

MGFC44V4450

4.4 ~ 5.0GHz BAND 24W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC44V4440 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 $50\ \Omega$ 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

 $\eta_{\text{add}} = 35 \% \text{ (TYP.) @ } f = 4.4 \sim 5.0 \text{ GHz}$

Low Distortion[Item-51]

IM3=-45 dBc(TYP.)@PU-33.5dBm S.C.L.

APPLICATION

4.4 ~ 5.0GHz band amplifiers

QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

$$V_{DS} = 10V$$

ID = 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

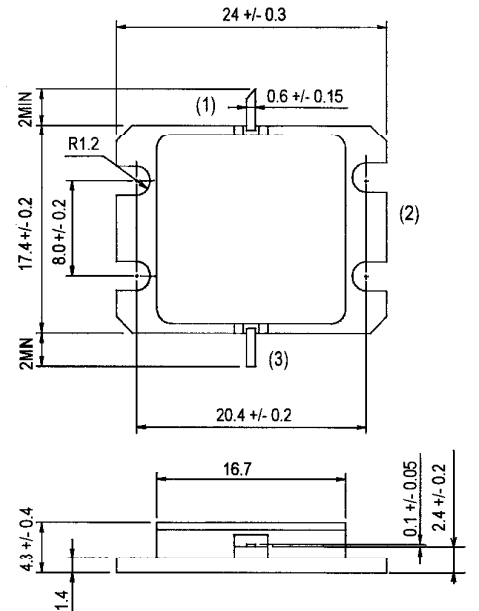
ABSOLUTE MAXIMUM RATINGS

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	$V_{DS} = 10V, I_D = 6.4A, f = 4.4 \sim 5.0 GHz$	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	ΔV_f method	-	-	1.6	°C/W

*1 : Channel to case

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

OUTLINE DRAWING Unit:millimeters



GF-38

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

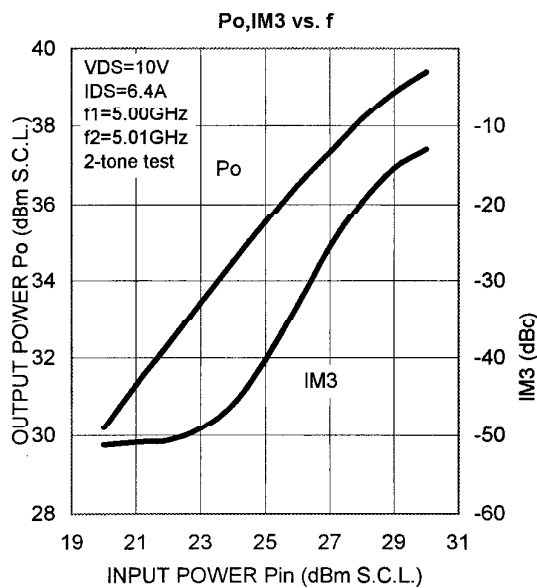
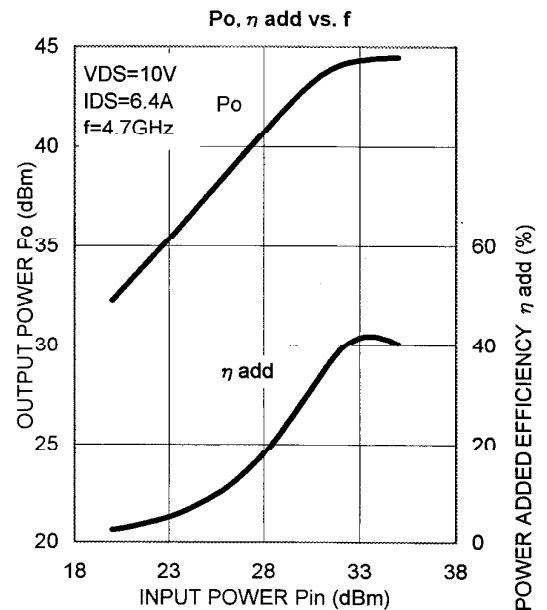
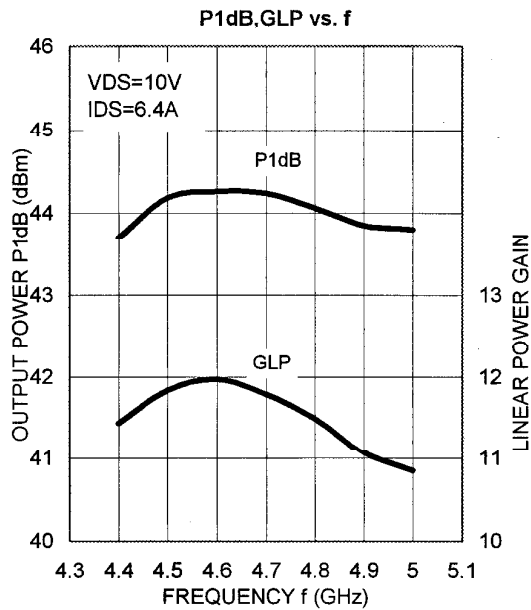
< Keep safety first in your circuit designs! >

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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

MGFC44V4450**4.4 ~ 5.0GHz BAND 24W INTERNALLY MATCHED GaAs FET****Requests Regarding Safety Designs**

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