MITSUBISHI ELECTRIC

Changes for the Better

HIGH FREQUENCY DEVICES

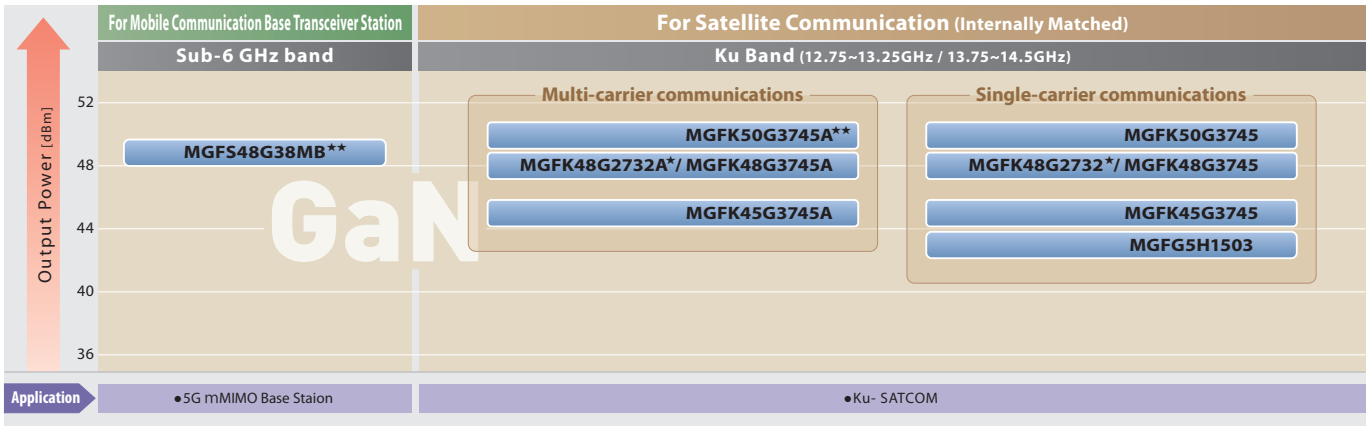
HIGH FREQUENCY DEVICES

The Best Solution for Realizing the Information and Communication Era

Communication networks, such as high speed Internet, and high-speed data communication, are developing rapidly. We are ready to offer the best solution to the systems for realizing the infomation and communication era by providing of the GaN/GaAs products.

SELECTION MAP

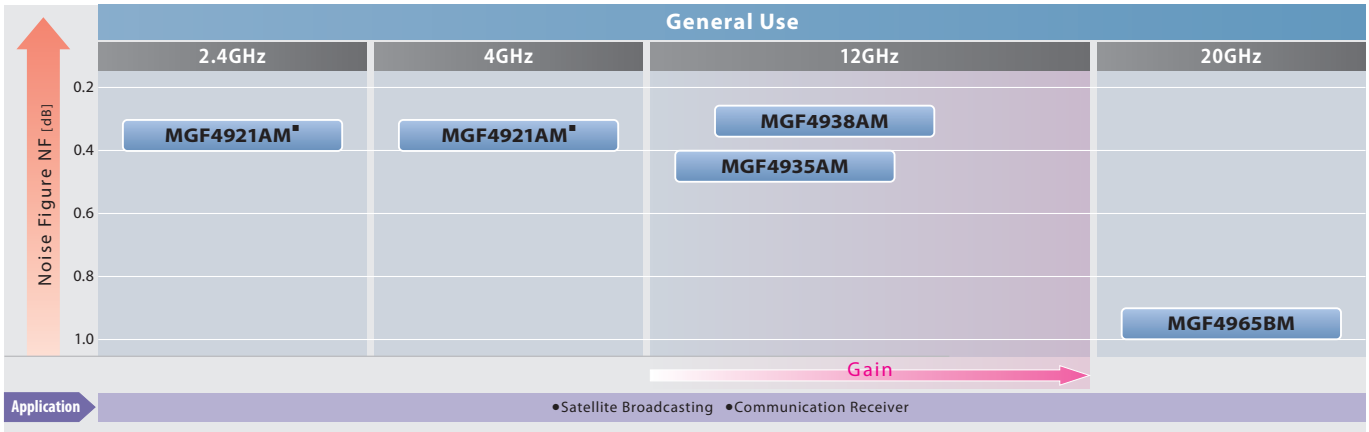
GaN HEMT SERIES FOR MICROWAVE-BAND HIGH POWER AMPLIFIERS



