

< C band internally matched power GaAs FET >

MGFC36V7177A

7.1 – 7.7 GHz BAND / 4W

DESCRIPTION

The MGFC36V7177A is an internally impedance-matched GaAs power FET especially designed for use in 7.1 – 7.7 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=7.1 – 7.7GHz
- High power gain
GLP=9.0dB (TYP.) @f=7.1 – 7.7GHz
- High power added efficiency
P.A.E.=30% (TYP.) @f=7.1 – 7.7GHz
- Low distortion [item -51]
IM3=-45dBc (TYP.) @Po=25dBm S.C.L.

APPLICATION

- item 01 : 7.1 – 7.7 GHz band power amplifier
- item 51 : 7.1 – 7.7 GHz band digital radio communication

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=1.2A Refer to Bias Procedure • RG=100ohm

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

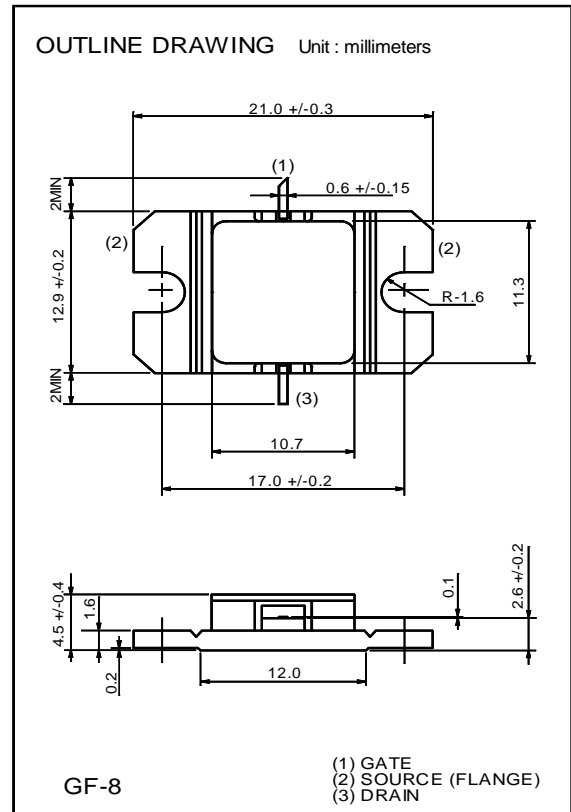
*1 : Tc=25°C

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 f=7.1 – 7.7GHz	35	36.5	-	dBm
GLP	Linear Power Gain		8	9	-	dB
ID	Drain current		-	-	1.8	A
P.A.E.	Power added efficiency		-	30	-	%
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=7.7GHz, Delta f=10MHz

*3 : Channel-case



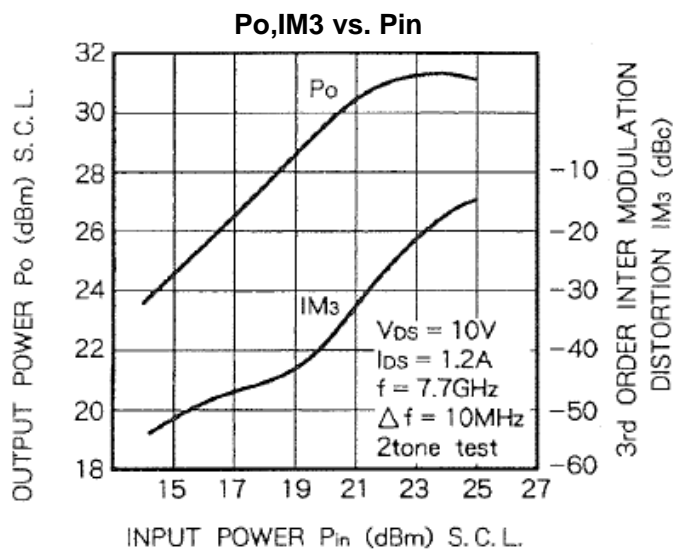
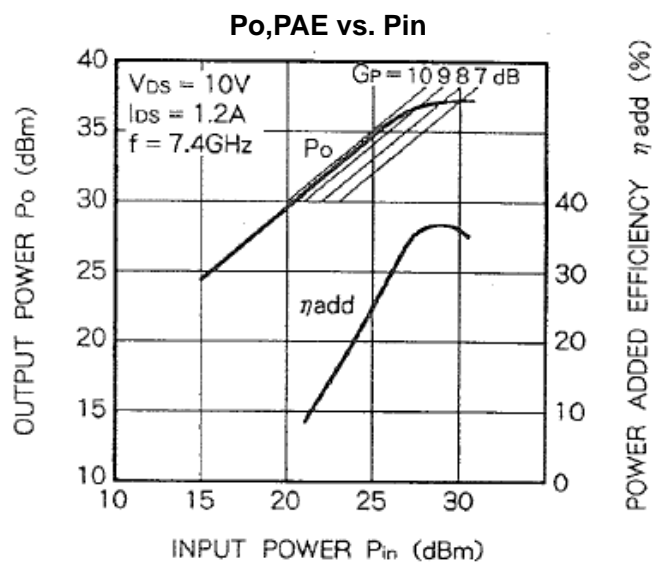
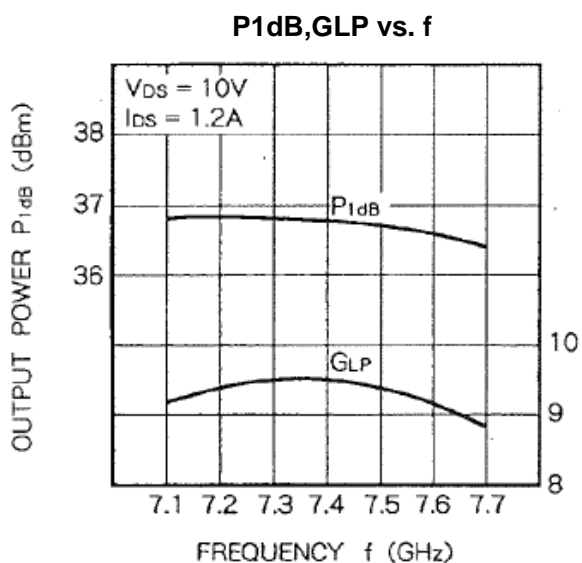
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MGFC36V7177A TYPICAL CHARACTERISTICS (Ta=25deg.C)



MGFC36V7177A 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.)
7.1	0.41	172	2.85	-109	0.077	-157	0.25	15
7.2	0.35	160	2.92	-124	0.082	-171	0.24	0
7.3	0.29	148	2.97	-139	0.087	174	0.23	-18
7.4	0.22	134	2.98	-154	0.091	160	0.21	-39
7.5	0.14	123	2.93	-169	0.096	144	0.20	-65
7.6	0.10	132	2.88	174	0.098	129	0.19	-93
7.7	0.18	130	2.79	158	0.099	113	0.21	-121

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