MITSUBISHI ELECTRIC

< C band internally matched power GaAs FET >

MGFC36V5964A

5.9 -6.4 GHz BAND / 4W

DESCRIPTION

The MGFC36V5964A 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=4W (TYP.) @f=5.9 – 6.4GHz
- High power gain
  GLP=10.5dB (TYP.) @f=5.9 – 6.4GHz
- High power added efficiency
  P.A.E.=30% (TYP.) @f=5.9 – 6.4GHz
- Low distortion [item -51]
  IM3=-45dBc (TYP.) @Po=25dBm 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

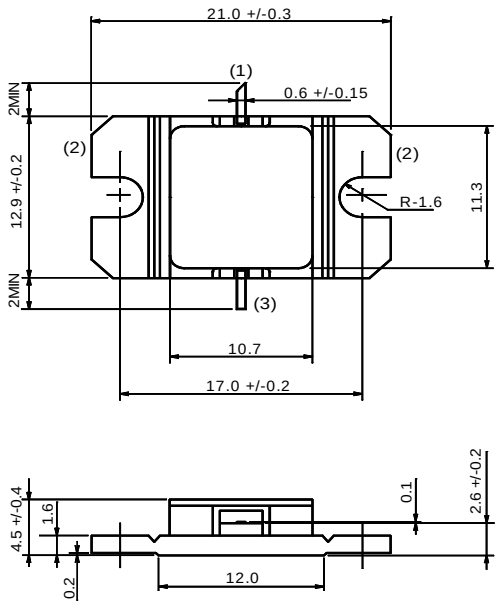
QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=1.2A Refer to Bias Procedure • RG=100ohm

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	3.75	A
IGR	Reverse gate current	-10	mA
IGF	Forward gate current	21	mA
PT *1	Total power dissipation	25	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

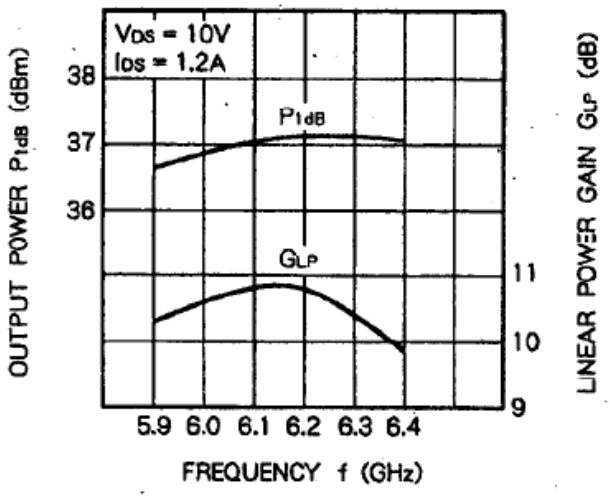
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	-	3.75	A
gm	Transconductance	VDS=3V,ID=1.1A	-	1	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=10mA	-	-	-4.5	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=1.2A	35	37	-	dBm
GLP	Linear Power Gain	f=5.9 – 6.4GHz	9	10.5	-	dB
ID	Drain current		-	-	1.8	A
P.A.E.	Power added efficiency		-	30	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	5	6	°C/W

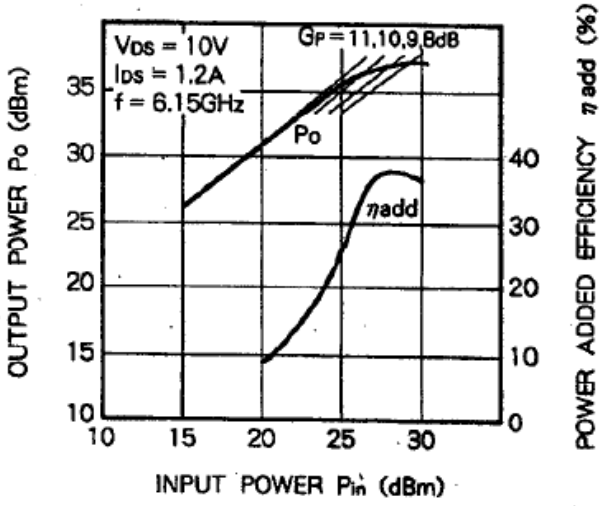
*2 :Item -51,2 tone test, Po=25dBm Single Carrier Level, f=6.4GHz, Delta f=10MHz
*3 :Channel-case

MGFC36V5964A TYPICAL CHARACTERISTICS(Ta=25deg.C)

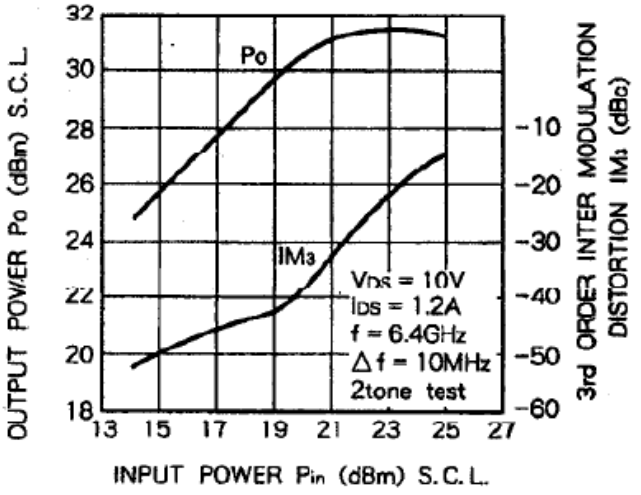
P1dB,GLP vs. f



Po,PAE vs. Pin



Po,IM3 vs. Pin



MGFC36V5964A S-parameters(Ta=25deg.C , VDS=10(V),IDS=1.2(A))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.9	0.22	-171	3.29	-27	0.079	-70	0.47	-172
6.0	0.12	145	3.40	-44	0.081	-89	0.41	178
6.1	0.12	60	3.49	-59	0.082	-104	0.34	166
6.2	0.23	20	3.49	-75	0.084	-120	0.27	153
6.3	0.35	-1	3.32	-91	0.081	-135	0.19	139
6.4	0.44	-16	3.08	-106	0.079	-149	0.13	124

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