

MGFC45V4450A

4.4 - 5.0GHz BAND 32W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC45V4450A is an internally impedance-matched GaAs power FET especially designed for use in 4.4 - 5.0 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
P_{1dB} = 32W (TYP.) @ f=4.4 - 5.0 GHz
- High power gain
GLP = 10 dB (TYP.) @ f=4.4 - 5.0GHz
- High power added efficiency
P.A.E. = 34 % (TYP.) @ f=4.4 - 5.0GHz
- Low distortion [item -51]
IM₃=-45dBc(TYP.) @ P_o=34.5dBm S.C.L.

APPLICATION

- item 01 : 4.4 - 5.0 GHz band power amplifier
- item 51 : 4.4 - 5.0 GHz band digital radio communication

QUALITY GRADE

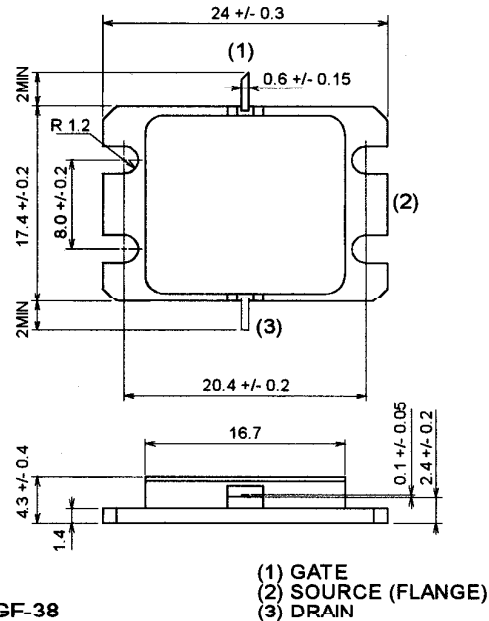
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RECOMMENDED BIAS CONDITIONS

- V_{DS} = 10 (V)
- I_D = 8 (A)
- R_G=25 (ohm)

OUTLINE DRAWING

Unit : millimeters



GF-38

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	V _{DS} = 3V , V _{GS} = 0V	-	24	-	A
gm	Transconductance	V _{DS} = 3V , I _D = 8A	-	8	-	S
VGS(off)	Gate to source cut-off voltage	V _{DS} = 3V , I _D = 160mA	-2	-	-5	V
P _{1dB}	Output power at 1dB gain compression	V _{DS} =10V, I _D (RF off)=8A, f=4.4 - 5.0GHz	44	45	-	dBm
GLP	Linear power gain		9	10	-	dB
ID	Drain current		-	8	-	A
P.A.E.	Power added efficiency		-	34	-	%
IM ₃ *2	3rd order IM distortion		-42	-45	-	dBc
R _{th(ch-c)} *3	Thermal resistance	delta Vf method	-	0.8	1	deg.C/W

*2 : item -51, 2 tone test, P_o=34.5dBm Single Carrier Level, f=4.4, 3.5, 5.0GHz, delta f=10MHz

