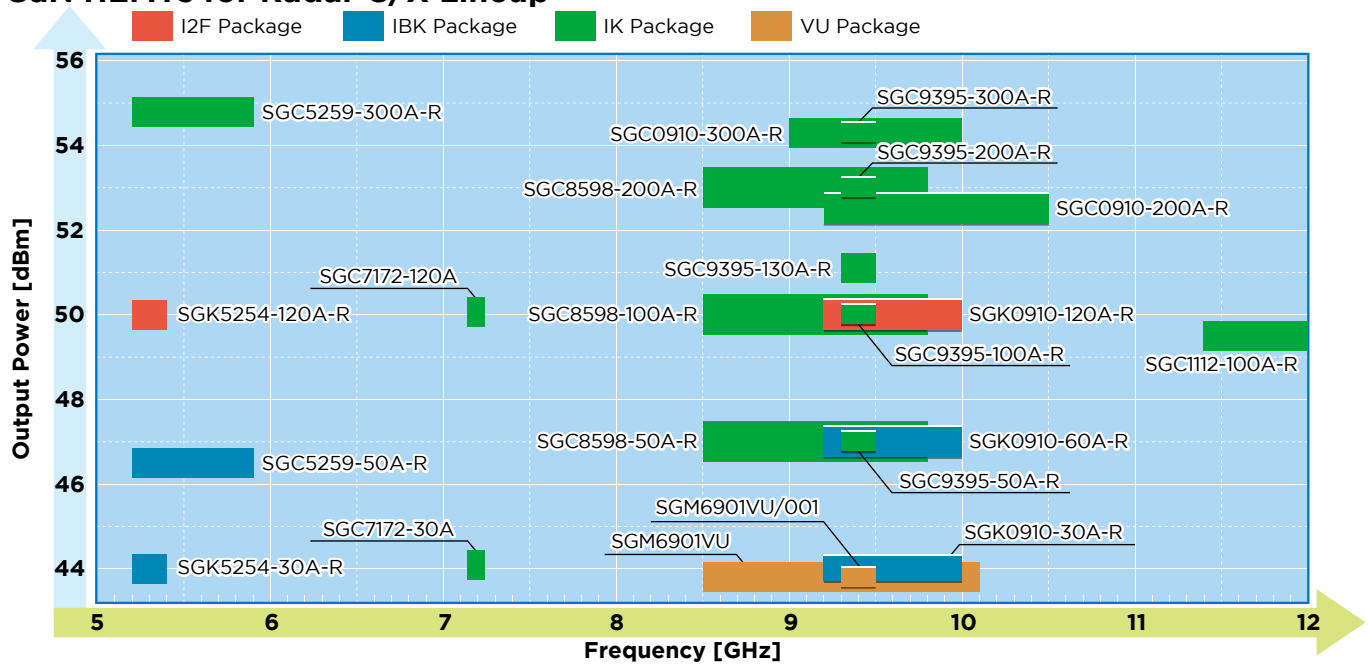
- High Output Power
- High Gain
- High Efficiency
- Internally Matched

Naming Rules

SGC 8598-50 A - R

- R: Radar Applications
- A: Series Name
- 50: Output Power (W)
- 8598: Frequency (Ex 5254 : 5.2 to 5.4GHz)
- SGC: Internally Matched GaN-HEMT

GaN HEMTs for Radar C/X Lineup

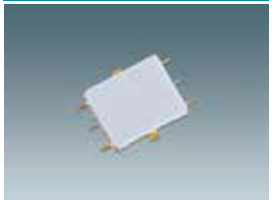
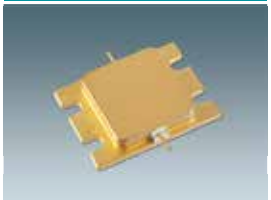
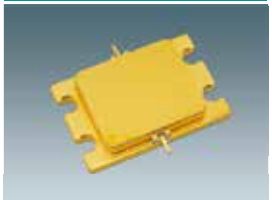


Specifications (C/X)

Part Number	Freq. (GHz)	Pout Min. (dBm)	Gp Min. (dB)	ηadd Typ. (%)	VDS (V)	IDS(DC) (A)	Rth (°C/W)	Condition	Package
SGK5254-30A-R	5.2-5.4	44	11.5	49	24	1.3	2.2	Pulse Width:100µsec,Duty:10%	IBK
SGK5254-120A-R	5.2-5.4	50	11.5	47	24	5.3	0.65		I2F
SGC5259-50A-R	5.2-5.9	46.5	11.5	50	50	0.17	2.4		IBK
SGC5259-300A-R	5.2-5.9	54.8	13.8	50	50	1	0.7		IK
SGC7172-30A	7.14-7.24	44.15	11.15	45	50	0.2	2.3	CW	
SGC7172-120A	7.14-7.24	50.35	11.35	43	50	1.3	0.65		
SGC8598-50A-R	8.5-9.8	47	10	40	50	0.17	2.4	Pulse Width:100µsec,Duty:10%	
SGC8598-100A-R	8.5-9.8	50	9	40	50	0.33	1.4		
SGC8598-200A-R	8.5-9.8	53	9	38	50	0.66	0.6		
SGK0910-30A-R	9.2-10	44	11.5	35	24	1.3	2.2		IBK
SGK0910-60A-R	9.2-10	47	11.5	35	24	2.6	1.1		
SGK0910-120A-R	9.2-10	50	11.5	35	24	5.3	0.65		I2F
SGC0910-200A-R	9.2-10.5	52.5	8.5	38	50	0.66	0.6		IK
SGC0910-300A-R	9.0-10.0	54.3	8.3	35	50	1	0.7		
SGC9395-50A-R	9.3-9.5	47	10	40	50	0.17	2.4		
SGC9395-100A-R	9.3-9.5	50	9	40	50	0.33	1.4		
SGC9395-130A-R	9.3-9.5	51.1	9.1	38	50	0.5	1.2		
SGC9395-200A-R	9.3-9.5	53	9	38	50	0.66	0.6		
SGC9395-300A-R	9.3-9.5	54.3	8.3	35	50	1	0.7		
SGC1112-100A-R	11.4-12.0	49.5	7.5	36	50	1	1.4		
SGM6901VU	8.5-10.1	43.8	21.8	38	50	0.2	2.1		VU
SGM6901VU/001	9.3-9.5	43.8	21.8	38	50	0.2	2.1		

Note: Tc (op)=+25°C

Product Photo

VU Package	IBK Package	IK Package	I2F Package
			

GaN HEMTs for General Purpose

Features

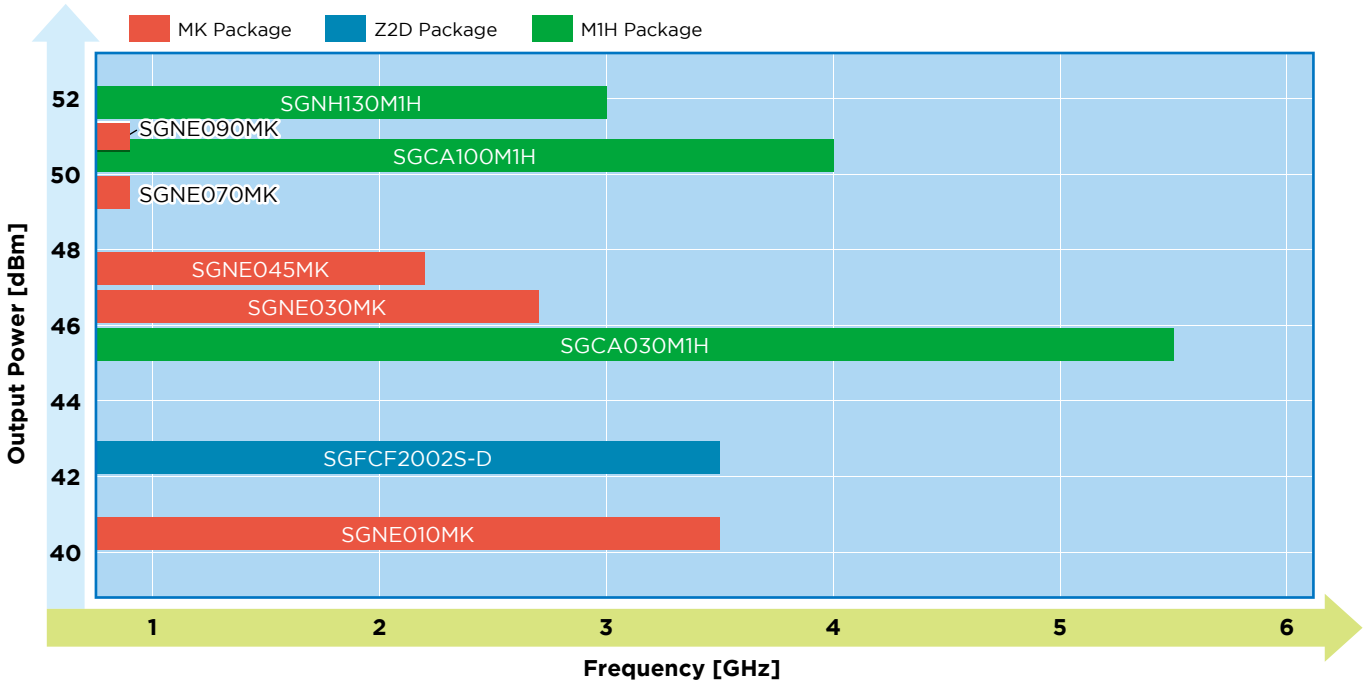
- Unmatched Broadband Operation up to 5.5GHz
- High Efficiency
- 50V Operation
- Low Thermal Resistance (Rth)

