

#### 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 ( ) system
- High output power P1dB=32W (TYP.) @f=5.05~5.25GHz
- ◆ High power gain GLP=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

- VDS=10V
- ID=8A
- RG=25 Refer to Bias Procedure

## **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter		Ratings	Unit	
Vgdo	Gate to drain voltage	-15	V		
Vgso	Gate to source voltage	-15	٧		
ΙD	Drain current	20	Α		
IGR	Reverse gate current		-80	mA	
lgf	Forward gate current		168	mA	
Рт	Total power dissipation	*1	150	W	
Tch	Channel temperature		175	°C	
Tstg	Storage temperature		-65 ~ +175	°C	

\*1 : Tc=25°C

## Until: millimeters (inches) **OUTLINE DRAWING** 24±0.3 (0.945±0.012) (NIM620 (0.024±0.006) $0.6 \pm 0.15$ 2MIN R1.2 17.4±0.2 (0.685±0.008) 315±0.008 8.0±0.2 2.4±0.2 (0.094±0.008) 20.4±0.2 (0.803±0.008) 16.7 (0.658) 4.3±0.4 72±0.016) (1) GATE (2) Source (FLANGE) **GF-38** (3) DRAIN

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	<b>-</b>	Limits			
		Test conditions	Min.	Тур.	Max	Unit
IDSS	Saturated drain current	VDS=3V, IGS=0V		24	1	V
Gm	Transconductance	VDS=3V, ID=8V		8	1	S
VGS (off)	Gate to Source cut-off voltage	VDS=3V, ID=160mA	-2	1	-5	V
P1dB	Output power at 1dB gain compression		44	45		dBm
GLP	Linear power gain	VDS=10V, ID=8A, f=5.05~5.25GHz	9	9.5		dB
P.A.E.	Power added efficiency			34	1	%
IM3 *2	3rd order IM distortion		-42	-45	_	dBc
Rth (ch-c)	Thermal resistance *1	V <sub>f</sub> method	_	0.8	1.0	°C/W

<sup>\*1:</sup> Channel to case

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

