

MGFC44V4450

4.4 ~ 5.0GHz BAND 24W INTERNALLY MATCHED GaAs FET

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 50Ω system
- High output power
P1dB = 25W (TYP.) @ f=4.4 ~ 5.0 GHz
- High power gain
GLP = 10.0 dB (TYP.) @ f=4.4 ~ 5.0 GHz
- High power added efficiency
η_{add} = 35 % (TYP.) @ f=4.4 ~ 5.0 GHz
- Low Distortion[Item-51]
IM3=-45 dBc(TYP.)@P_o-33.5dBm S.C.L.

APPLICATION

4.4 ~ 5.0GHz band amplifiers

QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

- V_{DS} = 10V
- I_D = 6.4 A
- R_g=25(Ω) Refer to Bias Procedure

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Ratings	Unit
V _{GDO}	Gate to drain voltage	-15	V
V _{GSO}	Gate to source voltage	-15	V
I _D	Drain current	20	A
I _{GR}	Reverse gate current	-60	mA
I _{GF}	Forward gate current	126	mA
P _T	Total power dissipation *1	93	W
T _{ch}	Channel temperature	175	°C
T _{stg}	Storage temperature	-65 ~ +175	°C

*1 : T_c=25°C

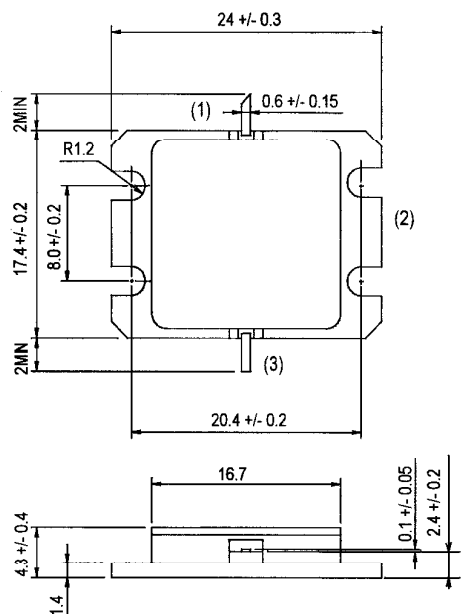
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I _{DSS}	Saturated drain current	V _{DS} = 3V , V _{GS} = 0V	-	18	-	A
G _m	Transconductance	V _{DS} = 3V , I _D = 6.4A	-	6.5	-	S
V _{GS(off)}	Gate to source cut-off volt.	V _{DS} = 3V , I _D = 120mA	-2	-	-5	V
P _{1dB}	Output power at 1dB gain compression	V _{DS} = 10V , I _D = 6.4A , f = 4.4 ~ 5.0 GHz	43	44	-	dBm
G _{LP}	Linear power gain		10	11	-	dB
η _{add}	Power added efficiency		-	35	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
R _{th(ch-c)}	Thermal resistance *1		ΔVf method	-	-	1.6

*1 : Channel to case

*2 : Item-51, 2tone test, P_o=33.5dBm Single Carrier Level, f=5.0GHz, Δf=10MHz

OUTLINE DRAWING Unit:millimeters



GF-38

- (1) GATE
- (2) SOURCE(FIANGE)
- (3) DRAIN

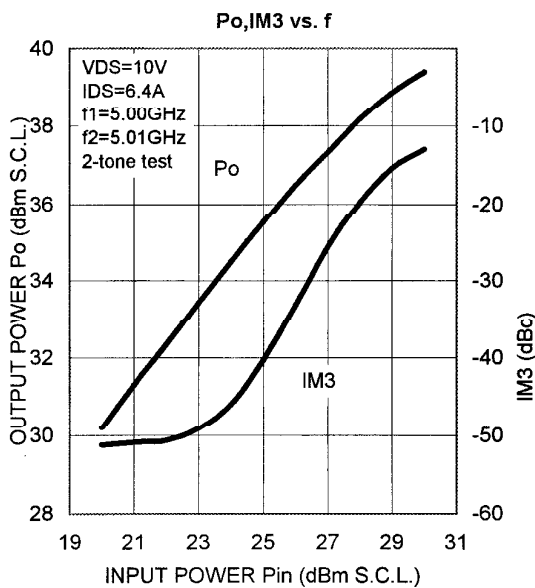
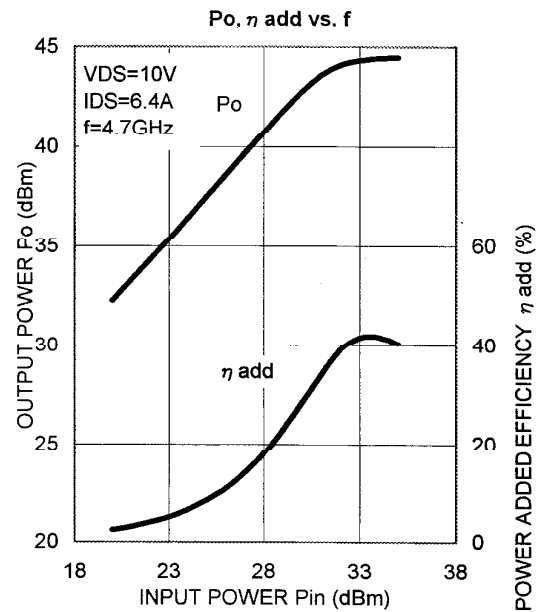
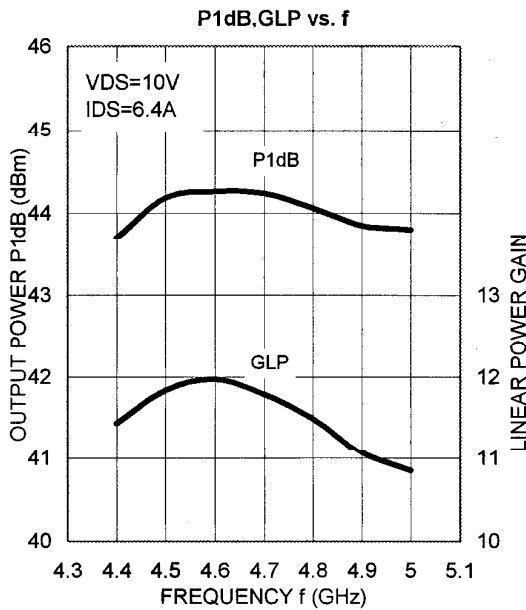
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TYPICAL CHARACTERISTICS (Ta=25°C)



S PARAMETERS (Ta=25°C, VDS=10V, IDS=6.4A)

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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