*3 : Channel-case



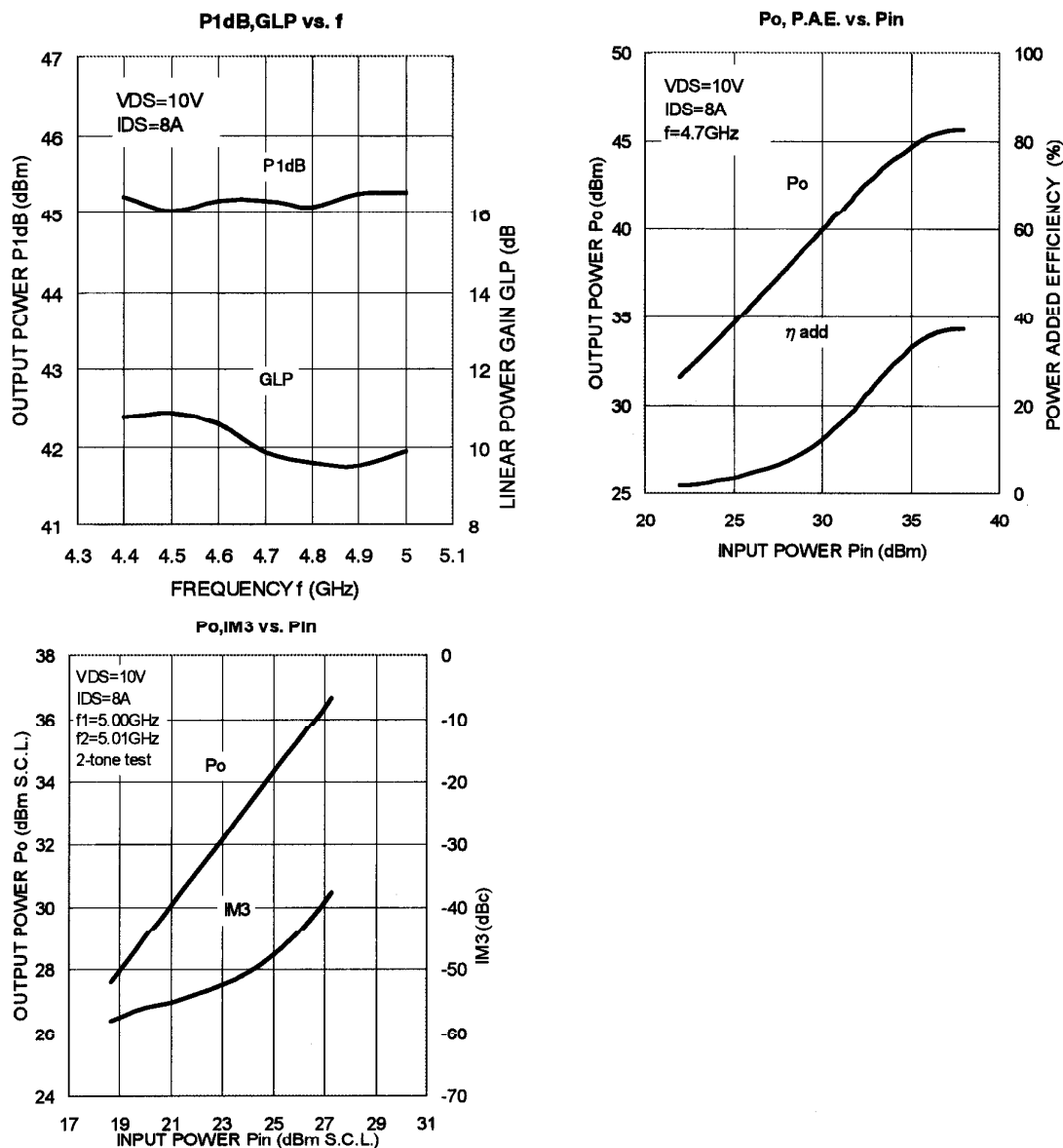
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May. 2003

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TYPICAL CHARACTERISTICS



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

f (GHz)	S-Parameter (TYP.)							
	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
4.4	0.58	-132	0.04	2	2.881	54	0.30	-56
4.5	0.59	-163	0.04	-21	2.936	31	0.23	-82
4.6	0.58	171	0.05	-52	2.865	8	0.16	-125
4.7	0.59	151	0.05	-67	2.782	-12	0.18	-170
4.8	0.56	134	0.05	-94	2.670	-32	0.24	160
4.9	0.54	120	0.05	-112	2.628	-51	0.32	138
5.0	0.50	111	0.06	-129	2.528	-70	0.38	125

MGFC45V4450A**4.4 ~ 5.0GHz BAND 32W INTERNALLY MATCHED GaAs FET****Requests Regarding Safety Designs**

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