

**PRELIMINARY**

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

MITSUBISHI SEMICONDUCTOR &lt;GaAs FET&gt;

**MGFC45V5964A****5.9 - 6.4GHz BAND 32W INTERNALLY MATCHED GaAs FET****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 - 6.4 GHz

High power gain

GLP =9.0 dB (TYP.) @ f=5.9 - 6.4 GHz

High power added efficiency

P.A.E. = 33 % (TYP.) @ f=5.9 - 6.4 GHz

Low Distortion[Item-51]

IM3=-42 dBc(MIN.)@Po=34.5dBm S.C.L.

**APPLICATION**

5.9 - 6.4 GHz band amplifiers

**QUALITY GRADE**

IG

**RECOMMENDED BIAS CONDITIONS**

$V_{DS} = 10V$

$ID = 8 A$

$R_g=25 \text{ ohm}$  Refer to Bias Procedure

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	30	A
I <sub>GR</sub>	Reverse gate current	-60	mA
I <sub>GF</sub>	Forward gate current	126	mA
PT	Total power dissipation	125	W
T <sub>ch</sub>	Channel temperature	175	deg.C
T <sub>stg</sub>	Storage temperature	-65/+175	deg.C

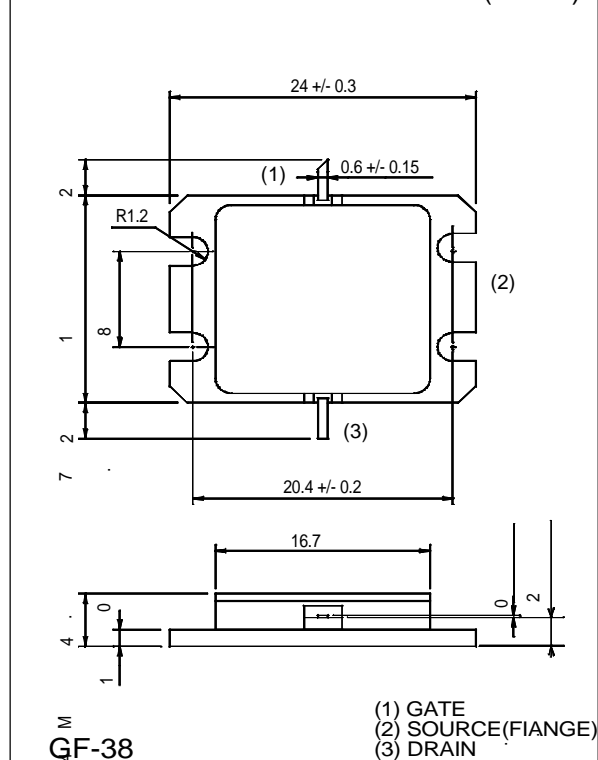
\*1 : T<sub>c</sub>=25 Deg.C

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
IDSS	Saturated drain current	$V_{DS} = 3V, V_{GS} = 0V$	-	24	-	A
G <sub>m</sub>	Transconductance	$V_{DS} = 3V, ID = 8A$	-	8	-	S
VGS(off)	Gate to source cut-off voltage	$V_{DS} = 3V, ID = 160mA$	-	-	-5	V
P1dB	Output power at 1dB gain compression	$V_{DS} = 10V, ID = 8A, f = 5.9 - 6.4 \text{ GHz}$	44.5	45	-	dBm
GLP	Linear power gain		8	9	-	dB
PAE	Power added efficiency		-	33	-	%
IM3	3rd order IM distortion		-42	-45	-	dBc
R <sub>th(ch-c)</sub>	Thermal resistance *1	Delta Vf method	-	-	1.0	Deg.C/W

\*1 : Channel to case

\*2 : Item-51, 2tone test, P<sub>o</sub>=34.5dBm Single Carrier Level, f=6.4GHz, Delta f=10MHz

