MITSUBISHI ELECTRIC

< C band internally matched power GaAs FET >

MGFC45V3436A

3.4 – 3.6 GHz BAND / 32W

DESCRIPTION

The MGFC45V3436A is an internally impedance-matched GaAs power FET especially designed for use in 3.4 – 3.6 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=3.4 – 3.6GHz
- High power gain
  GLP=12.0dB (TYP.) @f=3.4 – 3.6GHz
- High power added efficiency
  P.A.E.=36% (TYP.) @f=3.4 – 3.6GHz
- Low distortion [item -51]
  IM3=-45dBc (TYP.) @Po=34.5dBm S.C.L

APPLICATION

- item 01 : 3.4 – 3.6 GHz band power amplifier
- item 51 : 3.4 – 3.6 GHz band digital radio communication

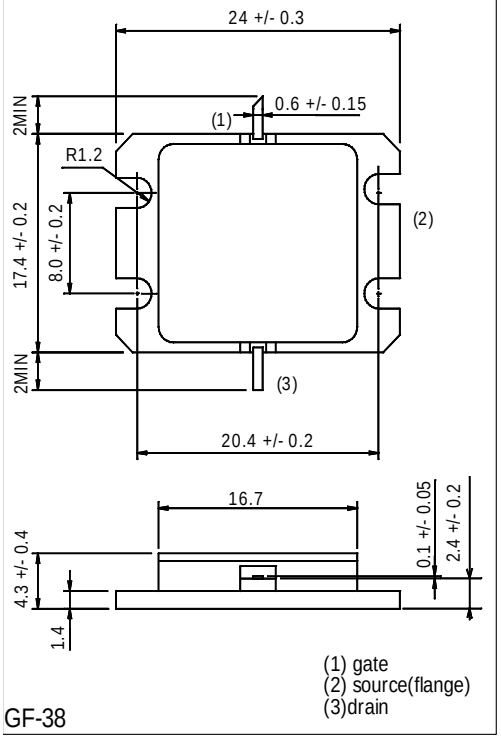
QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=8A • RG=25ohm

OUTLINE unit : mm



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

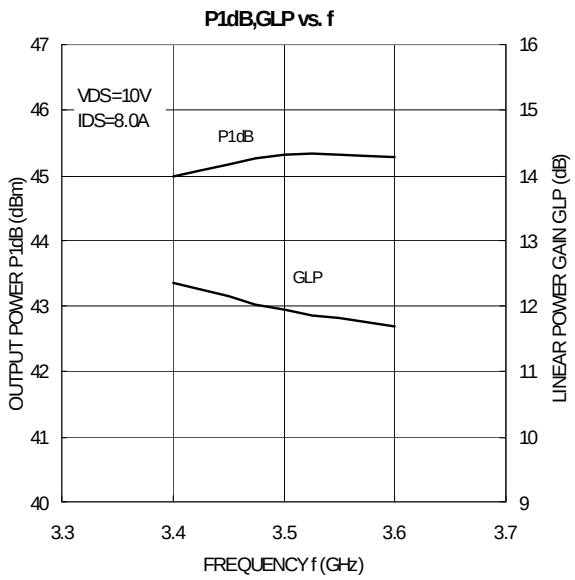
*1 : Tc=25°C

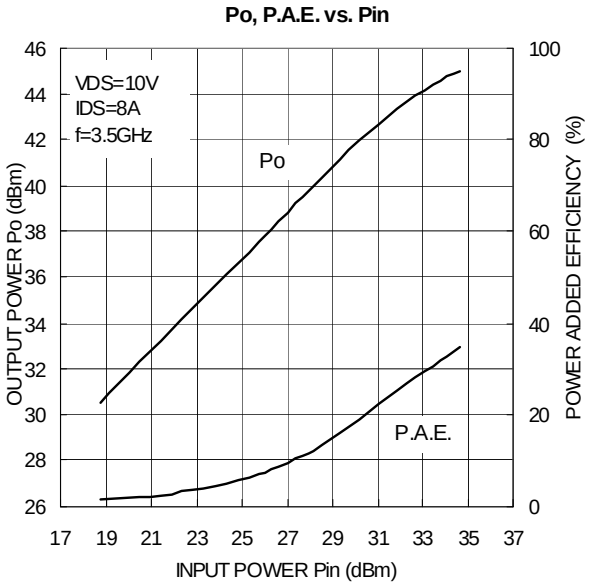
Electrical characteristics (Ta=25°C)

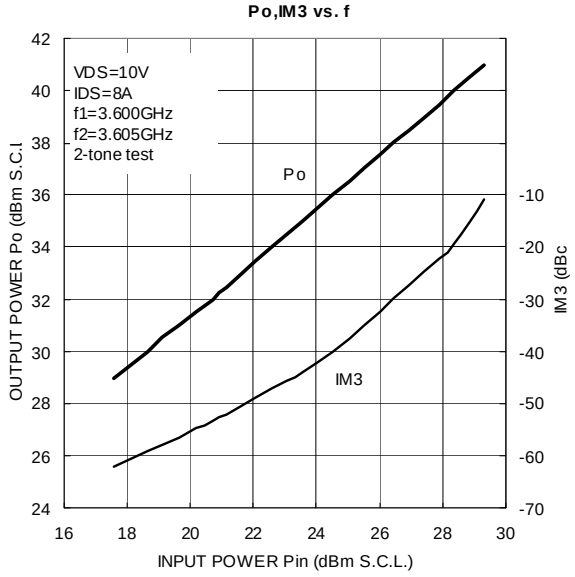
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	24	-	A
gm	Transconductance	VDS=3V,ID=8A	-	8	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=160mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=8A	44	45	-	dBm
GLP	Linear Power Gain	f=3.4 – 3.6GHz	11	12	-	dB
ID	Drain current		-	8	-	A
P.A.E.	Power added efficiency		-	36	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	0.8	1	°C/W

*2 :item -51 ,2 tone test,Po=34.5dBm Single Carrier Level ,f=3.4,3.5,3.6GHz,delta f=10MHz
*3 :Channel-case

MGFC45V3436A TYPICAL CHARACTERISTICS(Ta=25deg.C)







MGFC45V3436A S-parameters(Ta=25deg.C , VDS=10(V),IDS=8.0(A))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
3.30	0.54	-95	3.01	104	0.03	43	0.60	13
3.35	0.51	-121	3.27	87	0.03	29	0.56	3
3.40	0.49	-146	3.45	73	0.04	13	0.50	-6
3.45	0.50	-171	3.58	59	0.04	-12	0.44	-17
3.50	0.51	165	3.71	42	0.05	-21	0.39	-29
3.55	0.53	144	3.80	27	0.06	-37	0.34	-42
3.60	0.55	125	3.82	14	0.06	-52	0.29	-56
3.65	0.56	110	3.81	-1	0.06	-69	0.24	-74
3.70	0.56	93	3.84	-15	0.07	-80	0.22	-94

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Publication Date : Apr., 2011