★: New product ★★: Under development HEMT: High Electron Mobility Transistor

Partially supported by Japan's New Energy and Industrial Technology Development Organization(NEDO).

GaAs HEMT SERIES FOR MICROWAVE-BAND LOW-NOISE AMPLIFIERS (Discrete)



■: AEC-Q101 Rev.C qualified HEMT: High Electron Mobility Transistor

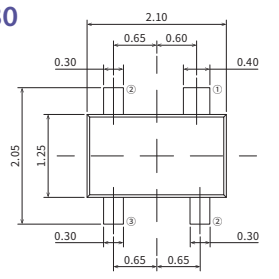
: 4-pin Mold Package (GD-30)

PACKAGE OUTLINE DRAWING

(only Top View side)

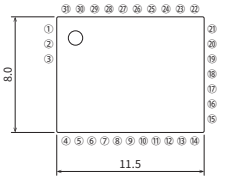
Unit: mm

GD-30



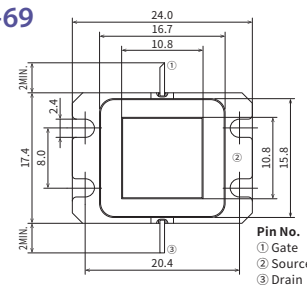
Pin No.
① Drain
② Source
③ Gate

GH-85



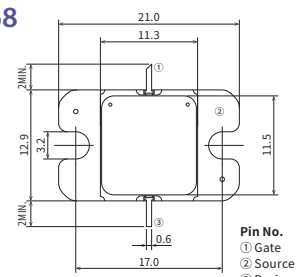
Pin No.
① GND
② Txin
③ GND
④ VG_PA
⑤ NC
⑥ VG_PA
⑦ NC
⑧ VG_PA
⑨ NC
⑩ VG_PA
⑪ GND
⑫ GND
⑬ GND
⑭ GND
⑮ VDD_PA
⑯ GND
⑰ GND
⑱ Txout
⑲ GND
⑳ GND
㉑ VDD_PA
㉒ GND
㉓ GND
㉔ GND
㉕ GND
㉖ GND
㉗ VDD_PA
㉘ NC
㉙ NC
㉚ NC
㉛ NC

GF-69



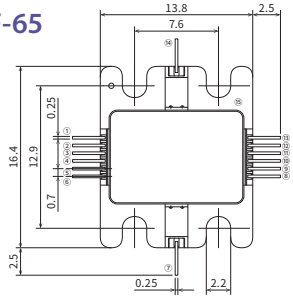
Pin No.
① Gate
② Source (Flange)
③ Drain

GF-68



Pin No.
① Gate
② Source (Flange)
③ Drain

GF-65



Pin No.
① VdB
② Vd1
③ Vd2
④ Vd2
⑤ Vd3
⑥ Vd3
⑦ Pout
⑧ Vd3
⑨ Vg3
⑩ Vd2
⑪ Vd1
⑫ VgB1
⑬ Vl
⑭ Pin
⑮ Source

High Frequency devices are compliant with the **RoHS** (2011/65/EU, (EU)2015/863).

