MITSUBISHI ELECTRIC

< Ka band GaN MMIC Power Amplifier>

MGFG5H3001

27.5 – 31 GHz BAND / 8W

Description

The MGFG5H3001, an 8W GaN MMIC Power Amplifier including a linearizer to enhance linear output power.

Features

- High output power: 39dBm
- Input and output matched to 50ohm
- DC block capacitors built in
- Independently adjustable bias pins
- Compact metal package with screw holes

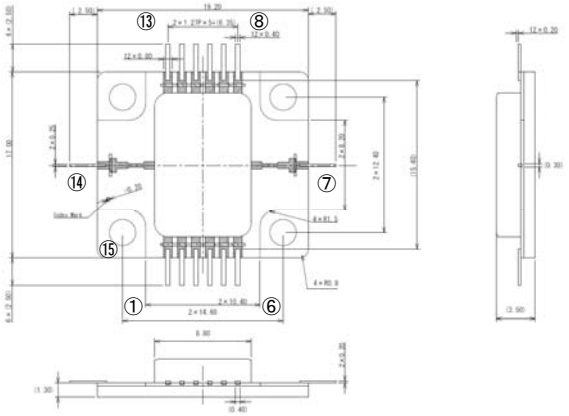
Application

- Transmitter for Ka-band SATCOM

Quality

- General & Industrial

Outline Drawing Unit : millimeters



①VgB:Gate for Buffer stage
②VdB:Drain for buffer stage
③⑪Vd1:Drain for 1st stage
④⑩Vd2:Drain for 2nd stage
⑤⑨Vg3:Gate for 3rd stage
⑥⑧Vd3:Drain for 3rd stage
⑦Pout:RF out
⑫Vg12:Gate for 1st and 2nd stage
⑬Vl:Control fo rlinearizer
⑭Pin:RF in
⑮Source(Flange)

Absolute Maximum Ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
Vgso	Gate to Source Voltage	-10.0	V
Vds	Drain to Source Voltage	27.0	V
Vl	Linearizer Voltage	10.0	V
Pin	RF Input Power	33.0	dBm
Tch	Channel Temperature	+250	°C
Tstg	Storage Temperature	-55 to 125	°C

Recommended Operating Conditions

Symbol	Parameter	Typ.	Unit
Vds	Drain to Source Voltage	24.0	V
IdqB	Drain Current of buffer amp. without RF Drive	170	mA
Idq1	Drain Current of 1st stage without RF Drive	350	mA
Idq2	Drain Current of 2ndstage without RF Drive	710	mA
Idq3	Drain Current of 3rd stage without RF Drive	260	mA
Vl	Control Voltage of Linearizer	-1.0	V
Tch	Channel Temperature	≦175	℃

Electrical Characteristics

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	Vd=24V, Idq=T.B.D	-1	-	-5	V
Freq.	Operational Frequency	Vd=24V, IdqB=170mA, Vl=-1.0V,	27.5	-	31	GHz
Psat *1	Saturated Power	Idq1=350mA,Idq2=710mA,Idq3=260mA	38	39	-	dBm
Glp *2	Linear Power Gain	*1: Pin=30dBm, *2: Pin=5dBm	11	15	-	dB
IM3 *3	3rd Order Intermodulation Distortion	*3: Pout=31dBm (SCL)			-25	dBc
Rth(ch-c) *4	Thermal resistance	ΔVf method	-	1.2	1.5	°C/W

*4 :Channel-case

ESD *5	Class 0	-199V～

*5:Based on EIAJ ED-4701 C-11A(C=100pF, R=1.5kΩ_Human Body Model)

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