

< C band internally matched power GaAs FET >

MGFC44V5964

5.9 – 6.4 GHz BAND / 24W

DESCRIPTION

The MGFC44V5964 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=24W (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=-42dBc (TYP.) @Po=33.5dBm S.C.L

APPLICATION

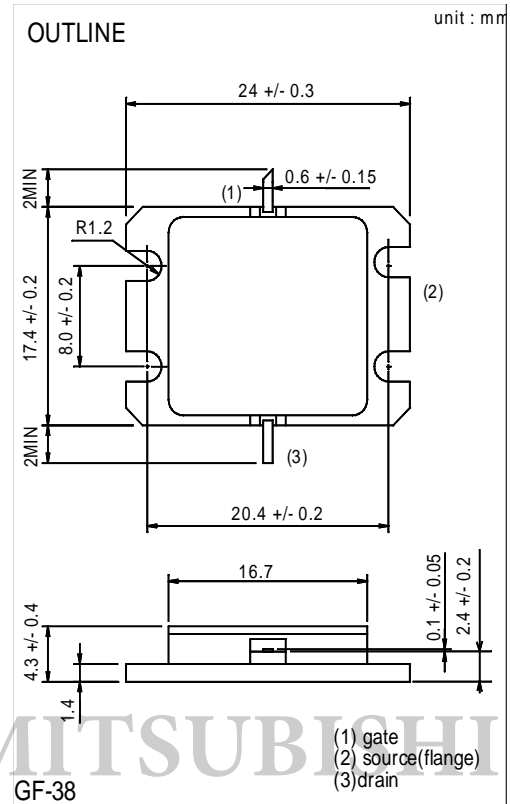
- item 01 : 5.9 – 6.4 GHz band power amplifier
- item 51 : 5.9 – 6.4 GHz band digital radio communication

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=6.4A • RG=25ohm



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	20	A
IGR	Reverse gate current	-60	mA
IGF	Forward gate current	126	mA
PT *1	Total power dissipation	93	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

Keep Safety first in your circuit designs!

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measure such as (i) placement of substitutive, auxiliary circuits, (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	18	-	A
gm	Transconductance	VDS=3V, ID=6.4A	-	6.5	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=120mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=6.4A f=5.9 – 6.4GHz	43	44	-	dBm
GLP	Linear Power Gain		8	9	-	dB
P.A.E.	Power added efficiency		-	33	-	%
IM3 *2	3rd order IM distortion		-42	-	-	dBc
Rth(ch-c) *3	Thermal resistance		-	-	1.6	°C/W

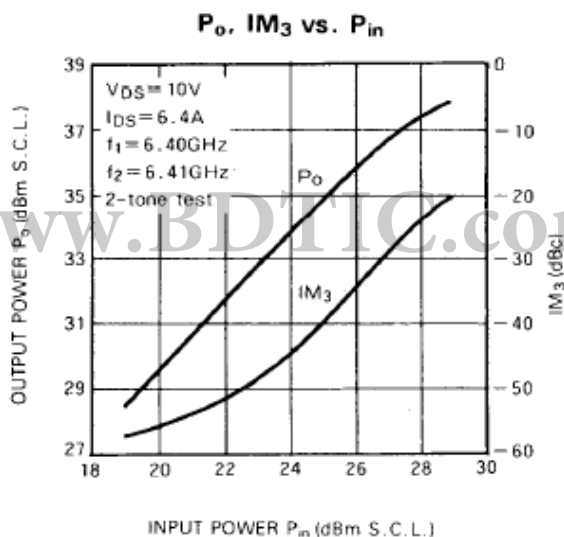
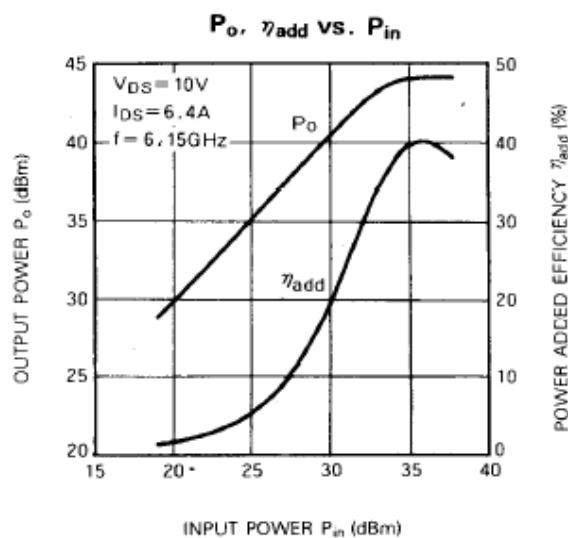
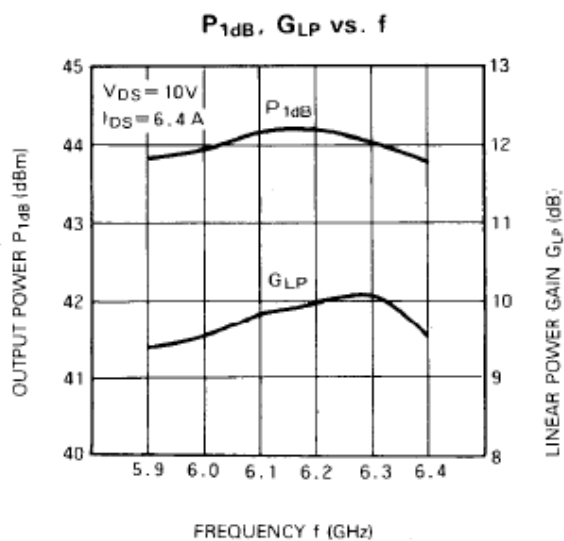
*2 : item -51, 2 tone test, Po=33.5dBm Single Carrier Level, f=6.4GHz, delta f=10MHz

*3 : Channel-case

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MGFC44V5964 TYPICAL CHARACTERISTICS(Ta=25deg.C)



MGFC44V5964 S-parameters(Ta=25deg.C , VDS=10(V),IDS=6.4(A))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.9	0.48	117	2.79	-61	0.033	-114	0.32	164
6.0	0.43	98	2.81	-79	0.046	-141	0.35	145
6.1	0.36	78	2.84	-97	0.052	-152	0.37	127
6.2	0.28	54	2.81	-115	0.062	-174	0.38	108
6.3	0.21	27	2.79	-132	0.070	167	0.39	96
6.4	0.13	-9	2.77	-150	0.078	149	0.40	80

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