MITSUBISHI ELECTRIC

< C band internally matched power GaAs FET >

MGFC38V6472

6.4 – 7.2 GHz BAND / 6W

DESCRIPTION

The MGFC38V6472 is an internally impedance-matched GaAs power FET especially designed for use in 6.4 – 7.2 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=6.4 – 7.2GHz
- High power gain
  GLP=9dB (TYP.) @f=6.4 – 7.2GHz
- High power added efficiency
  P.A.E.=31% (TYP.) @f=6.4 – 7.2GHz
- Low distortion [item -51]
  IM3=-45dBc (TYP.) @Po=27dBm S.C.L.

APPLICATION

- item 01 : 6.4 – 7.2 GHz band power amplifier
- item 51 : 6.4 – 7.2 GHz band digital radio communication

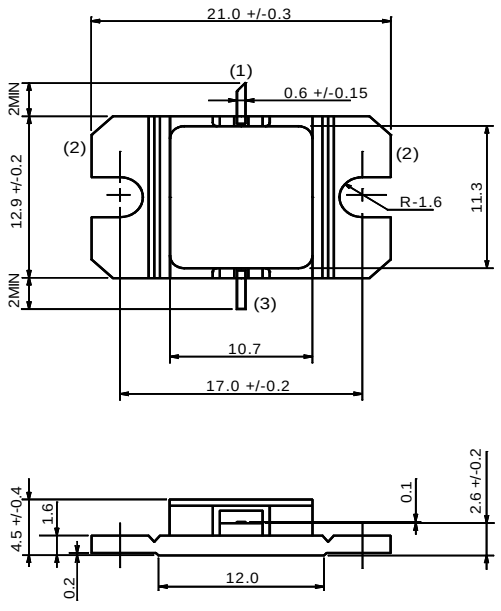
QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=1.8A • RG=100ohm Refer to Bias Procedure

OUTLINE DRAWING Unit : millimeters



GF-8

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

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	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

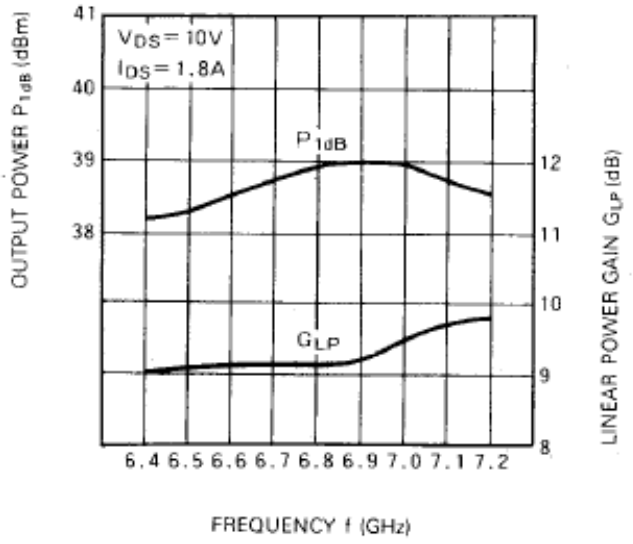
Electrical characteristics (Ta=25°C)

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=6.4 – 7.2GHz	8	9	-	dB
ID	Drain current		-	1.7	-	A
P.A.E.	Power added efficiency		-	31	-	%
IM3*2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	-	5	°C/W

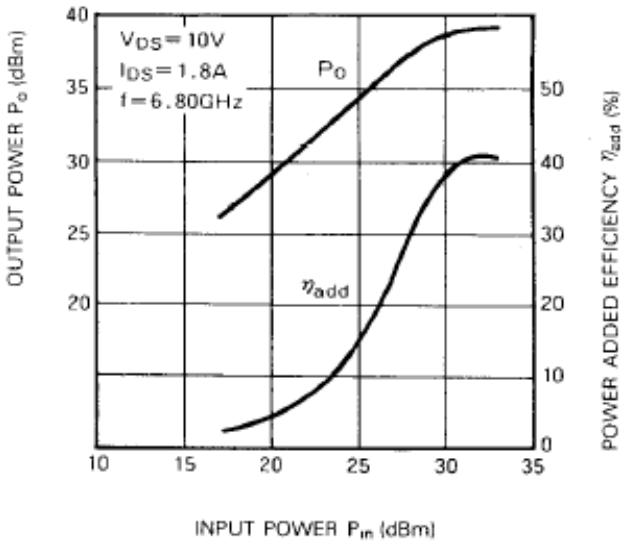
*2 :Item-51,2-tone test Po=27dBm Signal Carrier Level f=7.2GHz Δf=10MHz
*3 :Channel-case

MGFC38V6472 TYPICAL CHARACTERISTICS(Ta=25deg.C)

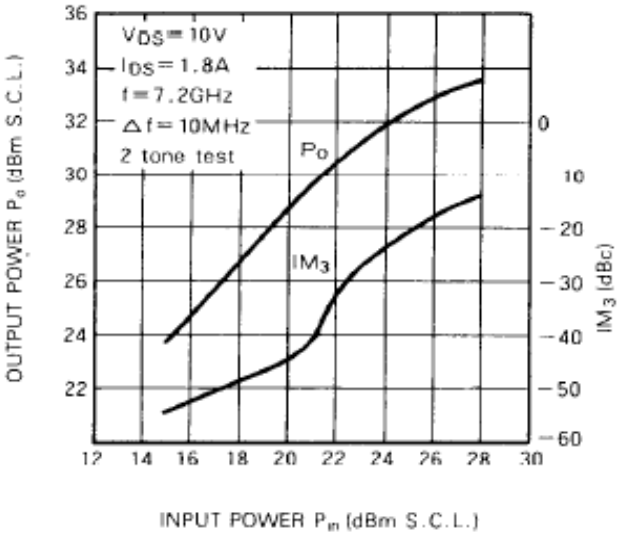
P1dB,GLP vs. f



Po,PAE vs. Pin



Po,IM3 vs. f



MGFC38V6472 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.)
6.4	0.56	154	2.84	-47	0.049	-93	0.15	-172
6.5	0.52	142	2.96	-64	0.051	-105	0.17	148
6.6	0.45	131	2.94	-80	0.053	-123	0.21	128
6.7	0.39	123	3.01	-97	0.059	-138	0.27	106
6.8	0.30	119	3.02	-115	0.062	-155	0.30	89
6.9	0.25	126	2.98	-134	0.071	-171	0.31	76
7.0	0.21	143	2.93	-153	0.070	170	0.30	57
7.1	0.24	153	2.84	-166	0.070	161	0.28	44
7.2	0.33	161	2.68	174	0.063	138	0.26	30

Keep safety first in your circuit designs!

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