MITSUBISHI ELECTRIC

< GaN HEMT for satellite communication (SATCOM) earth station>

MGFK45G2732

Ku band internally matched power GaN HEMT
12.75 − 13.25 GHz BAND / 30W Single-carrier operable

DESCRIPTION

The MGFK45G2732, GaN HEMT with an N-channel schottky gate, is designed for Ku-band applications with single-carrier operation.

FEATURES

- High voltage operation : VDS=24V
- High output power : Pout=45.3dBm (TYP.) @Pin=39dBm
- High efficiency : PAE=31% (TYP.) @Pin=39dBm
- Designed for use in Class AB linear amplifiers

APPLICATION

- Amplifier for Ku-band SATCOM

QUALITY

- General & Industrial

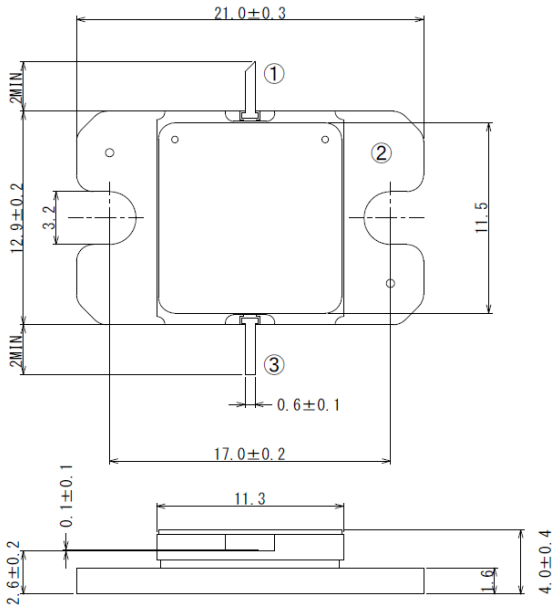
Packaging

- Individual case

RECOMMENDED BIAS CONDITIONS

- Vds=24V
- Ids=0.72A
- Rg=90Ω

OUTLINE DRAWING Unit : millimeters



GF-68

① GATE
② SOURCE (FLANGE)
③ DRAIN

Absolute maximum ratings*1

Symbol	Parameter	Ratings	Unit
Vgso	Gate to Source Voltage at Operating	-10	V
Vds	Drain to source voltage	27	V
IGF	Forward gate current	50	mA
IGR	Reverse gate current	-12	mA
τ	Screw torque	49	N・cm
PT*2	Total power dissipation	112	W
Pin	Input power	≦41	dBm
Tch	Channel temperature	250	°C
Tstg	Storage temperature	-55 to +125	°C
Tc	Maximum case operating temperature	100	°C

*1: Absolute maximum ratings are values that should not be exceeded even for a moment to prevent damage to the product, and continuous operation within this range does not guarantee the retention of product performance. Please design with a margin for the absolute maximum ratings.
*2:Tc=25°C

Recommended operating Condition

Symbol	Parameter	Limit	Unit
Tc	Case Operating Temperature	85	℃
Vds	Drain - Source Voltage	24	V
IDQ	Drain Quiescent Current	0.72	A
Rg	Gate Resistance	90	Ω

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Electrical characteristics (Ta=25°C)

Parameter	Symbol	Test conditions	Limits*3			Unit
			Min.	Typ.	Max.	
Gate to source cut-off voltage	VGS(off)	VDS=24V,ID=14.4mA	-1	-	-5	V
Output Power	Pout *4	VDS=24V,ID(RF off)=0.72A f=12.75, 13.00, 13.25GHz *4 : Pin=39dBm *5 : Pin=24dBm *6 : Two-tone Test,Po=36.3dBm (Single Carrier Level) Δ f=5MHz(IM3)	44.3	45.3	-	dBm
Power added efficiency	PAE *4		-	31	-	%
Linear power gain	GLP *5		8.5	9.5	-	dB
3rd Order Intermodulation distortion	IM3 *6		-	-25	-	dBc
Thermal resistance	Rth(ch-c) *7	Δ Vf method	-	1.6	2.0	°C/W

*3 :The max./min. relationship of items with negative values shall be considered as absolute values.
*7 :Channel-case

Specifications are subject to change without notice

ESD *8	Class 0	-199~

*8 :Based on EIAJ ED-4701 C-111A(C=100pF,R=1.5kΩ)

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