

< C band internally matched power GaAs FET >

MGFC42V6472

6.4 – 7.2 GHz BAND / 16W

DESCRIPTION

The MGFC42V6472 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

Class A operation

Internally matched to 50(ohm) system

- High output power
P1dB=18W (TYP.) @f=6.4 – 7.2GHz
- High power gain
GLP=8dB (TYP.) @f=6.4 – 7.2GHz
- High power added efficiency
P.A.E.=30% (TYP.) @f=6.4 – 7.2GHz
- Low distortion [item -51]
IM3=-45dBc (TYP.) @Po=31dBm 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

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=4.5A • 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	12	A
IGR	Reverse gate current	-40	mA
IGF	Forward gate current	84	mA
PT *1	Total power dissipation	78.9	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

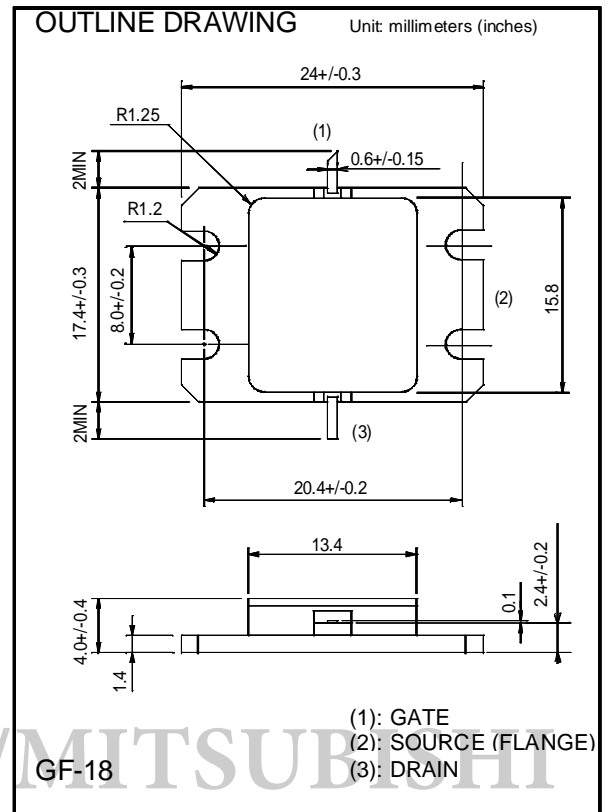
*1 : Tc=25°C

Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	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
P.A.E.	Power added efficiency		-	30	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance		delta Vf method	-	-	1.9

*2 : item -51 , 2 tone test, Po=31dBm Single Carrier Level , f=7.2GHz, delta f=10MHz

*3 : Channel-case



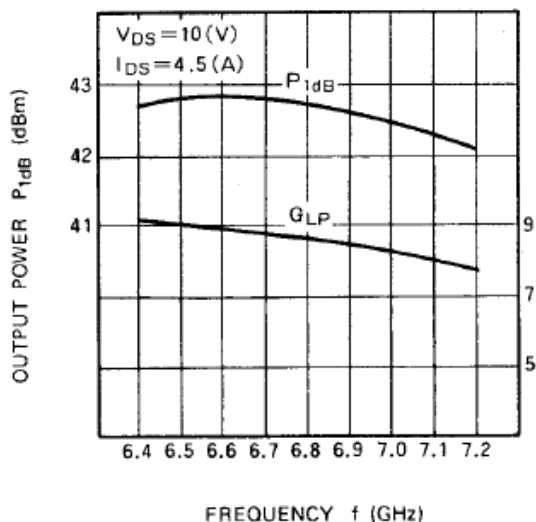
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MGFC42V6472

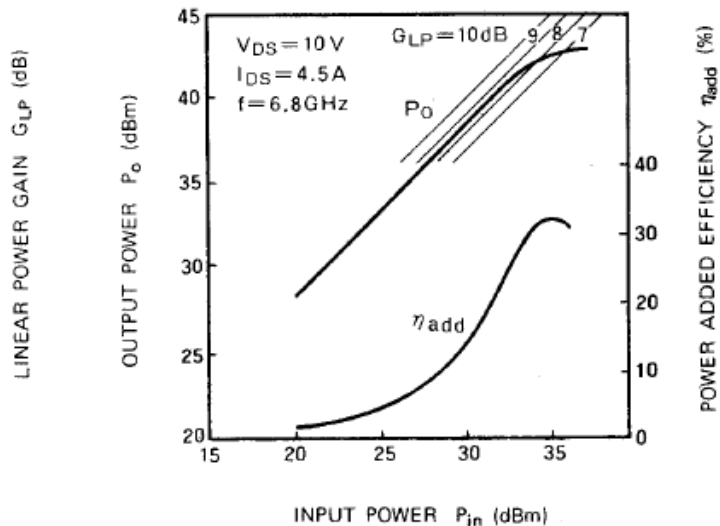
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MGFC42V6472 TYPICAL CHARACTERISTICS (Ta=25deg.C)

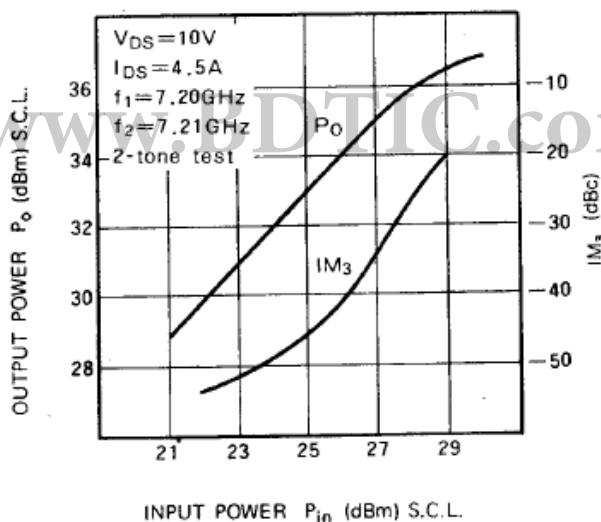
P1dB, GLP vs. f



Po, PAE vs. Pin



Po, IM3 vs. Pin



MGFC42V6472 S-parameters (Ta=25deg.C, VDS=10(V), IDS=4.5(A))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
6.4	0.41	77	2.83	-95	0.068	-147	0.30	67
6.5	0.40	59	2.80	-111	0.072	-162	0.35	59
6.6	0.38	42	2.78	-127	0.075	-177	0.40	54
6.7	0.36	26	2.72	-143	0.078	167	0.42	48
6.8	0.33	11	2.64	-158	0.080	151	0.44	42
6.9	0.28	-3	2.60	-173	0.081	137	0.45	36
7.0	0.22	-20	2.57	171	0.082	122	0.44	32
7.1	0.17	-46	2.53	157	0.084	108	0.43	28
7.2	0.14	-91	2.50	141	0.086	93	0.40	26

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