

PRELIMINARY

Notice: This is not a final specification.
Some parametric limits are subject to change.

MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGFC45V3436A**3.4 - 3.6GHz BAND 32W INTERNALLY MATCHED GaAs FET****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 - 3.6 GHz

High power gain

GLP = 12 dB (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 ratio communication

QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

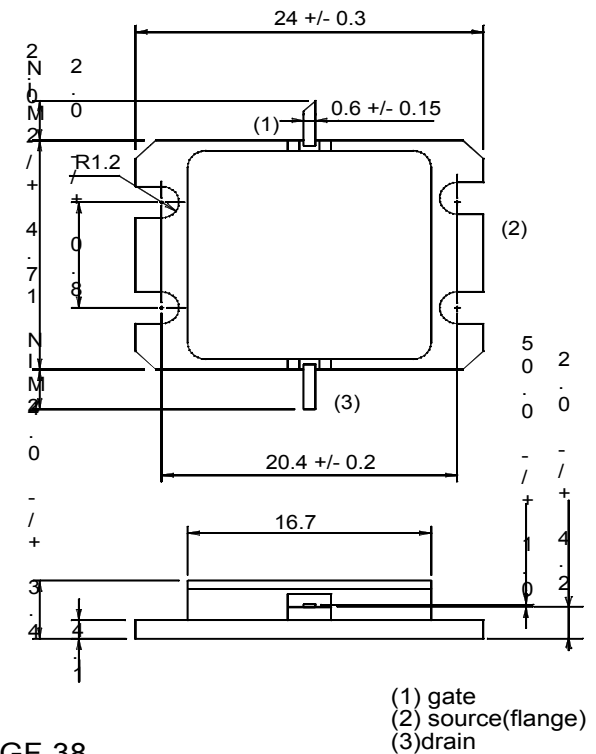
VDS = 10 (V)

ID = 8 (A)

RG=25 (ohm)

OUTLINE

unit : mm

**ABSOLUTE MAXIMUM RATINGS**

(Ta=25deg.C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	20	A
IGR	Reverse gate current	-80	mA
IGF	Forward gate current	168	mA
PT *1	Total power dissipation	150	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

*1 : Tc=25deg.C

ELECTRICAL CHARACTERISTICS

(Ta=25deg.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, f=3.4 - 3.6GHz	44	45	-	dBm
GLP	Linear power gain		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	deg.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



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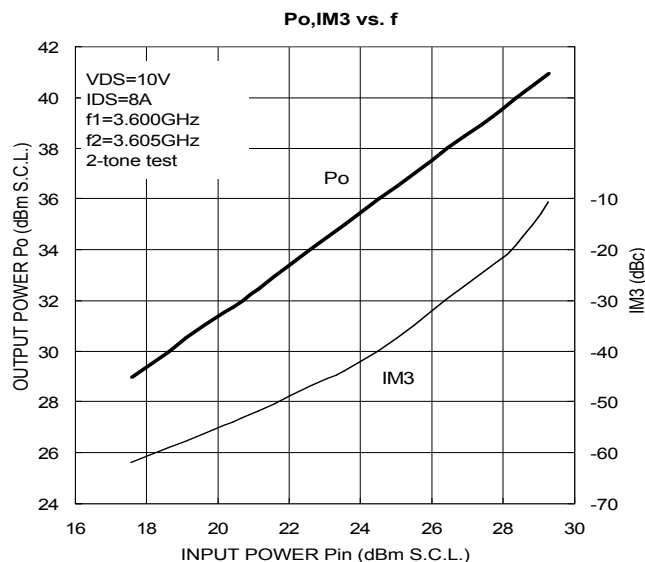
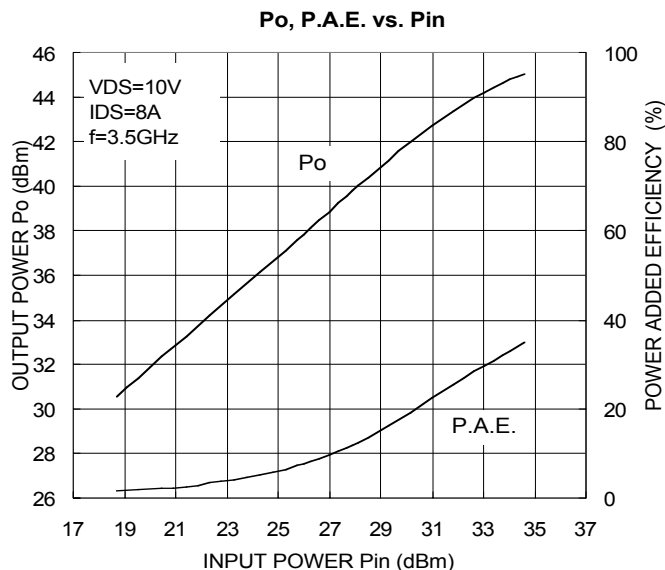
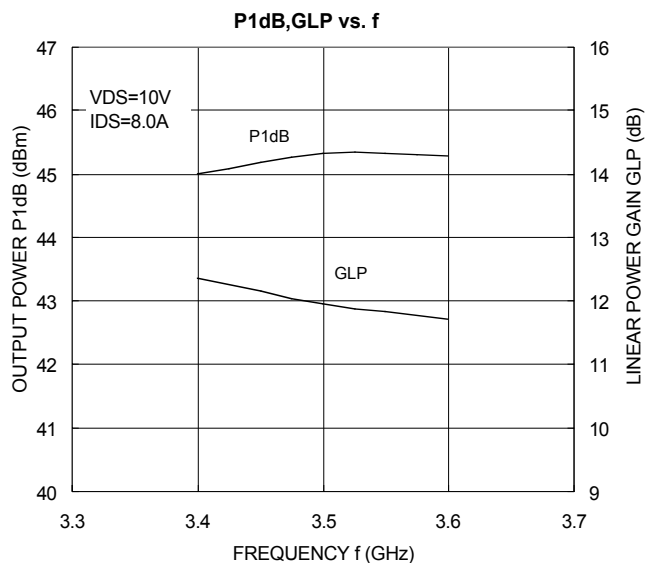
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MGFC45V3436A

3.4 - 3.6GHz BAND 32W INTERNALLY MATCHED GaAs FET

TYPICAL CHARACTERISTICS



S parameters

(Ta=25deg.C , VDS=10(V), IDS=8(A))

f (GHz)	S-Parameter (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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