MGFC42V6472A

6.4 - 7.2GHz BAND 16W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFC42V6472A is an internally impedance matched GaAs power FET especially designed for use in 6.4 - 7.2 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

Internally matched to 50 ohm system
High output power
P1dB = 16W (TYP.) @ f=6.4 - 7.2 GHz
High power gain
GLP =8.0 dB (TYP.) @ f=6.4 - 7.2 GHz
High power added efficiency
P.A.E. = 31 % (TYP.) @ f=6.4 - 7.2 GHz
Low Distortion[Item-51]
IM3=-45 dBc(TYP.)@Po=31.0dBm S.C.L.

APPLICATION

item 01 : 6.4 - 7.2 GHz band power amplifier
item 51 : 6.4 - 7.2 GHz band digital radio communication

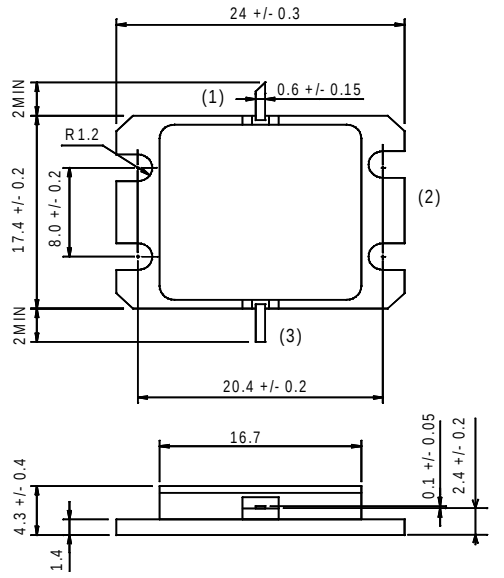
QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

V_{DS} = 10 (V)
ID = 4.5 (A)
Rg=25 (ohm) Refer to Bias Procedure

OUTLINE DRAWING Unit:millimeters (inches)



GF-38

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

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	15	A
IGR	Reverse gate current	-40	mA
IGF	Forward gate current	84	mA
PT	Total power dissipation	93.7	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

*1 : Tc=25 Deg.C

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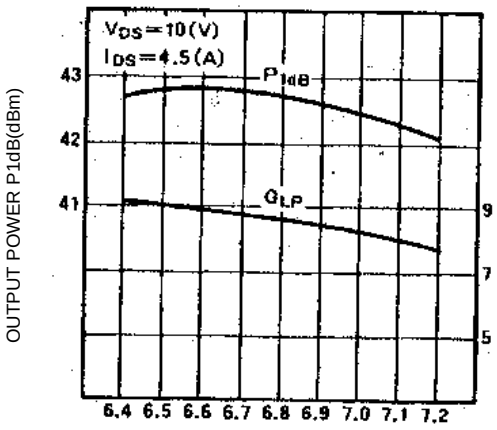
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
IDSS	Saturated drain current	VDS = 3V , VGS = 0V	-	9	12	A
Gm	Transconductance	VDS = 3V , ID = 4.4A	-	4	-	S
VGS(off)	Gate to source cut-off voltage	VDS = 3V , ID = 80mA	-2	-3	-4	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=4.5A, f=6.4-7.2GHz	41.5	42.5	-	dBm
GLP	Linear power gain		7	8	-	dB
ID	Drain current		-	4.5	-	A
PAE	Power added efficiency		-	31	-	%
IM3	3rd order IM distortion *1		-42	-45	-	dBc
Rth(ch-c)	Thermal resistance *2	Delta Vf method	-	-	1.6	Deg.C/W

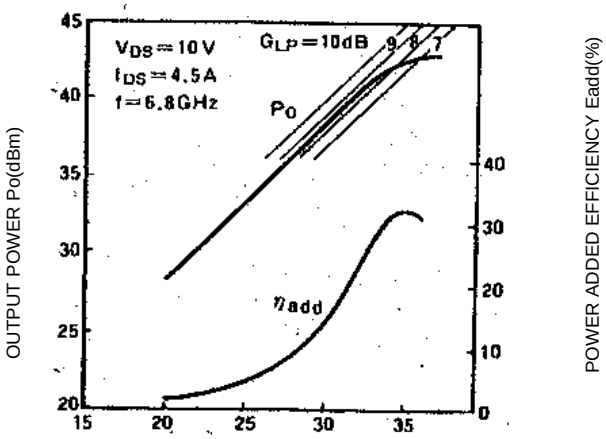
*1 : item -51,2 tone test,Po=31.0dBm Single Carrier Level,f=7.2GHz,Delta f=10MHz *2 : Channel-case

TYPICAL CHARACTERISTICS (Ta=25 Deg.C)

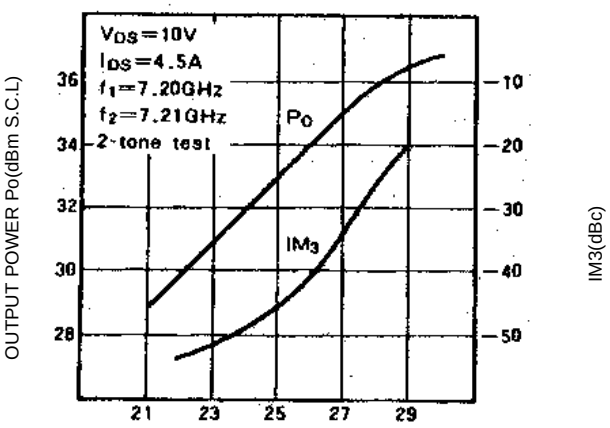
P1dB,Glp VS. f



Po,Eadd VS. Pin



Po,IM3 VS. Pin



S PARAMETERS (Ta=25 Deg.C , V_{DS}=10V , I_{DS}=4.5A)

f	S Parameters (TYP.)							
	S_{11}		S_{21}		S_{12}		S_{22}	
(GHz)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
6.40	0.35	57	2.98	-113	0.078	-159	0.29	113
6.50	0.29	36	2.95	-132	0.080	-176	0.36	97
6.60	0.22	22	2.87	-149	0.082	167	0.41	83
6.70	0.16	7	2.80	-166	0.082	153	0.46	70
6.80	0.09	-7	2.73	177	0.080	136	0.50	61
6.90	0.01	-43	2.63	162	0.078	123	0.52	54
7.00	0.08	144	2.54	145	0.080	105	0.53	47
7.10	0.14	134	2.46	135	0.074	92	0.52	41
7.20	0.24	121	2.37	119	0.072	85	0.51	34

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