

< C band internally matched power GaAs FET >

# MGFC45V4450A

4.4 – 5.0 GHz BAND / 32W

## 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  
P1dB=32W (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.=34% (TYP.) @f=4.4 – 5.0GHz
- Low distortion [item -51]  
IM3=-45dBc (TYP.) @Po=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

- IG

## RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=8.0A • RG=25ohm

## 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	-80	mA
IGF	Forward gate current	168	mA
PT *1	Total power dissipation	150	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

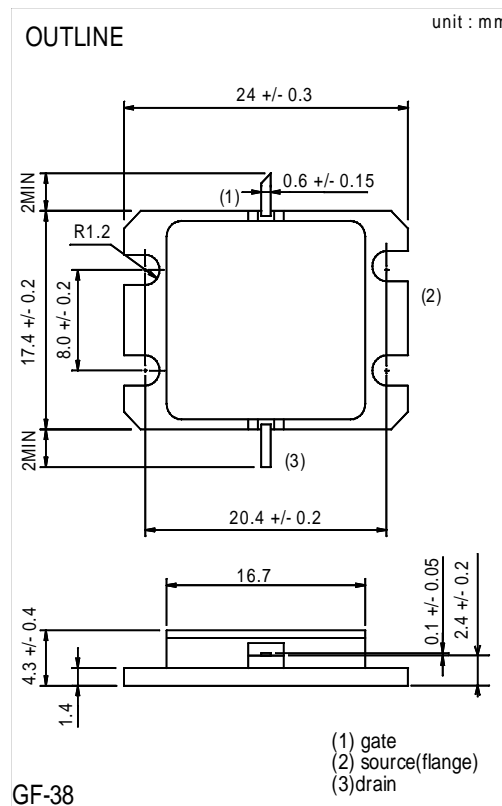
\*1 : Tc=25°C

## Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	24	-	A
gm	Transconductance	VDS=3V, ID=8.0A	-	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)=8.0A 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	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	0.8	1	°C/W

\*2 : item -51 , 2 tone test, Po=34.5dBm Single Carrier Level , f=4.4, 4.7, 5.0GHz, delta f=10MHz

\*3 : Channel-case

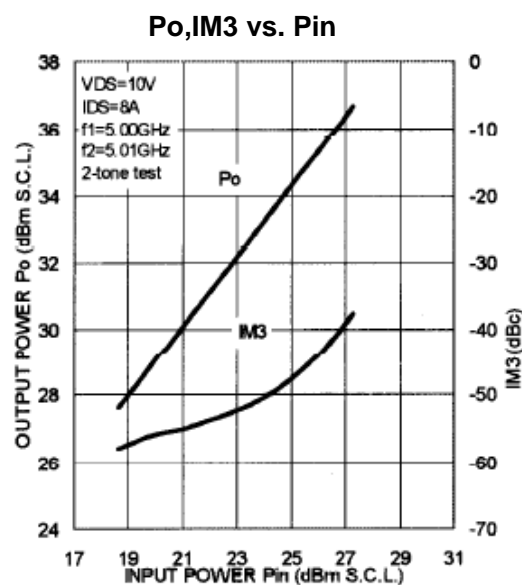
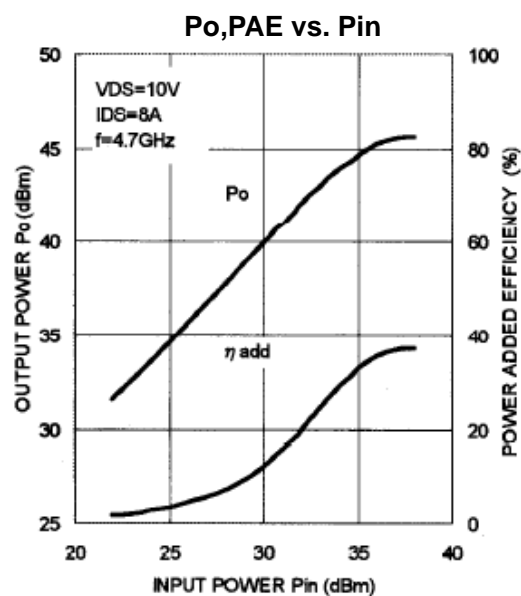
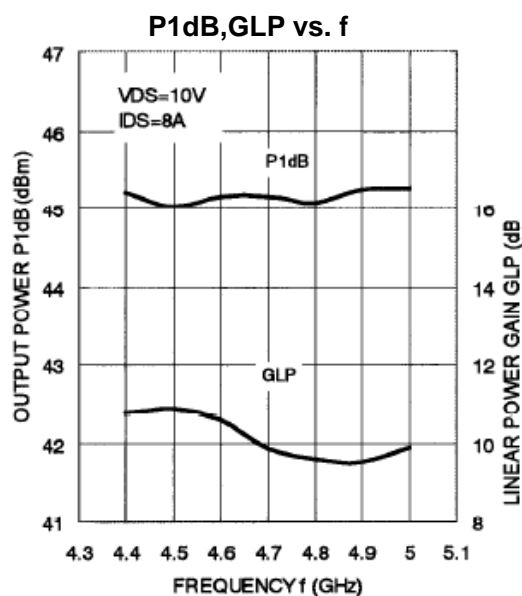


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4.4 – 5.0 GHz BAND / 32W

**MGFC45V4450A TYPICAL CHARACTERISTICS**( Ta=25deg.C )**MGFC45V4450A S-parameters**( Ta=25deg.C , VDS=10(V), IDS=8.0(A) )

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
4.4	0.58	-132	2.881	54	0.04	2	0.30	-56
4.5	0.59	-163	2.936	31	0.04	-21	0.23	-82
4.6	0.58	171	2.865	8	0.05	-52	0.16	-125
4.7	0.59	151	2.782	-12	0.05	-67	0.18	-170
4.8	0.56	134	2.670	-32	0.05	-94	0.24	160
4.9	0.54	120	2.628	-51	0.05	-112	0.32	138
5.0	0.50	111	2.528	-70	0.06	-129	0.38	125

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