Naming Rules

SGN E 010 MK

- MK: Package Code
- 010: Output Power (W)
- E: Series Name
- SGN: GaN-HEMT

Lineup

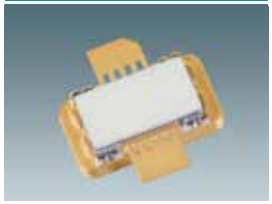
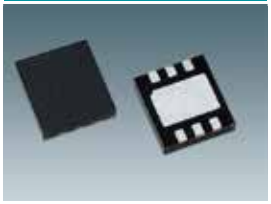


Specifications

Part Number	Freq. (GHz)	Psat Typ. (dBm)	GL Typ. (dB)	ηD (%)	IDS (DC) (mA)	Rth (°C/W)	Condition	Package
SGFCF2002S-D	3	42.5	25.5	44	135	3.8	CW	Z2D
SGNE010MK	3.5	40.5	16	55	100	4.5		MK
SGNE030MK	2.7	46.5	16	55	200	2		
SGNE045MK	2.2	47.5	15	55	250	1.4		
SGNE070MK	0.9	49.5	20	70	400	1.5		
SGNE090MK	0.9	51	20	70	500	1.2		
SGCA030M1H	5	45.5	9.5*1	53	200	2	Pulse	M1H
SGCA100M1H	3.9	50.5	14.5*1	48	650	1.2		
SGNH130M1H	3	51.9	13.9*1	56.5	500	1.1		

*1: Gp
Note: Tc=+25°C

Product Photo

MK Package	M1H Package	Z2D Package
		

Low-noise

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

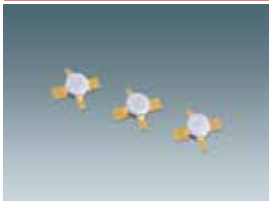
- LG — Package Code
- 13 — Number
- X — Frequency Band
- FH — HEMT

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		Low Noise Amp
FHX04X	0.75	10.5	2	10	12	-	
FHX13LG	0.45	13	2	10	12	LG	
FHX13X	0.45	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

LG Package	LP Package
	

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.

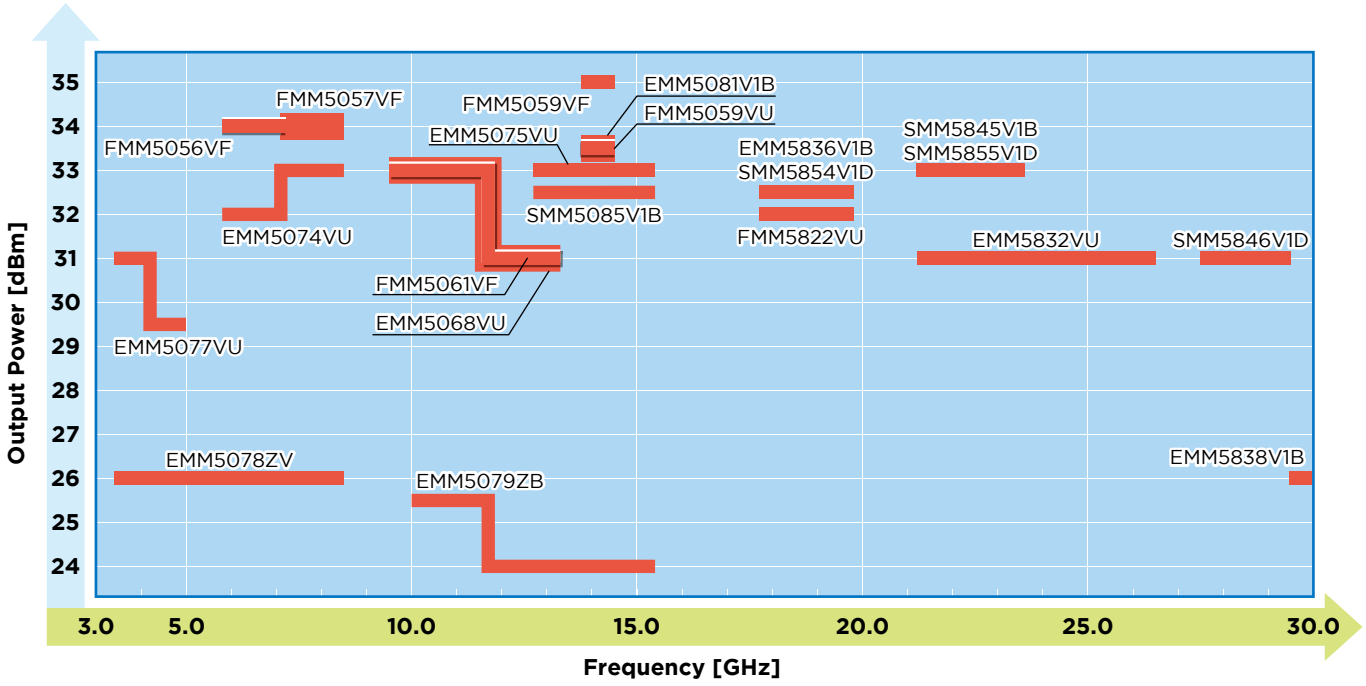
Features

- Input and Output Internally Matched Zin/Zout = 50Ω
- 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)

Naming Rules

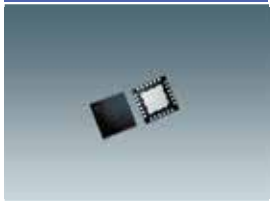
SM M 5845 V1B
- V1B: Package Code
- 5845: Number
- M: Monolithic IC
- SM: Microwave

Power Amplifier MMIC Lineup (Package)

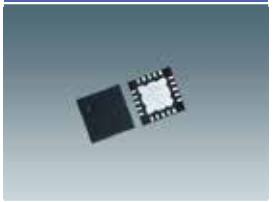


Product Photo

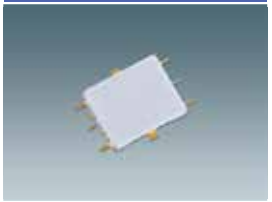
ZV Package



ZB Package

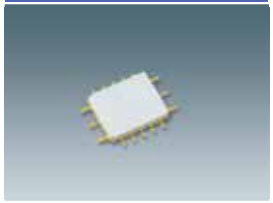


VU Package

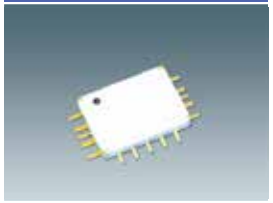


VF Package

V1B Package



V1D Package



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	
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	
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
FMM5822VU	17.7-19.7	32	21	38.5	6	850	1100	VU	
SMM5854V1D	17.7-19.7	32.5	26	40	6	1400	1800	V1D	
SMM5845V1B	21.2-23.6	33	21	41	6	1400	1800	V1B	
SMM5855V1D	21.2-23.6	33	24	41	6	1400	1800	V1D	
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	
EMM5838V1B	29.5-30.0	26	24	-	6	220	280	V1B	Power Amp.Ka-Band VSAT

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

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 E-band.

