

< C band internally matched power GaAs FET >

MGFC36V3742A

3.7 – 4.2 GHz BAND / 4W

DESCRIPTION

The MGFC36V3742A is an internally impedance-matched GaAs power FET especially designed for use in 3.7 – 4.2 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=4W (TYP.) @f=3.7 – 4.2GHz
- High power gain
GLP=12.5dB (TYP.) @f=3.7 – 4.2GHz
- High power added efficiency
P.A.E.=33% (TYP.) @f=3.7 – 4.2GHz
- Low distortion [item -51]
IM3=-45dBc (TYP.) @Po=25dBm S.C.L.

APPLICATION

- item 01 : 3.7 – 4.2 GHz band power amplifier
- item 51 : 3.7 – 4.2 GHz band digital radio communication

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=1.2A • RG=100ohm 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	3.75	A
IGR	Reverse gate current	-10	mA
IGF	Forward gate current	21	mA
PT *1	Total power dissipation	25	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

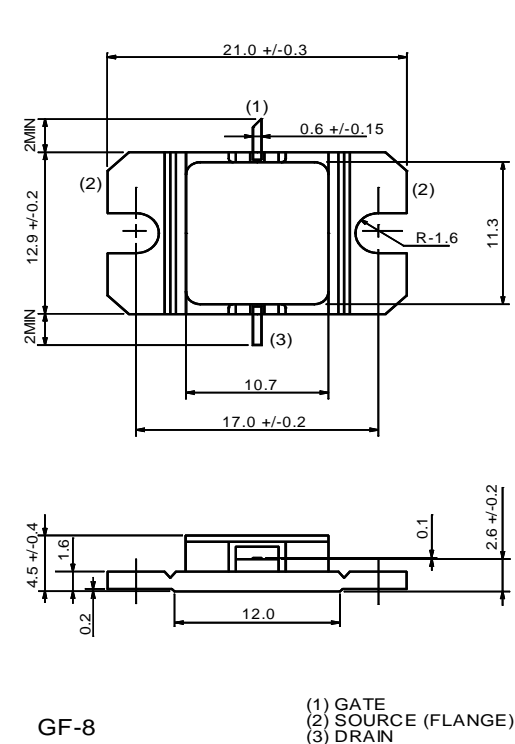
Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	-	3.75	A
gm	Transconductance	VDS=3V, ID=1.1A	-	1	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=10mA	-	-	-4.5	V
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=1.2A	35	37	-	dBm
GLP	Linear Power Gain	f=3.7 – 4.2GHz	10	12.5	-	dB
ID	Drain current		-	-	1.8	A
P.A.E.	Power added efficiency		-	33	-	%
IM3 *2	3 rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance		-	5	6	°C/W

*2 : Item -51, 2 tone test, Po=25dBm Single Carrier Level, f=4.2GHz, Delta f=10MHz

*3 : Channel-case

OUTLINE DRAWING Unit : millimeters



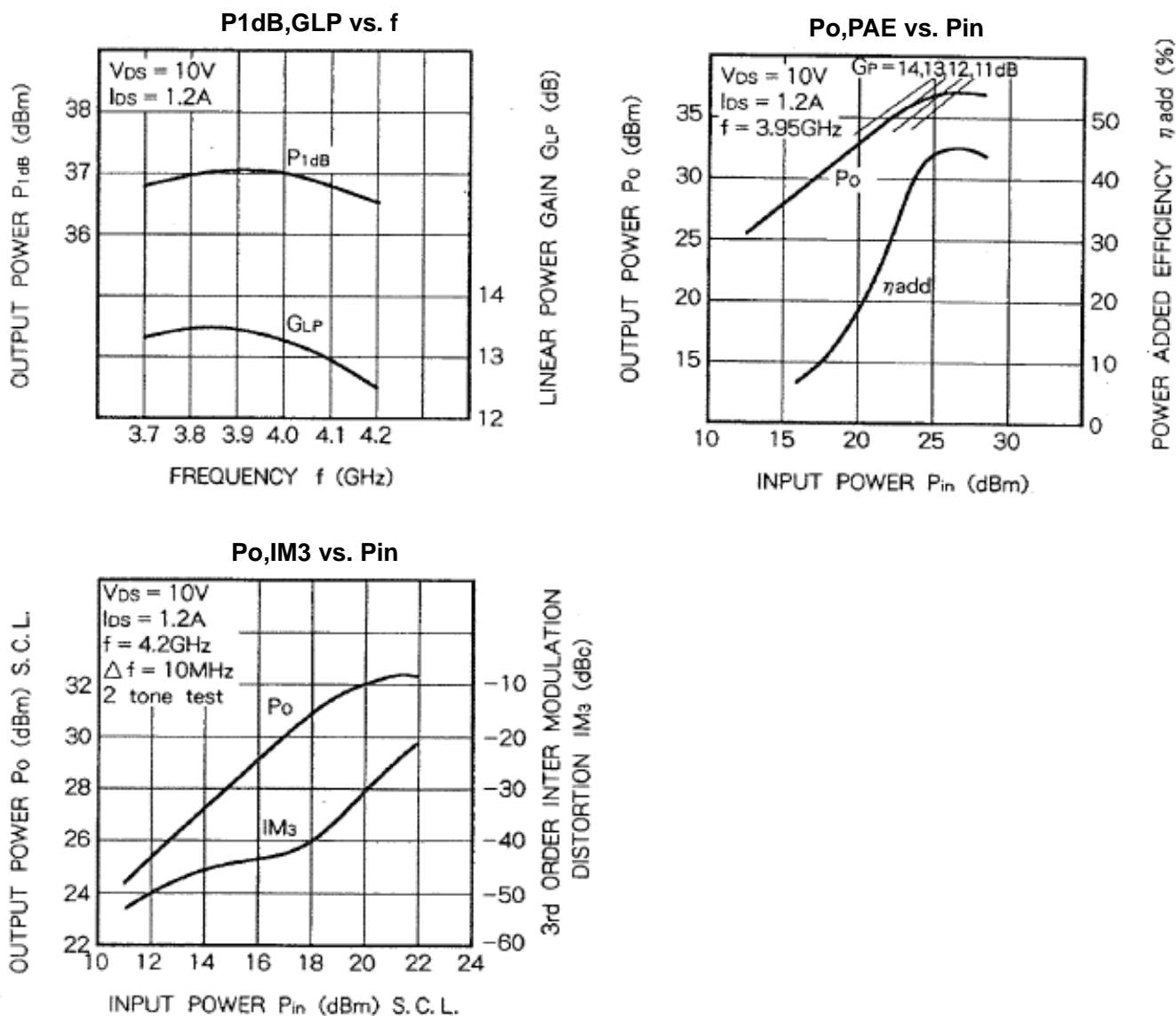
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MGFC36V3742A TYPICAL CHARACTERISTICS (Ta=25deg.C)



MGFC36V3742A S-parameters (Ta=25deg.C , VDS=10(V),IDS=1.2(A))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
3.7	0.43	-140	4.63	46	0.068	-14	0.16	-116
3.8	0.42	-172	4.69	25	0.067	-32	0.12	-147
3.9	0.40	162	4.69	5	0.071	-50	0.10	170
4.0	0.35	142	4.60	-12	0.071	-70	0.09	134
4.1	0.30	126	4.44	-28	0.071	-87	0.08	111
4.2	0.32	111	4.23	-45	0.070	-104	0.07	95

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