

< C band internally matched power GaAs FET >

# MGFC42V5964A

5.9 – 6.4 GHz BAND / 16W

## DESCRIPTION

The MGFC42V5964A 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=16W (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=31.0dBm S.C.L

## APPLICATION

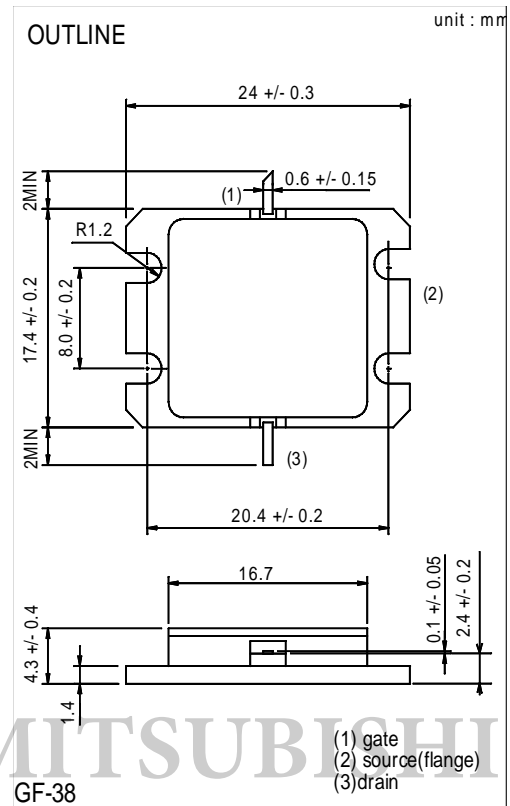
- item 01 : 5.9 – 6.4 GHz band power amplifier
- item 51 : 5.9 – 6.4 GHz band digital radio communication

## QUALITY

- IG

## RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=4.5A • 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	15	A
IGR	Reverse gate current	-40	mA
IGF	Forward gate current	84	mA
PT *1	Total power dissipation	93.7	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	-	9	12	A
gm	Transconductance	VDS=3V,ID=4.4A	-	4	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=80mA	-2	-3	-4	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=4.5A	41.5	42.5	-	dBm
GLP	Linear Power Gain	f=5.9 – 6.4GHz	8	9	-	dB
ID	Drain current		-	4.5	-	A
P.A.E.	Power added efficiency		-	33	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	-	1.6	°C/W

\*2 : item -51 ,2 tone test,Po=31.0dBm Single Carrier Level ,f=6.4GHz,delta f=10MHz

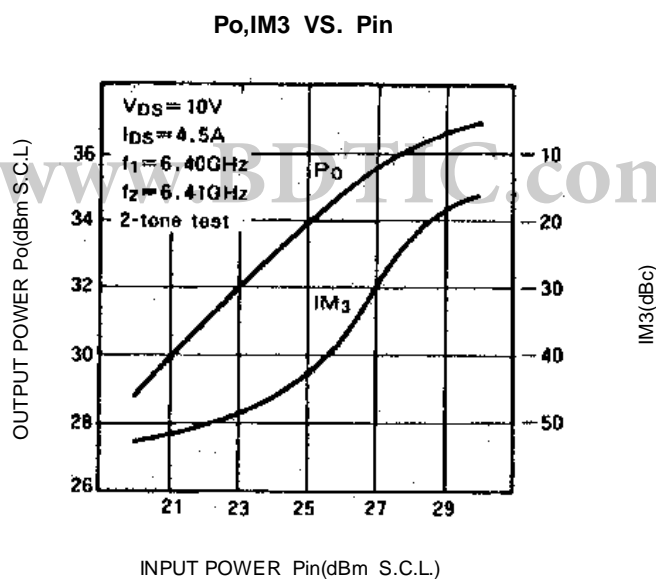
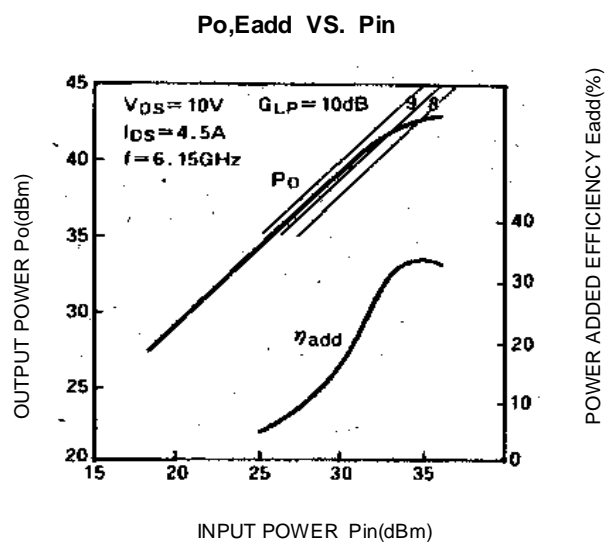
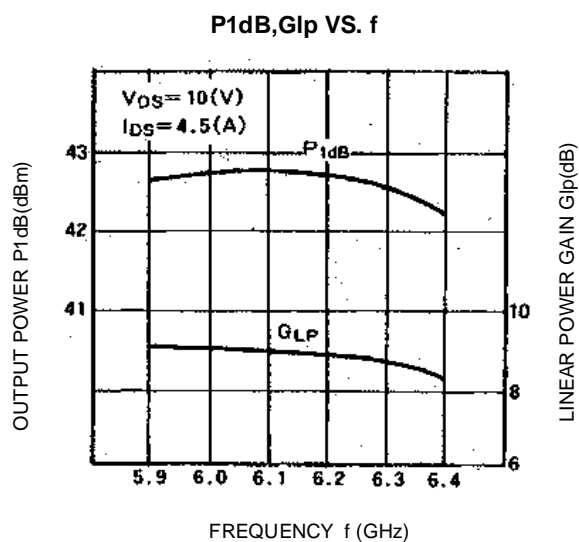
\*3 :Channel-case

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## MGFC42V5964A TYPICAL CHARACTERISTICS( Ta=25deg.C )



## MGFC42V5964A S-parameters( Ta=25deg.C , VDS=10(V),IDS=4.5(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	0.36	82	2.99	-74	0.071	-133	0.26	80
6.00	0.35	56	2.95	-91	0.071	-151	0.32	72
6.10	0.35	34	2.91	-108	0.072	-167	0.35	65
6.20	0.35	14	2.88	-124	0.078	177	0.37	58
6.30	0.34	-4	2.81	-140	0.079	161	0.41	53
6.40	0.33	-23	2.72	-157	0.079	146	0.43	48

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