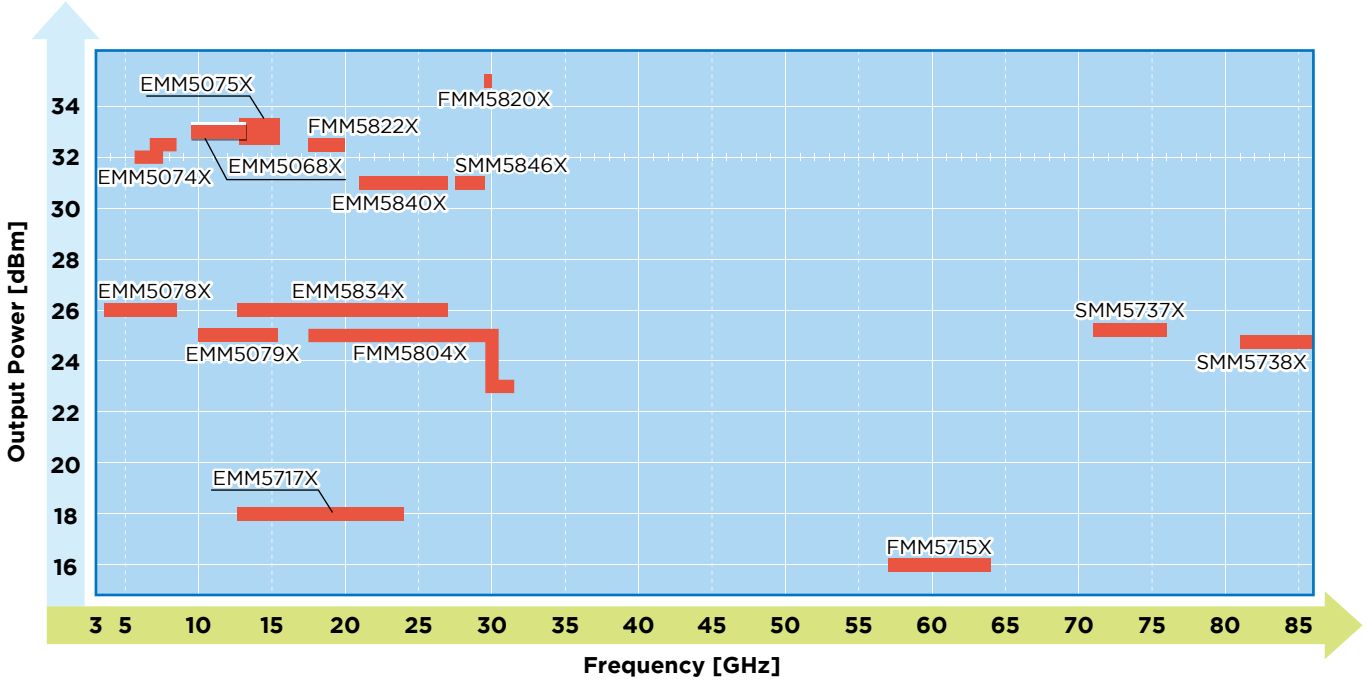
Naming Rules

EM M 5078 X
- X: Chip
- Number
- Monolithic IC
- Microwave

Features

- Input and Output Internally Matched Zin/Zout = 50Ω
- High Output Power (Up to 3W)
- High Gain
- Low Distortion
- High Reliability

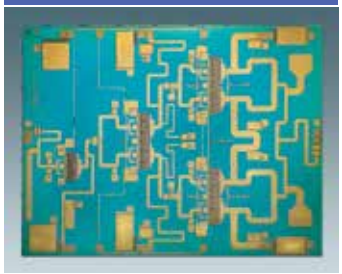
Power Amplifier MMIC Lineup (Die)



Product Photo

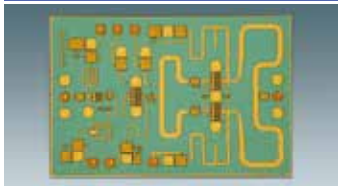
FMM5820X

EMM5075X

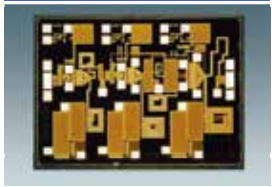


FMM5715X

EMM5717X



EMM5078X



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
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
EMM5840X	21-27	31	24	39	6	800	1000	Power Amp.Radio Link
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
FMM5715X	57-64	16	17	-	3	150	150	Power Amp.Radio Link
SMM5737X	71-76	25.5	25	32	4	1300	1320	
SMM5738X	81-86	24.5	25	32	4	1300	1320	

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

Low Noise Amplifier MMICs (Die)

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

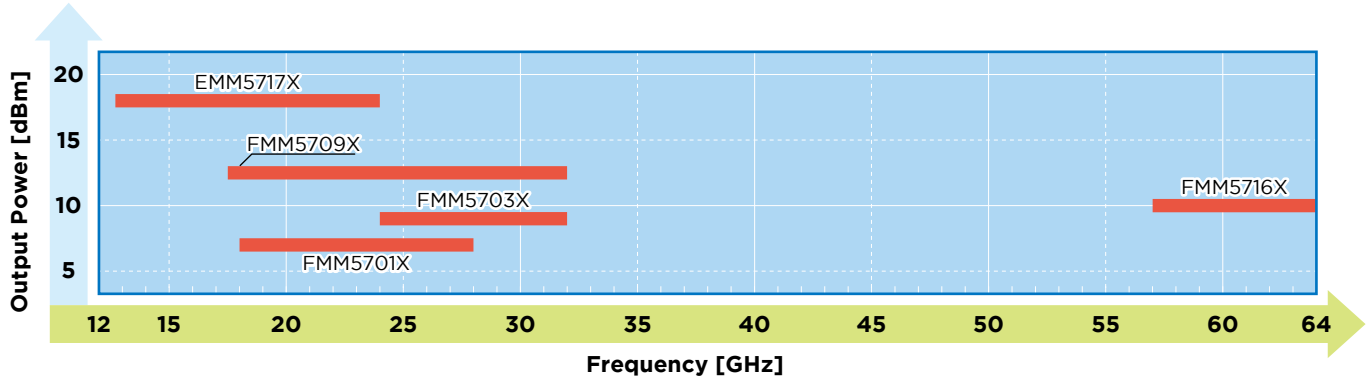
- Input and Output Internally Matched Zin/Zout = 50Ω
- Low Noise Figure
- High Gain
- Wide Band
- High Reliability Bare Die (X)

Naming Rules

FM M 5701 X

- X: Package Code
- 5701: Serial Number
- M: Monolithic IC
- FM: Microwave

Low Noise Amplifier MMIC Lineup



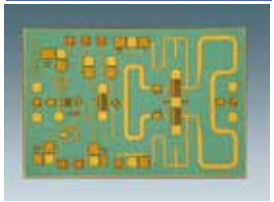
Specifications

Part Number	Freq. (GHz)	P1dB (dBm)	Gas (dB)	IIP3 (dBm)	NF (dB)	VDD(DC) (V)	IDD (DC) (mA)	IDD(RF) (mA)	Package	Application
EMM5717X	12.7-24	18	23	-	2.5	3	-	180	Die	VSAT and Radio Link
FMM5709X	17.5-32	12.5	23	-	2.5	3	-	60		
FMM5701X	18-28	7	13.5	-	1.5	5	12	12		
FMM5703X	24-32	9	18	-	2	3	20	20		
FMM5716X	57-64	10	22	-	5	3	30	30		

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

Product Photo

EMM5717X



GaAs FETs (Die)

Features

• High Gain, High Frequency Chip

Naming Rules

FL X 25 7 XV

- XV: Chip Form: XV (Via Hole PHS) : XP (non Via Hole PHS)
- 7: Number
- 25: Output Power
- X: Frequency Band
- FL: Large Signal

Specifications

Part Number	P1dB (dBm)	G1dB (dB)	ηadd (%)	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	
FLK017XP	20.5	8	26	14.5	10	36	Ku-band Amplifier
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

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)

Naming Rules

ELM 7785-4 P S T
- T: Taping
- S: Surface Mount
- P: Plastic
- 4: Output Power (W)
- 7785: Frequency (ex. 7785: 7.7 to 8.5GHz)
- ELM: Internally Matched Power FETs

