

< C band internally matched power GaAs FET >

# MGFC38V5964

5.9 – 6.4 GHz BAND / 6W

## DESCRIPTION

The MGFC38V5964 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

Class A operation

Internally matched to 50(ohm) system

- High output power  
P1dB=6W (TYP.) @f=5.9 – 6.4GHz
- High power gain  
GLP=10dB (TYP.) @f=5.9 – 6.4GHz
- High power added efficiency  
P.A.E.=32% (TYP.) @f=5.9 – 6.4GHz
- Low distortion [ item -51]  
IM3=-45dBc (TYP.) @Po=27dBm S.C.L.

## APPLICATION

- item 01 : 5.9 – 6.4 GHz band power amplifier
- item 51 : 5.9 – 6.4 GHz band digital radio communication

## QUALITY

- IG

## RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=1.8A • RG=100ohm 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	5	A
IGR	Reverse gate current	-15	mA
IGF	Forward gate current	31.5	mA
PT *1	Total power dissipation	30	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

\*1 : Tc=25°C

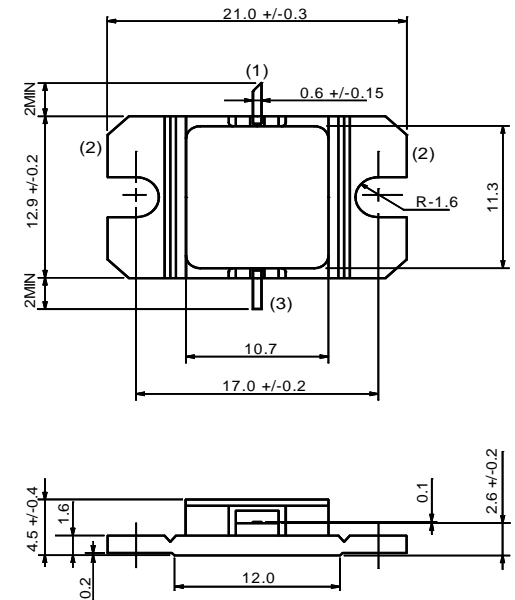
## Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	-	5	A
gm	Transconductance	VDS=3V, ID=1.5A	-	2	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=15mA	-	-3.5	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=1.8A	37	38	-	dBm
GLP	Linear Power Gain	f=5.9 – 6.4GHz	9	10	-	dB
ID	Drain current		-	1.7	-	A
P.A.E.	Power added efficiency		-	32	-	%
IM3*2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	-	5	°C/W

\*2 : Item-51, 2-tone test Po=27dBm Signal Carrier Level f=6.4GHz Δf=10MHz

\*3 : Channel-case

OUTLINE DRAWING Unit : millimeters



GF-8

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

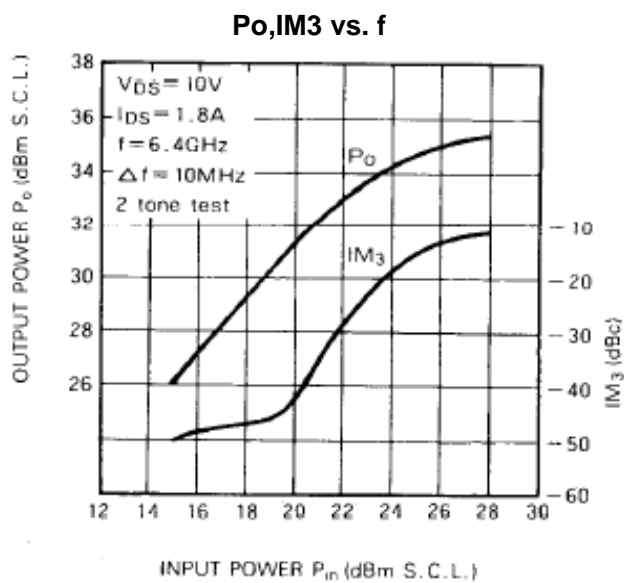
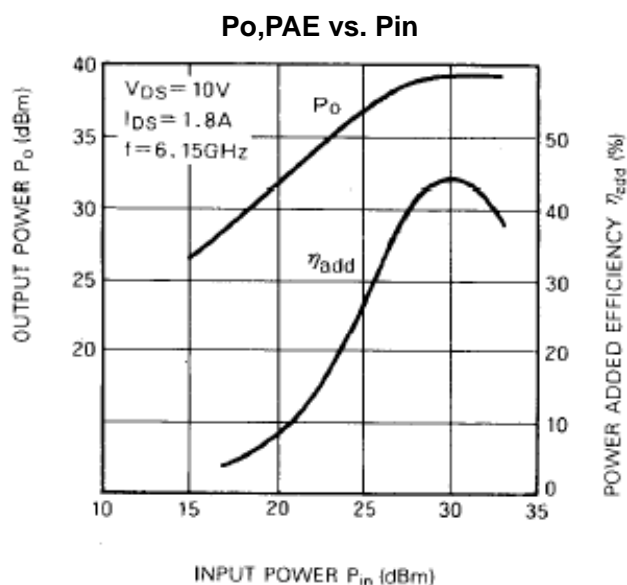
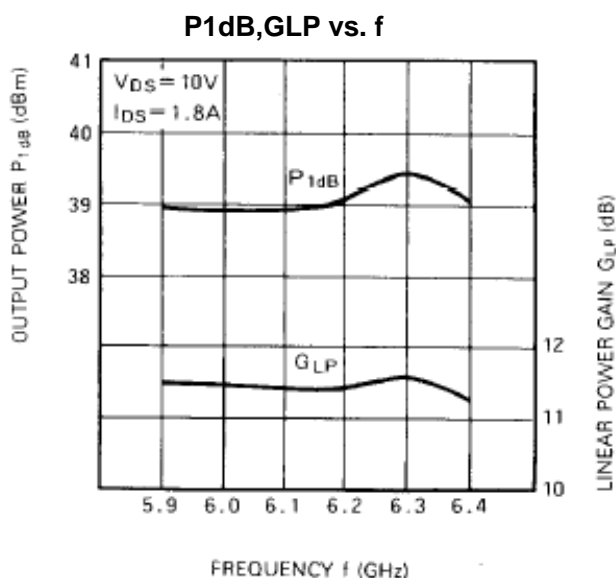
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## MGFC38V5964 TYPICAL CHARACTERISTICS( Ta=25deg.C )



## MGFC38V5964 S-parameters( Ta=25deg.C , VDS=10(V),IDS=1.8(A) )

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.9	0.33	-140	3.39	23	0.037	-3	0.38	-113
6.0	0.28	-178	3.40	6	0.044	-26	0.35	-135
6.1	0.26	156	3.44	-11	0.047	-49	0.35	-157
6.2	0.25	127	3.36	-29	0.051	-67	0.35	-178
6.3	0.25	99	3.27	-46	0.049	-91	0.39	164
6.4	0.26	74	3.15	-62	0.054	-106	0.41	147

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