MITSUBISHI ELECTRIC

< 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

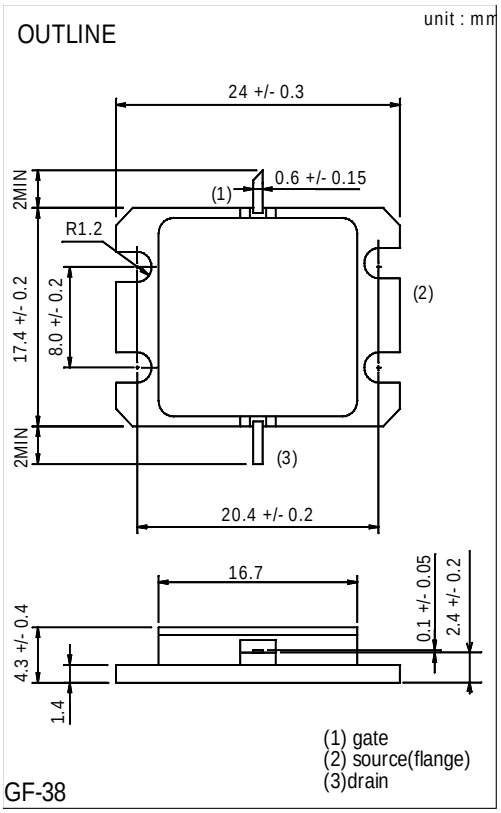
- item 01 : 5.9 – 6.4 GHz band power amplifier
- item 51 : 5.9 – 6.4 GHz band digital radio communication

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

*1 : Tc=25°C

Keep Safety first in your circuit designs!

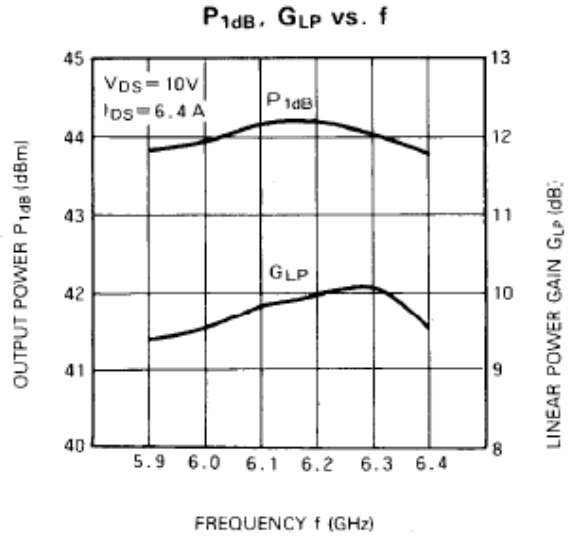
Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable , but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury , fire or property damage. Remember to give due consideration 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.

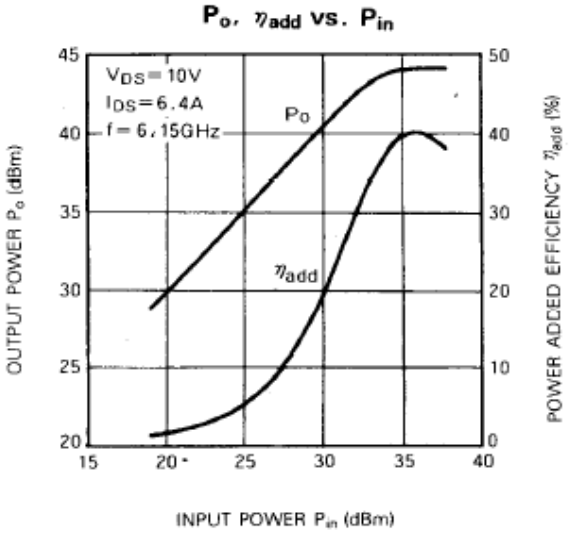
Electrical characteristics (Ta=25°C)

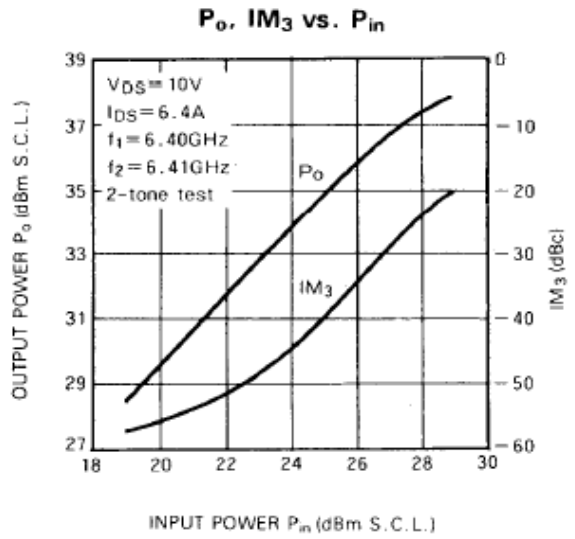
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	18	-	A
gm	Transconductance	VDS=3V,ID=6.4A	-	6.5	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=120mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=6.4A	43	44	-	dBm
GLP	Linear Power Gain	f=5.9 – 6.4GHz	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

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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