Product Photo

I2C Package

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

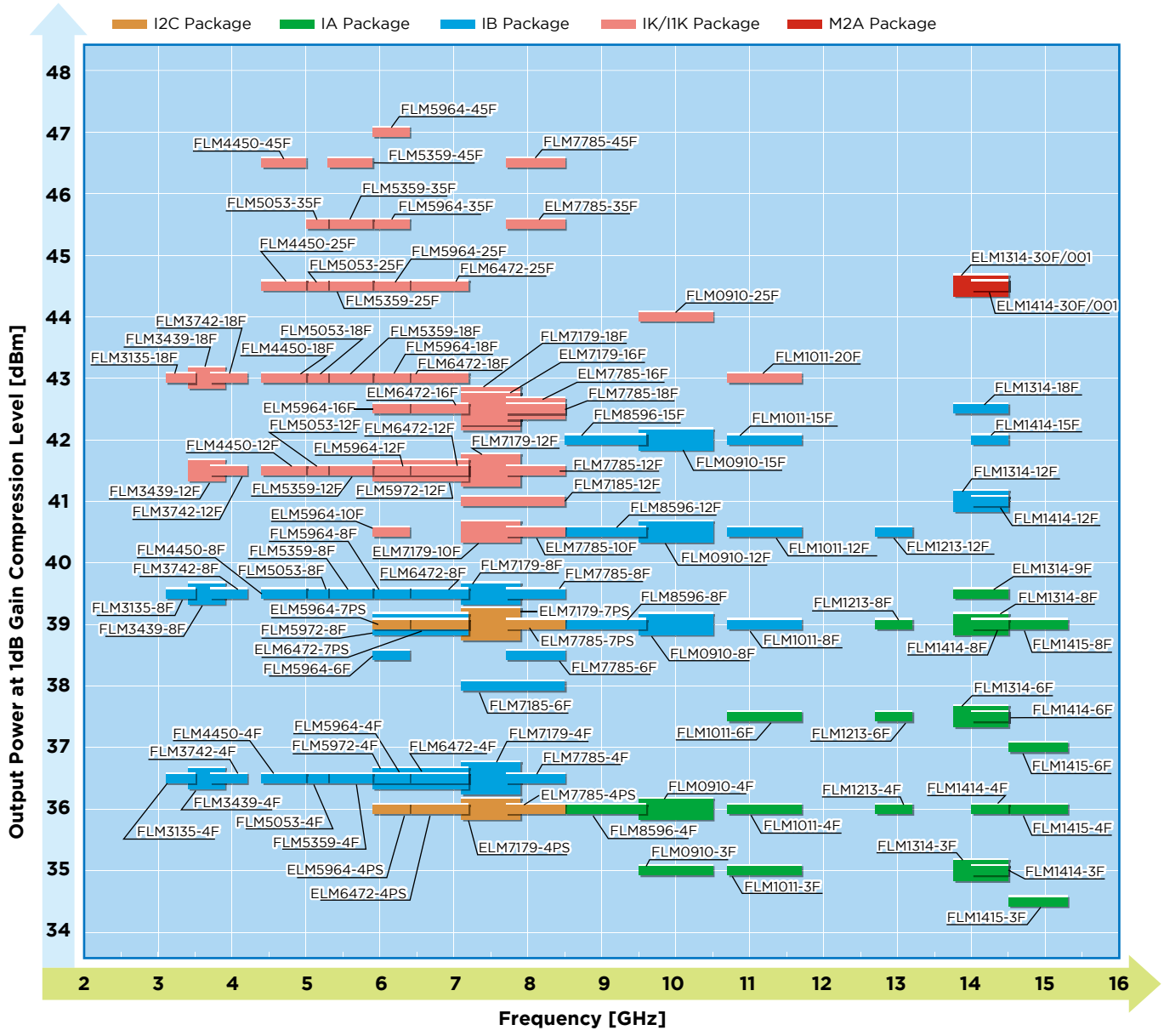
Naming Rules

ELM 7785-60 F
- F: Series Name
- 60: Output Power (W)
- 7785: Frequency (ex. 7785: 7.7 to 8.5GHz)
- ELM: Internally Matched Power FETs

Product Photo

IA Package | IB Package | IK Package | M2A Package

Internally Matched High Power GaAs FET Lineup



Specifications (PS series)

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	P1dB (dBm)	G1dB (dB)	ηadd (%)	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)	ηadd (%)	VDS (V)	IDS (DC) (mA)	IDS(RF) (mA)	Rth (°C/W)	Package	Feature
FLM3135-4F	3.1-3.5	-45	25.5	36.5	12	38	10	1100	1100	5	IB	• 50Ω internally matched • No external matching • Optimized for each frequency band
FLM3135-8F	3.1-3.5	-45	28.5	39.5	11	37	10	2200	2200	3		
FLM3135-18F	3.1-3.5	-45	32	43	10.5	37	10	4800	4800	1.6	IK	
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		
FLM3742-4F	3.7-4.2	-46	25.5	36.5	12	38	10	1100	1100	5	IB	
FLM3742-8F	3.7-4.2	-46	28.5	39.5	11	37	10	2200	2200	3		
FLM3742-12F	3.7-4.2	-46	30.5	41.5	11.5	40	10	3250	3250	2.3	IK	
FLM3742-18F	3.7-4.2	-46	32	43	10.5	37	10	4800	4800	1.6		
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		
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		
FLM5053-35F	5.0-5.3	-45	34.5	45.5	8	35	10	8000	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		
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		
FLM5964-4F/001	5.85-6.75	-45	25.5	36.5	9.5	36	10	1100	1100	5	IB	
FLM5964-8F/001	5.85-6.75	-45	28.5	39.5	9	35	10	2200	2200	3		
FLM5964-12F/001	5.85-6.75	-45	30.5	41.5	9	37	10	3250	3250	2.3	IK	
FLM5964-18F/001	5.85-6.75	-45	31.5	42.5	9	35	10	4400	4400	1.6		
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		
ELM5964-10F	5.9-6.4	-46	29	40.5	10	39	10	2600	2600	3	IK	
FLM5964-12F	5.9-6.4	-46	30.5	41.5	10	37	10	3250	3250	2.3		
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		
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		
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	
FLM6472-8F	6.4-7.2	-46	28.5	39.5	9.5	36	10	2200	2200	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		
FLM6472-25F	6.4-7.2	-46	33.5	44.5	9.5	38	10	6500	6500	1.4		

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

Specifications

Part Number	Freq. (GHz)	IM3 (dBc)	SCL Pout (dBm)	P1dB (dBm)	G1dB (dB)	ηadd (%)	VDS (V)	IDS (DC) (mA)	IDS(RF) (mA)	Rth (°C/W)	Package	Feature
FLM7179-4F	7.1-7.9	-46	25.5	36.5	9	35	10	1100	1100	5	IB	
FLM7179-8F	7.1-7.9	-46	28.5	39.5	9	35	10	2200	2200	3		
ELM7179-10F	7.1-7.9	-46	29	40.5	9	38	10	2600	2600	3	IK	
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		
FLM7185-6F	7.1-8.5	-45	27	38	8	30	10	1625	1625	4	IB	
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		
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	3600	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	3600	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	3600	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		
FLM1314-12F	13.75-14.5	-45	29	41	6	23	10	4200	4200	1.8	IB	
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		

- 50Ω internally matched
- No external matching
- Optimized for each frequency band

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

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

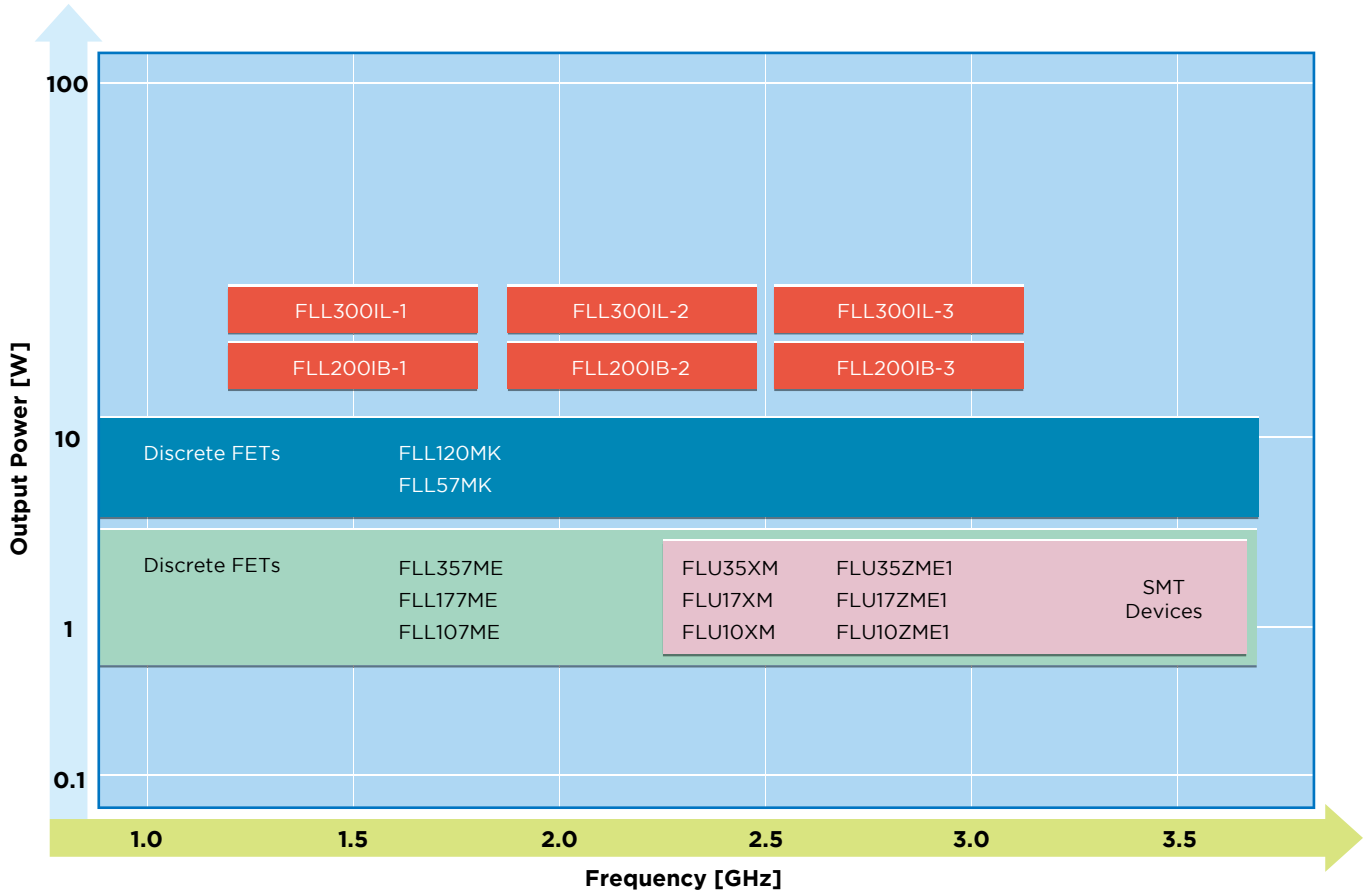
- High Output Power: Up to 40W
- High Gain
- Operating Voltage: 10V, 12V
- Proven Reliability

