MITSUBISHI ELECTRIC

< C band internally matched power GaAs FET >

MGFC45V6472A

6.4 – 7.2 GHz BAND / 32W

DESCRIPTION

The MGFC45V6472A 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=32W (TYP.) @f=6.4 – 7.2GHz
- High power gain
  GLP=8.0dB (TYP.) @f=6.4 – 7.2GHz
- High power added efficiency
  P.A.E.=28% (TYP.) @f=6.4 – 7.2GHz
- Low distortion [item -51]
  IM3=-45dBc (TYP.) @Po=34.5dBm 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

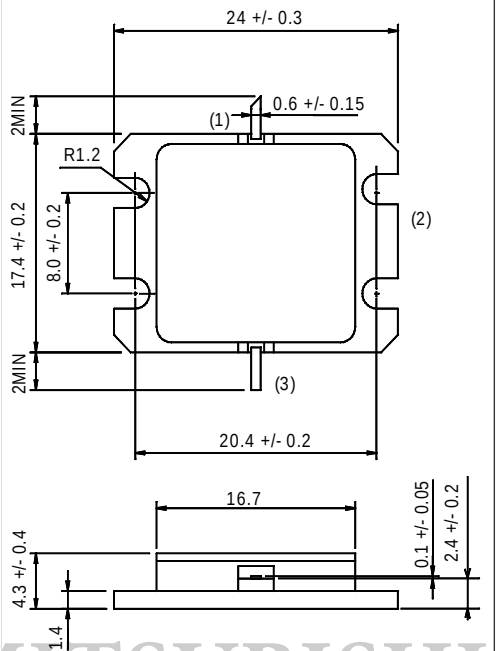
QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=8.0A • RG=25ohm

OUTLINE unit : mm



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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	25	A
IGR	Reverse gate current	-80	mA
IGF	Forward gate current	168	mA
PT *1	Total power dissipation	150	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

Keep Safety first in your circuit designs!

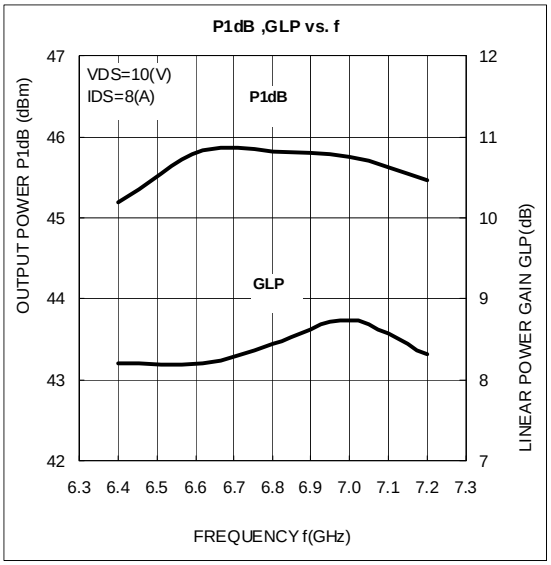
Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable , but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury , fire or property damage. Remember to give due consideration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

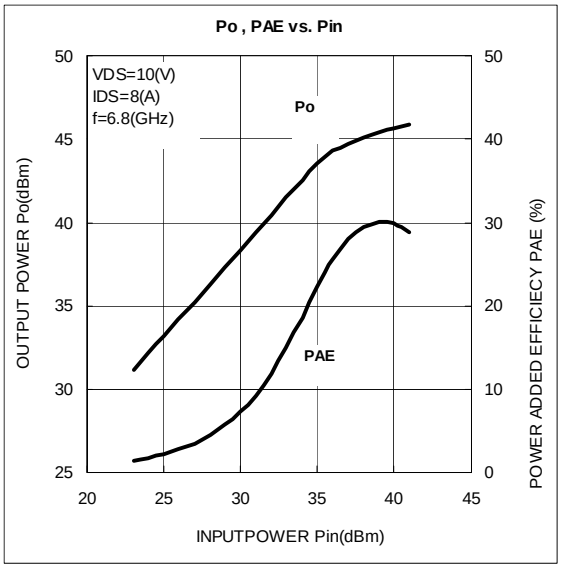
Electrical characteristics (Ta=25°C)

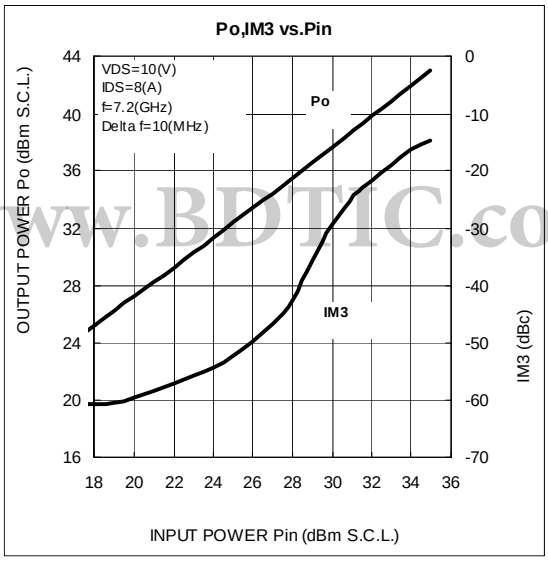
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	24	-	A
gm	Transconductance	VDS=3V,ID=6.4A	-	8	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=120mA	-	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=8.0A	44.5	45	-	dBm
GLP	Linear Power Gain	f=6.4 – 7.2GHz	7	8	-	dB
P.A.E.	Power added efficiency		-	28	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance		-	-	1	°C/W

*2 :item -51 ,2 tone test,Po=34.5dBm Single Carrier Level ,f=7.2GHz,delta f=10MHz
*3 :Channel-case

MGFC45V6472A TYPICAL CHARACTERISTICS(Ta=25deg.C)







MGFC45V6472A S-parameters(Ta=25deg.C , VDS=10(V),IDS=8.0(A))

f	S Parameters (TYP.)							
	S11		S21		S12		S22	
(GHz)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
6.4	0.66	100	2.39	-106	0.057	-171	0.32	74
6.5	0.61	84	2.43	-122	0.065	174	0.34	64
6.6	0.56	70	2.47	-138	0.071	160	0.35	52
6.7	0.50	57	2.54	-154	0.079	145	0.35	40
6.8	0.43	42	2.59	-170	0.088	131	0.34	27
6.9	0.35	27	2.66	173	0.095	116	0.31	12
7.0	0.24	12	2.73	155	0.101	100	0.27	-8
7.1	0.15	1	2.75	143	0.105	88	0.24	-27
7.2	0.01	-10	2.72	123	0.109	70	0.20	-61

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