PRELIMINARY
Notice : This is not a final specification
Some parametric limits are subject to change.

MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGFC45V5053A

5.05~5.25GHz BAND 32W INTERNALLY MATCHD GaAs FET

DESCRIPTION

The MGFC45V5053A is an internally impedance matched GaAs power FET especially designed for use in 5.05~5.25 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES (TARGET)

- Internally matched to 50 (Ω) system
- High output power
  P_{1dB}=32W (TYP.) @f=5.05~5.25GHz
- High power gain
  G_{LP}=10.0dB (TYP.) @f=5.05~5.25GHz
- High power added efficiency
  P.A.E.=33% (TYP.) @f=5.05~5.25GHz
- Low distortion [item -51]
  IM3= -45dBc (TYP.) @Po=34.5dBm S.C.L.

APPLICATION

5.05~5.25GHz band amplifiers

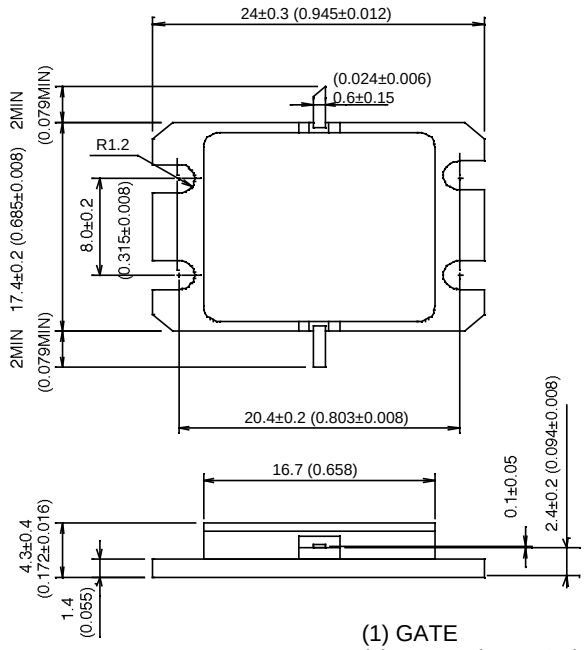
QUALITY GRADE

- IG

RECOMMENDED BIAS CONDITIONS

- V_{DS}=10V
- I_D=8A
- RG=25Ω Refer to Bias Procedure

OUTLINE DRAWING Until : millimeters (inches)



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(1) GATE
(2) Source (FLANGE)
(3) DRAIN

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Ratings	Unit
V_{GDO}	Gate to drain voltage	-15	V
V_{GSO}	Gate to source voltage	-15	V
I_D	Drain current	20	A
I_{GR}	Reverse gate current	-80	mA
I_{GF}	Forward gate current	168	mA
P_T	Total power dissipation *1	150	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 ~ +175	°C

*1 : Tc=25°C

< Keep safety first in your circuit designs! >

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.

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max	
I_{DSS}	Saturated drain current	V_{DS}=3V, I_{GS}=0V	—	24	—	V
Gm	Transconductance	V_{DS}=3V, I_D=8V	—	8	—	S
VGS (off)	Gate to Source cut-off voltage	V_{DS}=3V, I_D=160mA	-2	—	-5	V
P_{1dB}	Output power at 1dB gain compression	V_{DS}=10V, I_D=8A, f=5.05~5.25GHz	44	45	—	dBm
G_{LP}	Linear power gain		9	9.5	—	dB
P.A.E.	Power added efficiency		—	34	—	%
IM3 *2	3rd order IM distortion		-42	-45	—	dBc
Rth (ch-c)	Thermal resistance *1	ΔVf method	—	0.8	1.0	°C/W

*1 : Channel to case

*2 : Item-51,2tone test, Po=34.5dBm Single Carrier Level, f=5.05, 5.15, 5.25GHz, Delta f=5MHz