Naming Rules

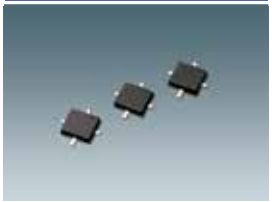
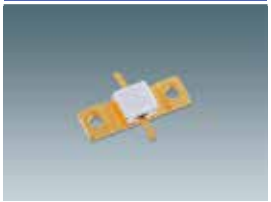
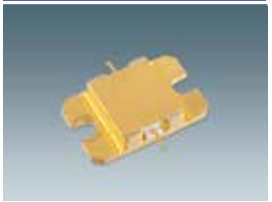
FL L 300 IL-2

- Pre Matching Frequency
- Package Code
- Power
- Frequency Band
- Large Signal

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



Product Photo

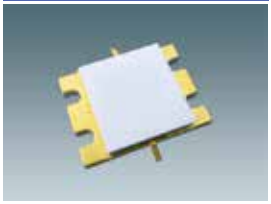
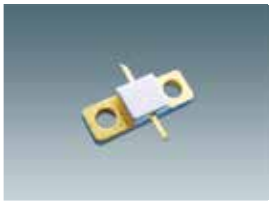
XM Package	ZM Package	ME Package	MK Package	IB Package
				

Specifications

Part Number	Freq. Band	Series	P1dB (dBm)	G1dB (dB)	ηadd (%)	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	
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

IL Package	WF Package	MH Package	WG Package
			

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)

Naming Rules

FS X 017 LG

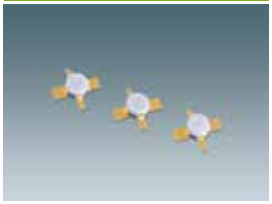
- LG — Package Code
- 017 — Number
- X — Frequency Band
- FS — Small Signal

Specifications

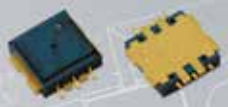
Part Number	P1dB (dBm)	G1dB (dB)	Measurement Conditions 1			NF (dB)	Rth (°C/W)	Measurement Conditions 2			Package	Feature
			Specified Freq. (GHz)	VDS (V)	IDS (DC) (mA)			Specified Freq. (GHz)	VDS (V)	IDS (DC) (mA)		
FSU01LG	20	19	2	6	40	0.5	18.5	2	3	10	LG *	Medium Power
FSU02LG	23	17	2	6	80	1.5	17.5	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

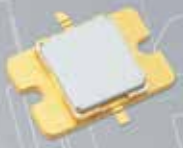
Product Photo

LG Package	WF Package
	

Packages

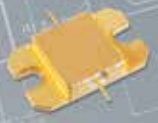


I2C

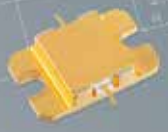


I2D

I2F

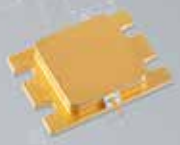


IA

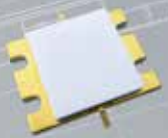


IB

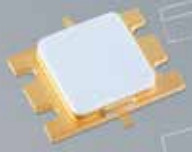
IBK



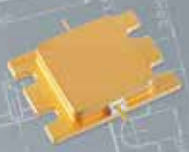
IK



IL



IV



I1K

LG/LP

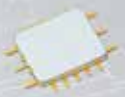
M1H

M2A

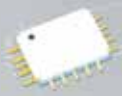
ME

MH

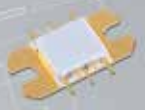
MK



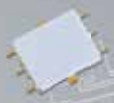
V1B



V1D



VF



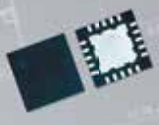
VU

WF

WG

XM

Z2D



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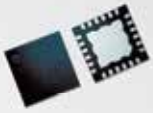
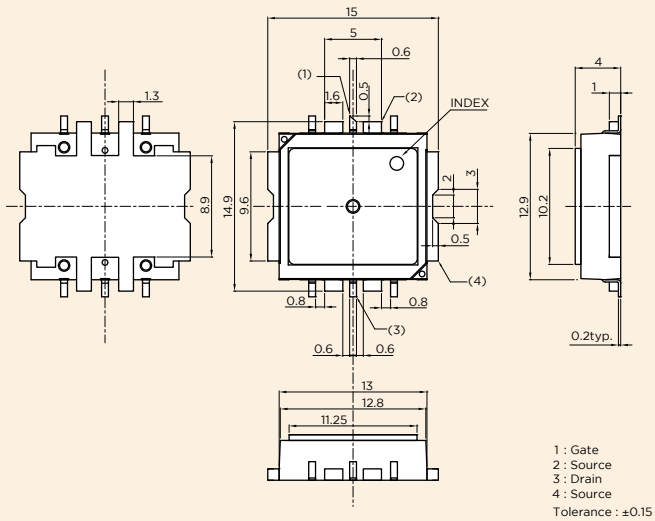


ZV

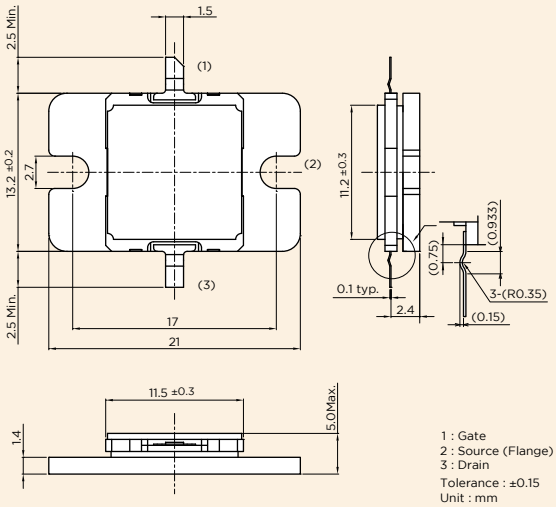
Packages

I2C



1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

I2D



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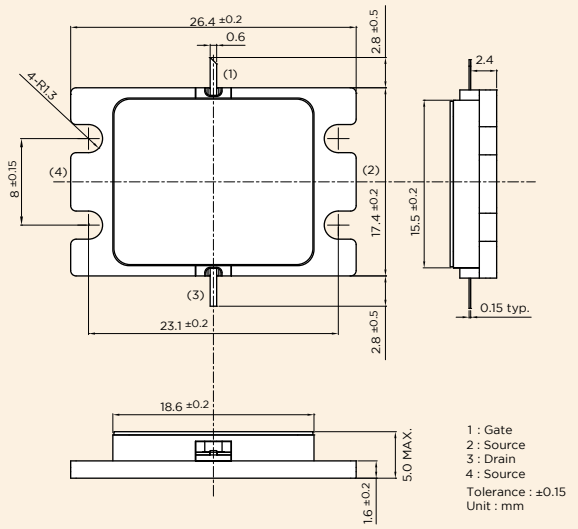
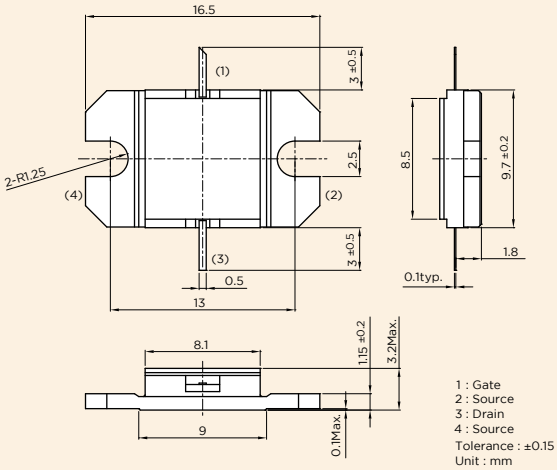
2 : Source (Flange)
3 : Drain
Tolerance : ±0.15
Unit : mm

