

< C band internally matched power GaAs FET >

MGFC44V4450

4.4 – 5.0 GHz BAND / 25W

DESCRIPTION

The MGFC44V4450 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

Internally matched to 50(ohm) system

- High output power
P1dB=25W (TYP.) @f=4.4 – 5.0GHz
- High power gain
GLP=10.0dB (TYP.) @f=4.4 – 5.0GHz
- High power added efficiency
P.A.E.=35% (TYP.) @f=4.4 – 5.0GHz
- Low distortion [item -51]
IM3=-45dBc (TYP.) @Po=33.5dBm S.C.L

APPLICATION

- item 01 : 4.4 – 5.0 GHz band power amplifier

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=6.4A • RG=25ohm Refer to Bias Procedure

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

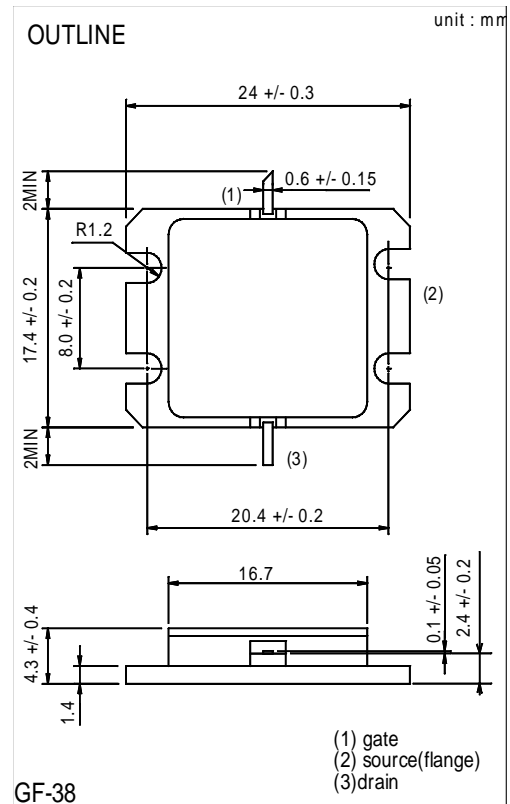
*1 : Tc=25°C

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	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=4.4 – 5.0GHz	10	11	-	dB
P.A.E.	Power added efficiency		-	35	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	-	1.6	°C/W

*2 : item -51 , 2 tone test, Po=33.5dBm Single Carrier Level , f=5.0GHz, delta f=10MHz

*3 : Channel-case



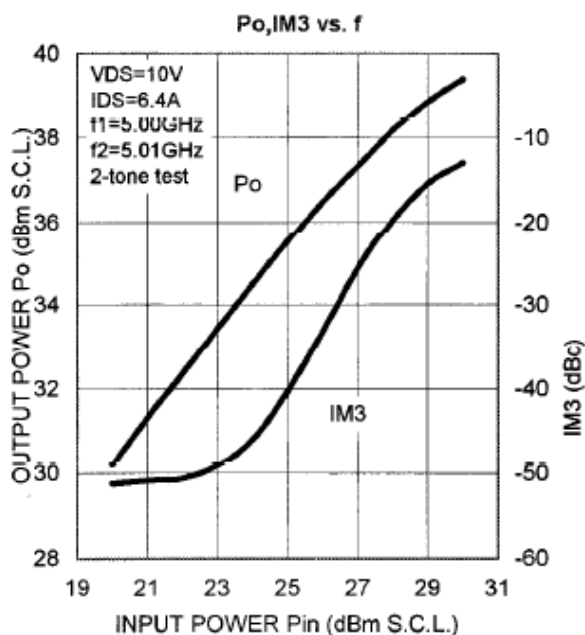
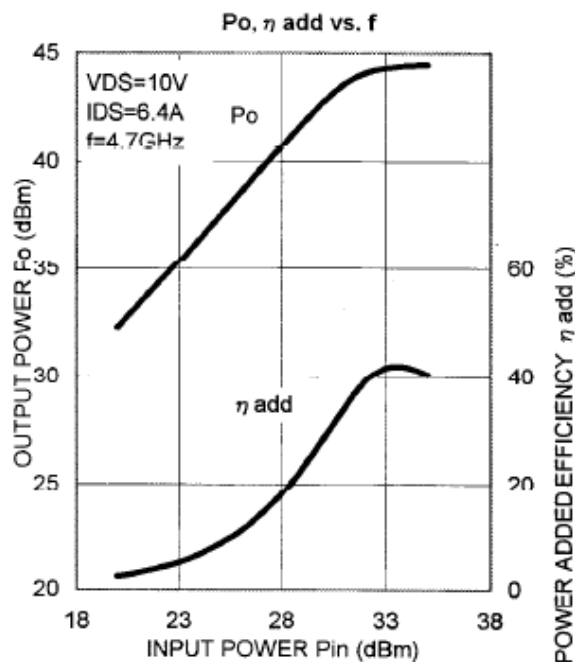
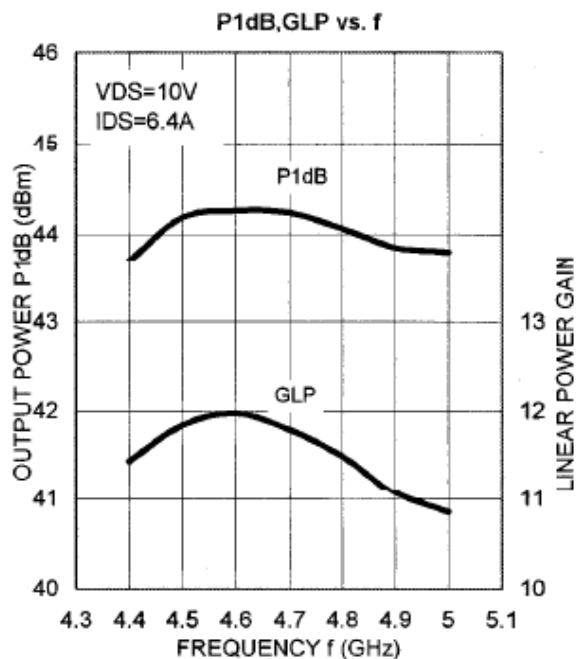
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MGFC44V4450 TYPICAL CHARACTERISTICS(Ta=25deg.C)



MGFC44V4450 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.)
4.4	0.45	-147	3.55	38	0.033	-20	0.33	-56
4.5	0.40	179	3.69	13	0.047	-46	0.26	-85
4.6	0.37	147	3.74	-11	0.046	-72	0.23	-117
4.7	0.31	116	3.70	-34	0.053	-100	0.23	-152
4.8	0.26	79	3.66	-57	0.064	-121	0.23	-179
4.9	0.18	30	3.55	-81	0.070	-143	0.24	157
5.0	0.20	-32	3.40	-105	0.072	-164	0.21	140

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