RoHS: Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

PRODUCT LIST

GaN HEMT SERIES FOR MOBILE COMMUNICATION BASE TRANSCEIVER STATION

GH-85

Type Number	Peak Output Power [dBm]	Average Output Power [dBm]	Power Gain [dB]	Power Added Efficiency [%]	Frequency [GHz]	Drain-Source Voltage [V]	Package Outline
MGFS48G38MB★★	48	39	28	43	3.4~3.8	42	GH-85

Ta=25°C ★★: Under development

GaN HEMT SERIES FOR SATELLITE COMMUNICATION (Internally Matched)

GF-69

GF-68

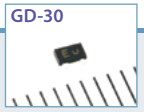
GF-65

Type Number	Output Power [dBm]	Linear Power Gain [dB]	Power Added Efficiency [%]	Offset Frequency	Frequency [GHz]	Drain-Source Voltage [V]	Drain Current [A]	Thermal Resistance [°C/W]		Package Outline
								Typ.	Max.	
Multi-carrier communications Ku-band GaN-HEMTs										
MGFK48G2732A★	48.3	11	31	~400MHz	12.75~13.25	24	1.44	0.8	1	GF-68
MGFK50G3745A★★	50	10	30	~200MHz	13.75~14.5	24	2.4	0.4	0.6	GF-69
MGFK48G3745A	48.3	11	31	~400MHz	13.75~14.5	24	1.44	0.8	1	GF-68
MGFK45G3745A	45.3	9.5	30	~400MHz	13.75~14.5	24	0.72	1.6	2	GF-68
Single-carrier communications Ku-band GaN-HEMTs • MMIC										
MGFK48G2732★	48.3	12	33	~5MHz	12.75~13.25	24	1.44	0.8	1	GF-68
MGFK50G3745	50	10	30	~5MHz	13.75~14.5	24	2.4	0.4	0.6	GF-69
MGFK48G3745	48.3	12	33	~5MHz	13.75~14.5	24	1.44	0.8	1	GF-68
MGFK45G3745	45.3	9.5	31	~5MHz	13.75~14.5	24	0.72	1.6	2	GF-68
MGFG5H1503	43	24	20	~5MHz	13.75~14.5	24	2.7	1.2	1.5	GF-65

Ta=25°C ★: New product ★★: Under development

GaAs HEMT SERIES FOR MICROWAVE-BAND LOW-NOISE AMPLIFIERS (Discrete)

GD-30



Type Number	Noise Figure [dB]		Associated Gain [dB]		Frequency [GHz]	Drain-Source Voltage [V]	Drain Current [mA]	Package Outline
	Typ.	Max.	Min.	Typ.				
MGF4921AM■	0.35	0.55	11.5	13.0	4	2	15	GD-30
MGF4935AM	0.45	0.65	11.0	12.0	12	2	10	GD-30
MGF4938AM	0.32	0.47	11.0	12.5	12	2	10	GD-30
MGF4965BM	0.95	1.25	9.5	11.5	20	2	10	GD-30

Ta=25°C ■: AEC-Q101 Rev.C qualified

TYPE NAME DEFINITION OF HIGH FREQUENCY DEVICES

For Mobile Communication Base Transceiver Station

MGF **S** **48** **G** **38** **M** **B**
(A) (B) (C) (D) (E) (F)

- (A) Freq. Band — **S:** S-band
- (B) Output Power in dBm — ex. **48** = 48 dBm
- (C) Device Structure — **G:** GaN HEMT
- (D) Freq. Band in GHz — ex. **38** = to 3.8 GHz
- (E) Package — ex. **M:** Module
- (F) Series Number

For Satellite Communication (Internally Matched)

MGF **K** **50** **G** **3745**
(A) (B) (C) (D)

- (A) Freq. Band — **K:** Ku-band
- (B) Output Power in dBm — ex. **50** = 50 dBm = 100W (typ.)
- (C) Device Structure — **G:** GaN HEMT
- (D) Freq. Band in GHz — ex. **3745** = 13.75 ~ 14.5 GHz

Discrete

MGF **49** **21** **A** **M**
(A) (B) (C) (D)

- (A) Device Structure — **4x:** HEMT
- (B) Chip Type
- (C) Series Number
- (D) Auxiliary Symbol

Mitsubishi Electric High Frequency Devices Website

www.MitsubishiElectric.com/semiconductors/hf/

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- Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

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New publication effective Oct., 2023.
Specifications subject to change without notice.