

**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 MATCHED 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  
 $P_{1dB}=32W$  (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.) @ $P_o=34.5dBm$  S.C.L.

## APPLICATION

5.05~5.25GHz band amplifiers

## QUALITY GRADE

- IG

## RECOMMENDED BIAS CONDITIONS

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

## 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
$T_{ch}$	Channel temperature	175	°C
$T_{stg}$	Storage temperature	-65 ~ +175	°C

\*1 :  $T_c=25^\circ C$

## ELECTRICAL CHARACTERISTICS

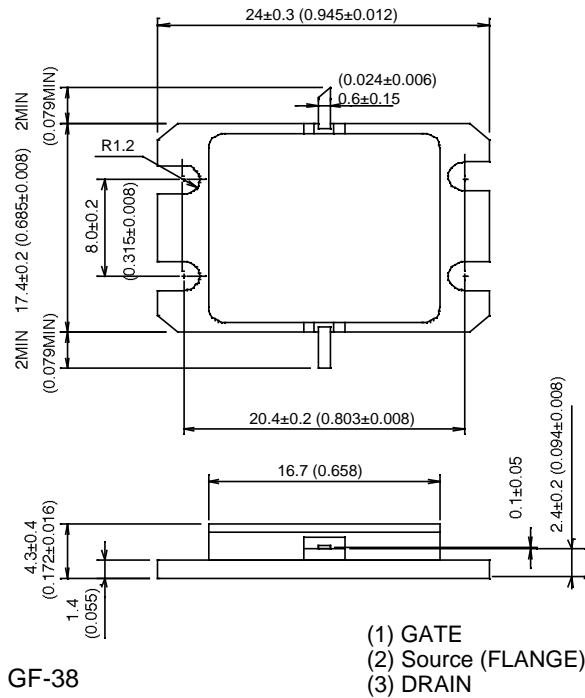
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max	
$I_{DSS}$	Saturated drain current	$V_{DS}=3V, I_{GS}=0V$	—	24	—	V
$G_m$	Transconductance	$V_{DS}=3V, I_D=8V$	—	8	—	S
$V_{GS} (off)$	Gate to Source cut-off voltage	$V_{DS}=3V, I_D=160mA$	-2	—	-5	V
$P_{1dB}$	Output power at 1dB gain compression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

\*1 : Channel to case

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

## OUTLINE DRAWING

Until : millimeters (inches)



< Keep safety first in your circuit designs! >

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