I2F



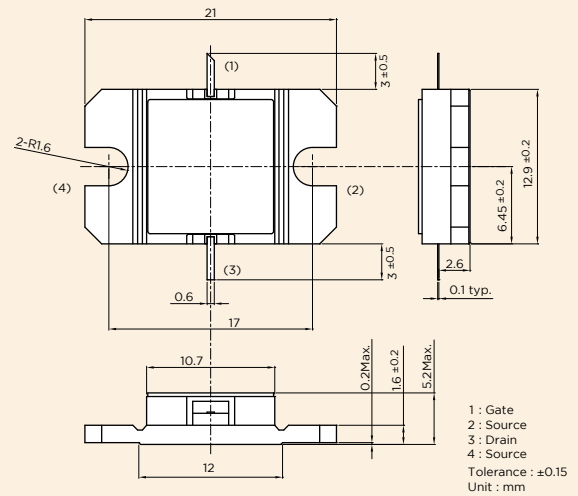
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

IA



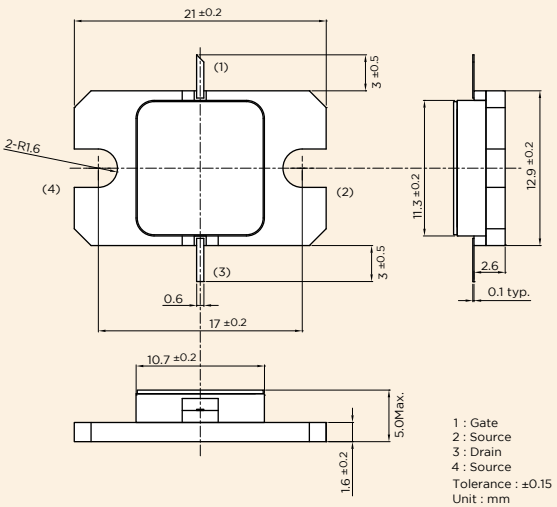
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

IB



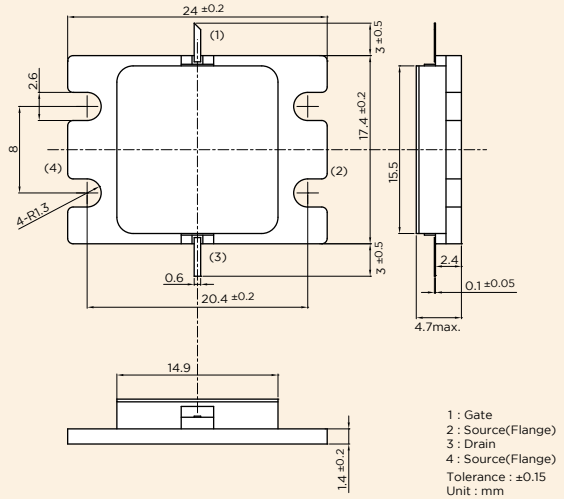
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

IBK



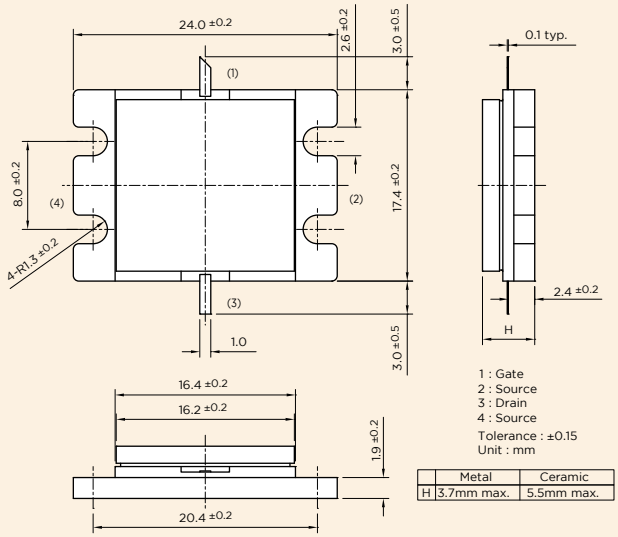
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

IK



1 : Gate
2 : Source(Flange)
3 : Drain
4 : Source(Flange)
Tolerance : ±0.15
Unit : mm

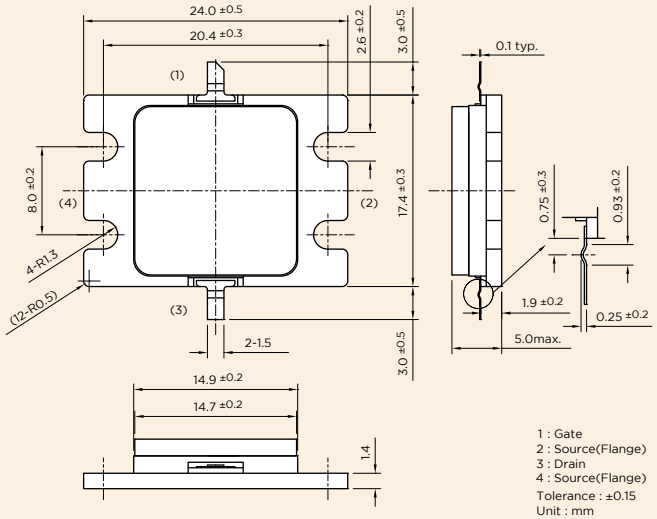
IL



1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

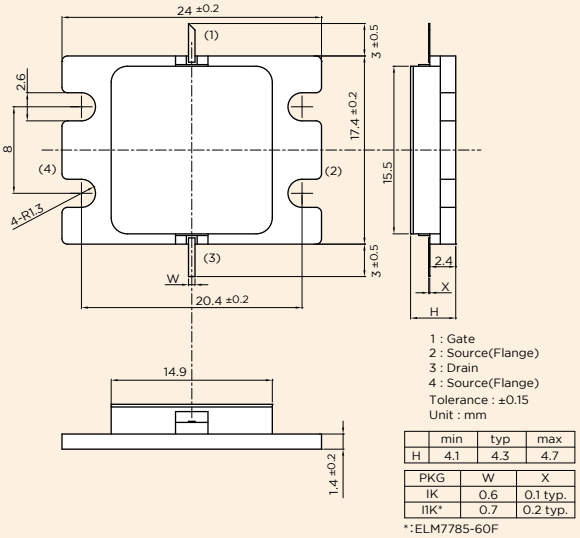
	Metal	Ceramic
H	3.7mm max.	5.5mm max.

IV



1 : Gate
2 : Source(Flange)
3 : Drain
4 : Source(Flange)
Tolerance : ±0.15
Unit : mm

I1K



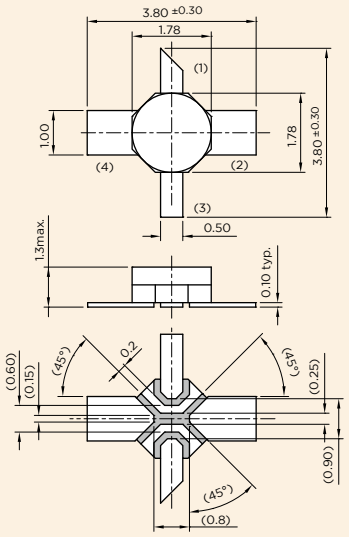
1 : Gate
2 : Source(Flange)
3 : Drain
4 : Source(Flange)
Tolerance : ±0.15
Unit : mm

	min	typ	max
H	4.1	4.3	4.7

PKG	W	X
IK	0.6	0.1 typ.
I1K*	0.7	0.2 typ.

