

< C band internally matched power GaAs FET >

# MGFC45V5964A

5.9 – 6.4 GHz BAND / 32W

## DESCRIPTION

The MGFC45V5964A is an internally impedance-matched GaAs power FET especially designed for use in 5.9 – 6.4 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

## FEATURES

Internally matched to 50(ohm) system

- High output power  
P1dB=32W (TYP.) @f=5.9 – 6.4GHz
- High power gain  
GLP=9.0dB (TYP.) @f=5.9 – 6.4GHz
- High power added efficiency  
P.A.E.=33% (TYP.) @f=5.9 – 6.4GHz
- Low distortion [item -51]  
IM3=-45dBc (TYP.) @Po=34.5dBm S.C.L

## APPLICATION

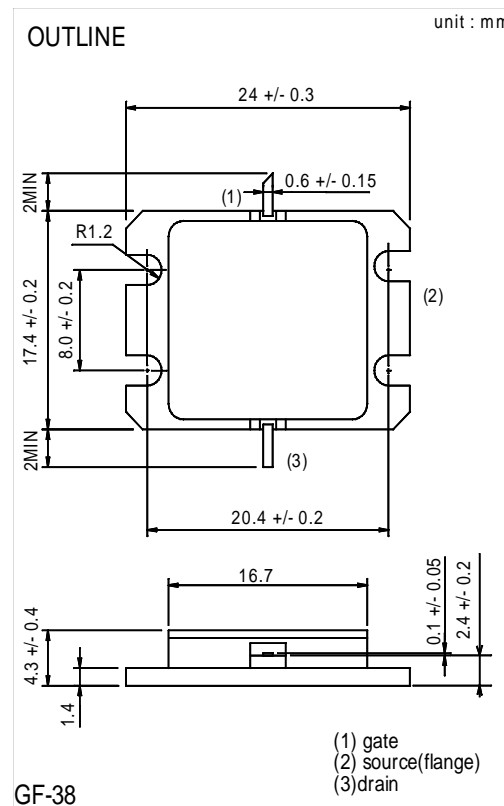
- 5.9 – 6.4 GHz band power amplifier

## QUALITY

- IG

## RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=8.0A • RG=25ohm Refer to Bias Procedure



## Absolute maximum ratings (Ta=25°C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain breakdown voltage	-15	V
VGSO	Gate to source breakdown voltage	-15	V
ID	Drain current	25	A
IGR	Reverse gate current	-80	mA
IGF	Forward gate current	168	mA
PT *1	Total power dissipation	150	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

\*1 : Tc=25°C

## Electrical characteristics (Ta=25°C)

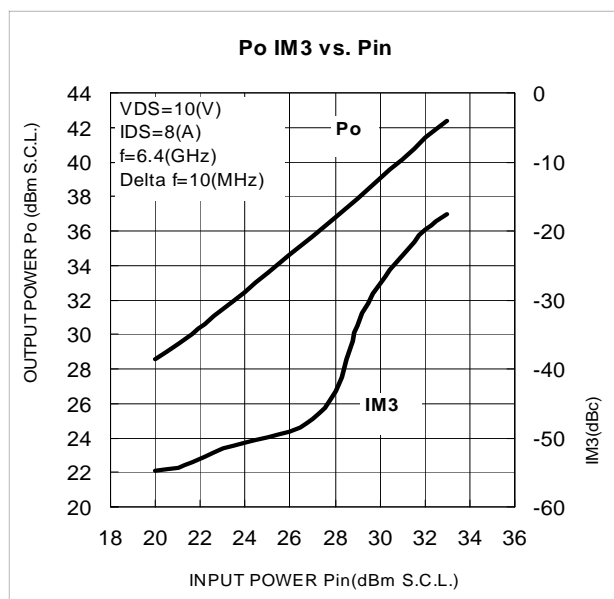
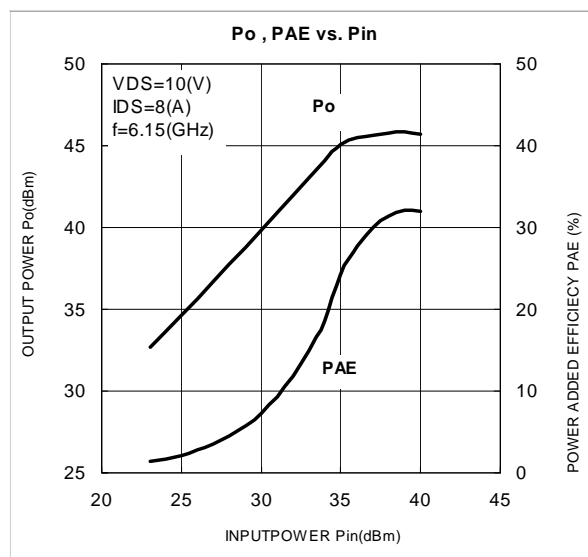
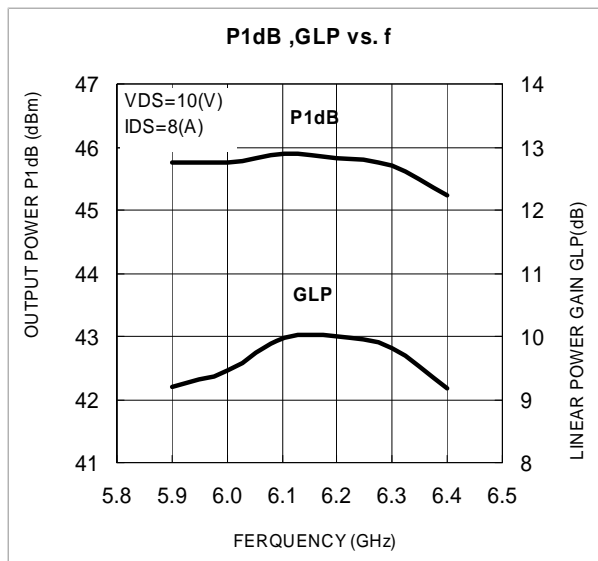
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	24	-	A
gm	Transconductance	VDS=3V, ID=8.0A	-	8	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=160mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=8.0A	44	45	-	dBm
GLP	Linear Power Gain	f=5.9 – 6.4GHz	8	9	-	dB
P.A.E.	Power added efficiency		-	33	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance		-	0.8	1.0	°C/W

\*2 : item -51 , 2 tone test, Po=34.5dBm Single Carrier Level , f=6.4GHz, delta f=10MHz

\*3 : Channel-case

## Keep Safety first in your circuit designs!

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**MGFC45V5964A TYPICAL CHARACTERISTICS**( Ta=25deg.C )**MGFC45V5964A S-parameters**( Ta=25deg.C , VDS=10(V),IDS=8(A) )

f (GHz)	S Parameters (TYP.)							
	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.90	0.61	159	2.957	-44	0.04	-117	0.21	160
6.00	0.55	138	3.071	-62	0.05	-134	0.22	134
6.10	0.48	115	3.119	-81	0.06	-152	0.25	112
6.20	0.41	92	3.148	-100	0.07	-167	0.26	91
6.30	0.34	65	3.143	-118	0.08	175	0.26	73
6.40	0.28	36	3.122	-137	0.09	160	0.25	55

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