**OUTLINE DRAWING** Unit:millimeters (inches)

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ELECTRIC

**PRELIMINARY**

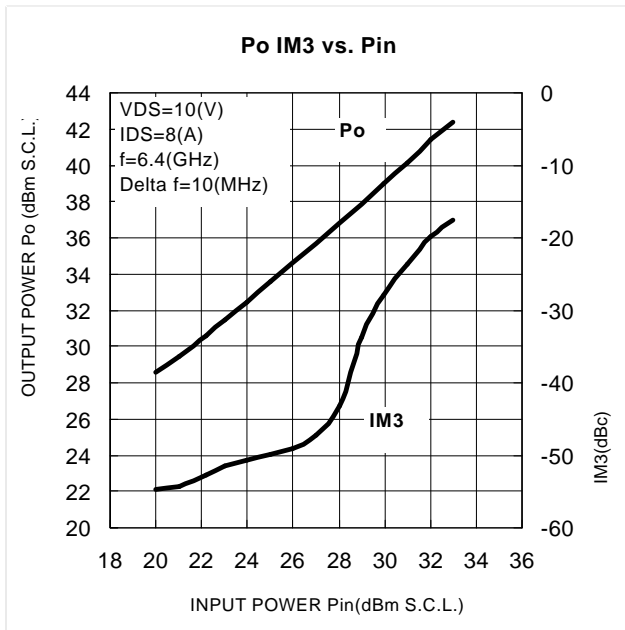
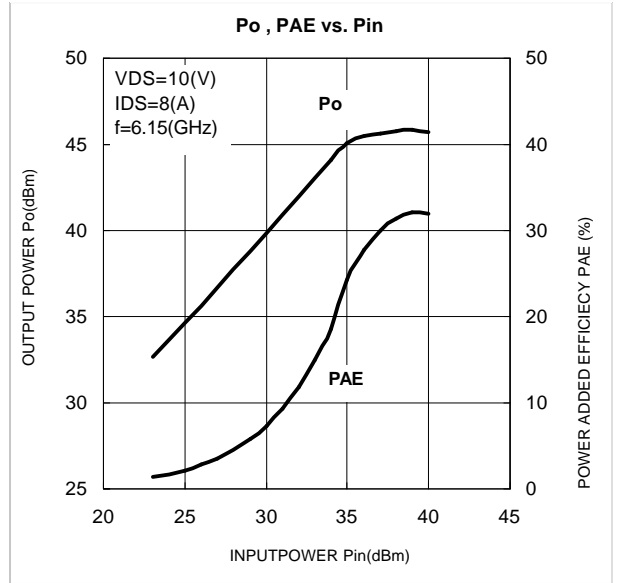
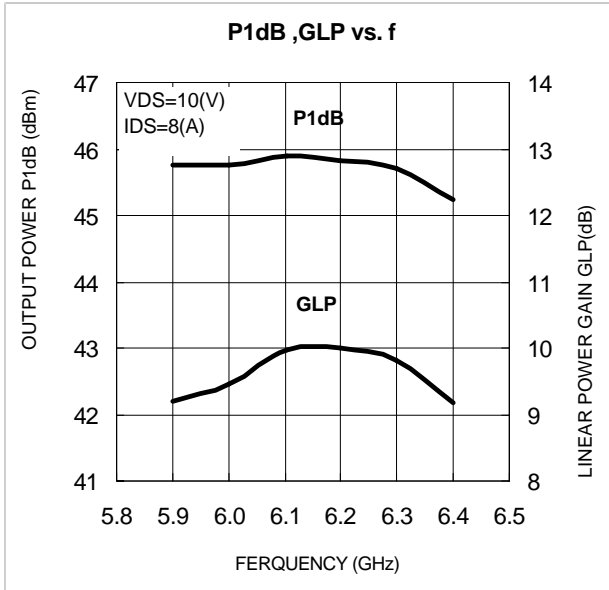
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**MGFC45V5964A**

**5.9 - 6.4 GHz BAND 32W INTERNALLY MATCHED GaAs FET**

**TYPICAL CHARACTERISTICS** (Ta=25 Deg.C)



**S PARAMETERS** (Ta=25 Deg.C , VDS=10V , IDS=8A)

f (GHz)	S Parameters (TYP.)							
	S11		S21		S12		S22	
	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