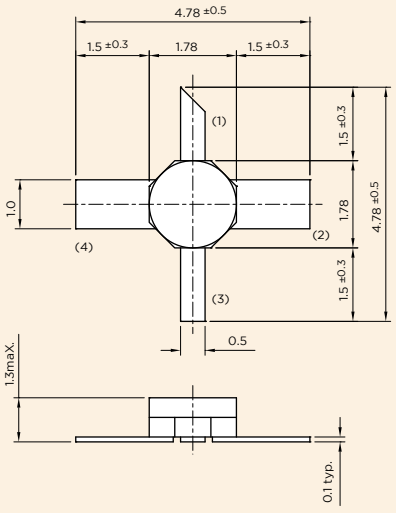
*:ELM7785-60F

LG/LP (Shortlead)



1 : Gate
2 : Source
3 : Drain
4 : Source
Metalize
Tolerance : ±0.15
Unit : mm

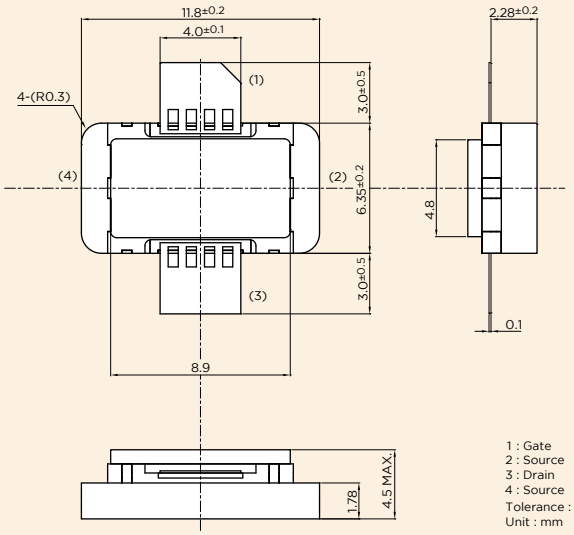
LG/LP



1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

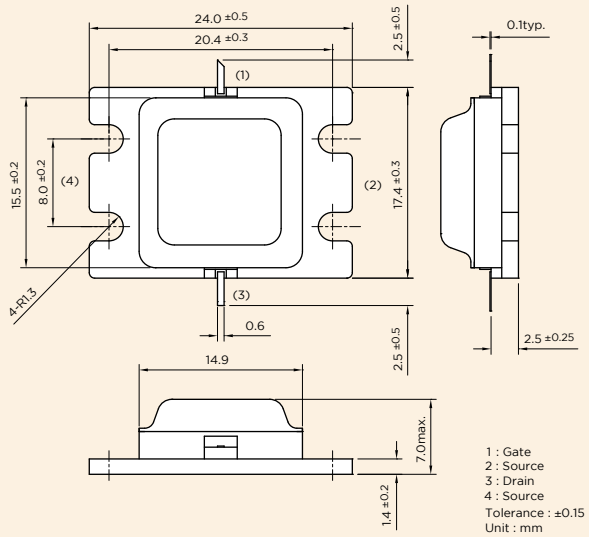
Packages

M1H



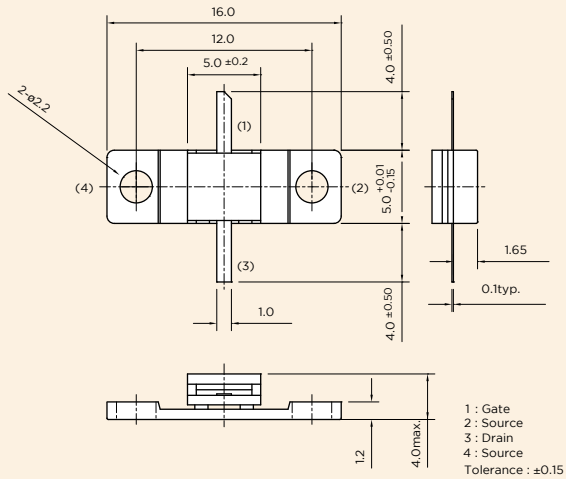
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

M2A



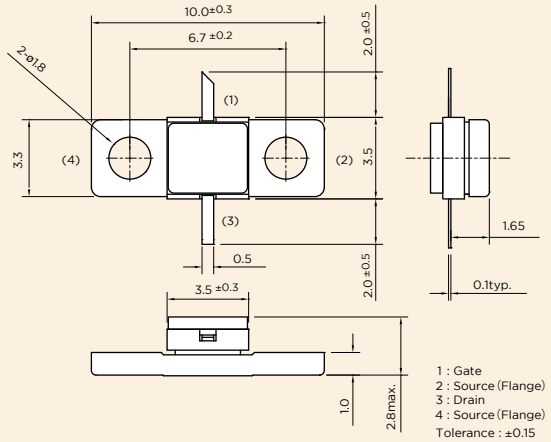
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

ME



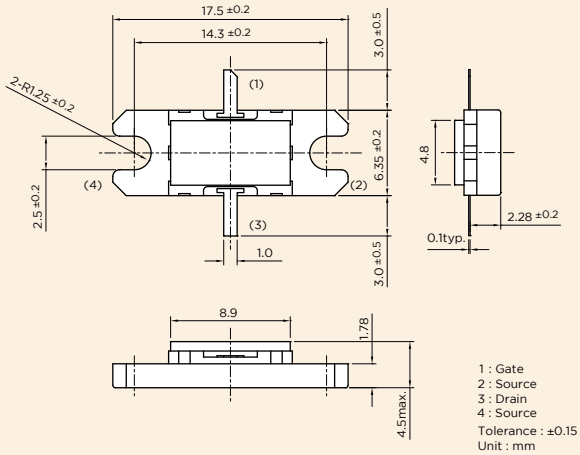
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

MH



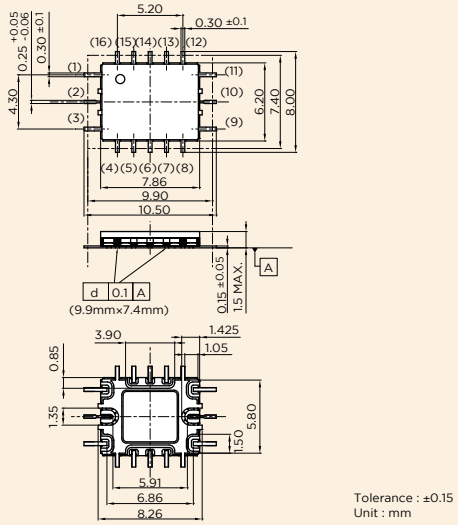
1 : Gate
2 : Source (Flange)
3 : Drain
4 : Source (Flange)
Tolerance : ±0.15
Unit : mm

MK



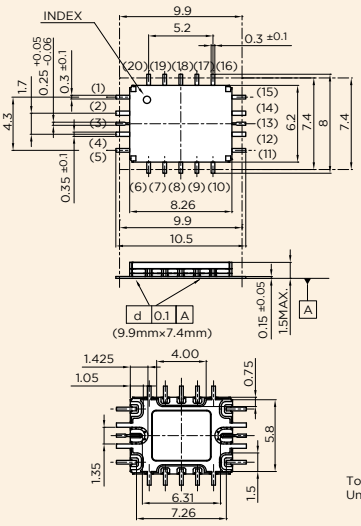
1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

V1B



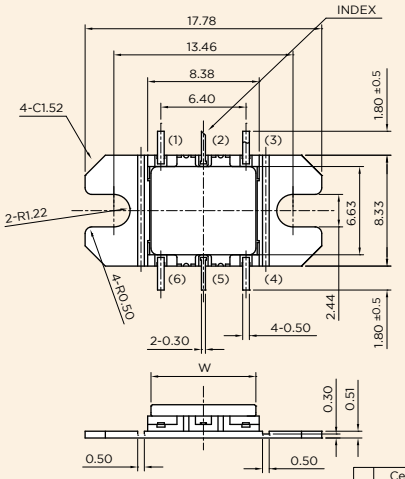
Tolerance : ±0.15
Unit : mm

V1D



Tolerance : ±0.15
Unit : mm

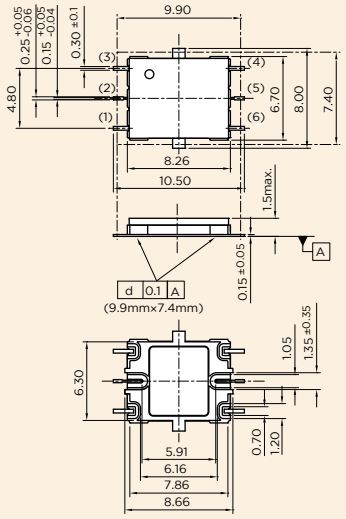
VF



Tolerance : ±0.15
Unit : mm

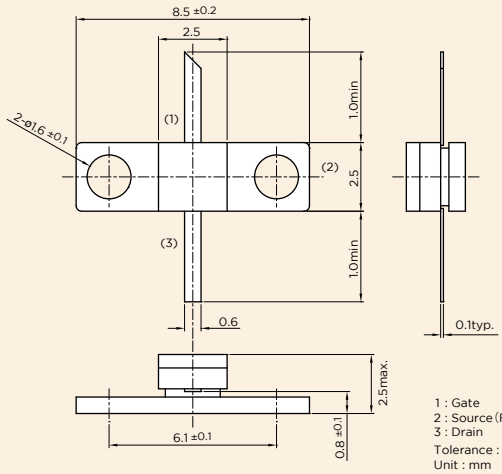
	Ceramic	Metal
H	3.0mm max.	2.4mm max.
W	7.88mm	7.75mm

VU



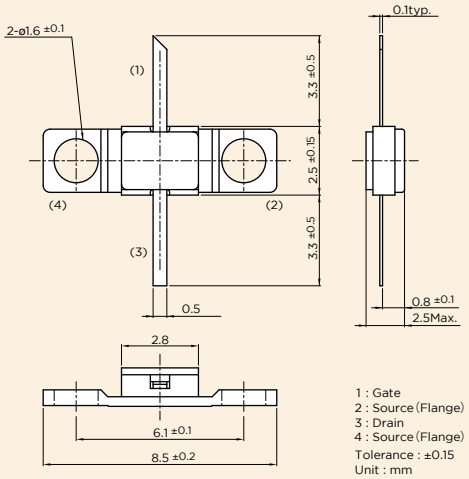
Tolerance : ±0.15
Unit : mm

WF



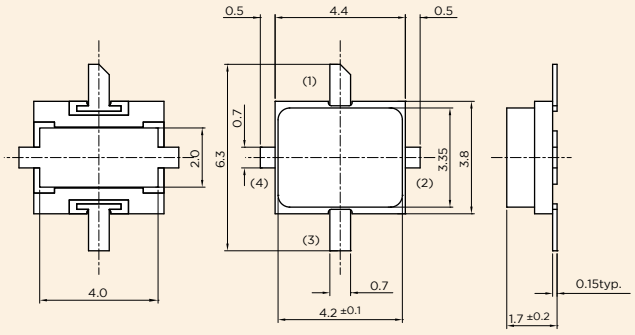
1 : Gate
2 : Source (Flange)
3 : Drain
Tolerance : ±0.15
Unit : mm

WG



1 : Gate
2 : Source (Flange)
3 : Drain
4 : Source (Flange)
Tolerance : ±0.15
Unit : mm

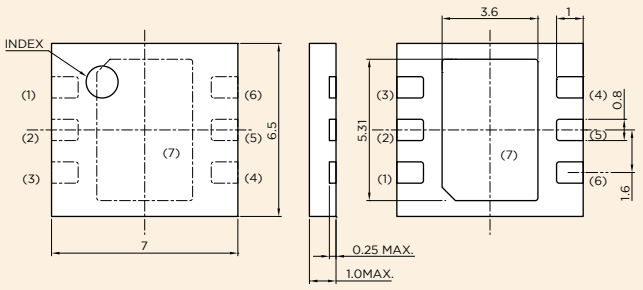
XM



1 : Gate
2 : Source
3 : Drain
4 : Source
Tolerance : ±0.15
Unit : mm

Packages

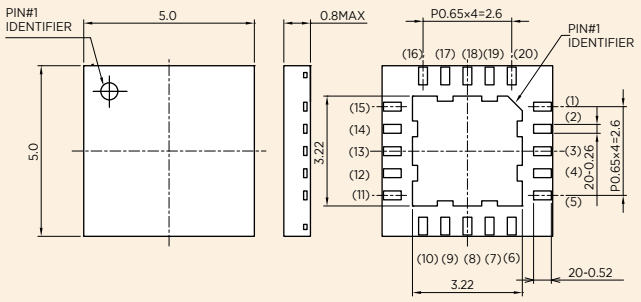
Z2D



<Single Type>	<Twin Type>
1 : NC	1 : Gate1
2 : Gate	2 : NC
3 : NC	3 : Gate2
4 : NC	4 : Drain2
5 : Drain	5 : NC
6 : NC	6 : Drain1
7 : Source	7 : Source

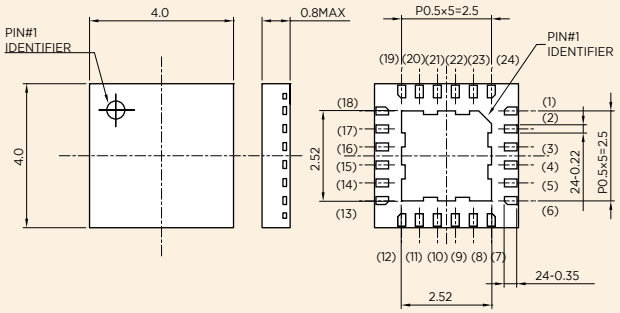
Tolerance : ±0.15
Unit : mm

ZB



Tolerance : ±0.15
Unit : mm

ZV



Tolerance : ±0.15
Unit : mm

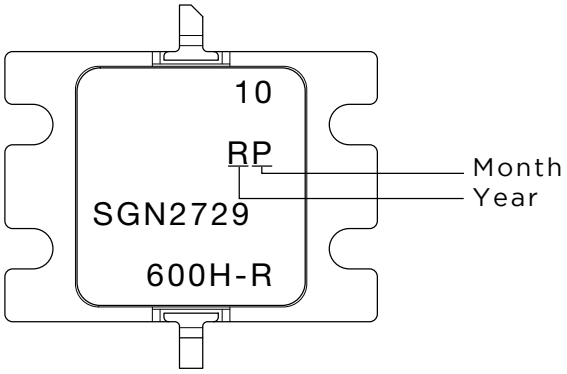
Sealing Rules

■ Year/Month code

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	W	X	Y	Z	A	B	C	D	E	F	G	H

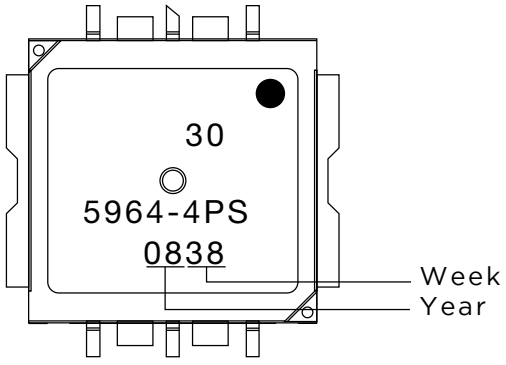
Note: Code letter is cycling 25 alphabet without Q.

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
(Certificate Number : JMI-0278)

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 Innovations, Inc.)
Sep.	2018	ISO9001: 2015 Renewal / Transfer

JIS Q 9100(AS9100, prEN9100)Record
(Certificate Number : JQA-AS0068)

Aug.	2010	AS9100 Rev. B (JIS Q 9100: 2004)
Oct.	2011	AS9100 Rev. C (JIS Q 9100: 2009) Transfer
Sep.	2018	AS9100 Rev. D (JIS Q 9100: 2016) Renewal / Transfer OASIS Identification Number: 6131088186

Environmental Management

ISO14001 Record
(Certificate Number : EC98J1050)

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 Innovations, Inc.)
Jul.	2018	ISO14001: 2015 Transfer

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.

Any information, such as descriptions of a function and examples of application circuits, in this document are presented solely as a reference for the purpose to show examples of operations and uses of Sumitomo Electric semiconductor device(s); Sumitomo Electric does not warrant the proper operation of the device(s) with respect to its use based on such information. When the user develops equipment incorporating the device(s) based on such information, they must assume full responsibility arising out of using such information. Sumitomo Electric assumes no liability for any damages whatsoever arising out of the use of the information.

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Any semiconductor devices have an inherent chance of failure. You must protect against injury, damage or loss from such failures by incorporating safety design measures into your facility and equipment such as redundancy, fire protection, and prevention of excessive current levels and other abnormal operating conditions.

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⚠ ATTENTION

Information in this document is subject to change without notice.

EQ01(2019.11)