

# MGFC41V7177

## 7.1 - 7.7GHz BAND 12W INTERNALLY MATCHED GaAs FET

### DESCRIPTION

The MGFC41V7177 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

- Internally matched to 50ohm system
- High output power  
P1dB = 12W (TIP.) @ f=7.1 - 7.7 Hz
- High power gain  
GLP = 9.5 dB (TYP.) @ f=7.1 - 7.7 GHz
- High power added efficiency  
Eadd = 33 % (TYP.) @ f=7.1 - 7.7 GHz
- Low Distortion[Item-51]  
IM3=-45 dBc(TYP.)@Po=30dBm S.C.L.

### APPLICATION

7.1 - 7.7GHz band amplifiers

### QUALITY GRADE

IG

### RECOMMENDED BIAS CONDITIONS

- VDS = 10V
- ID = 3.4 A
- Rg = 50(ohm) Refer to Bias Procedure

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Ratings	Unit
V <sub>GDO</sub>	Gate to drain voltage	-15	V
V <sub>GSO</sub>	Gate to source voltage	-15	V
I <sub>D</sub>	Drain current	12	A
I <sub>GR</sub>	Reverse gate current	-30	mA
I <sub>GF</sub>	Forward gate current	63	mA
P <sub>T</sub>	Total power dissipation *1	53.6	W
T <sub>ch</sub>	Channel temperature	175	DegreesC
T <sub>stg</sub>	Storage temperature	-65 to +175	DegreesC

\*1 : Tc=25 DegreesC

### ABSOLUTE MAXIMUM RATINGS

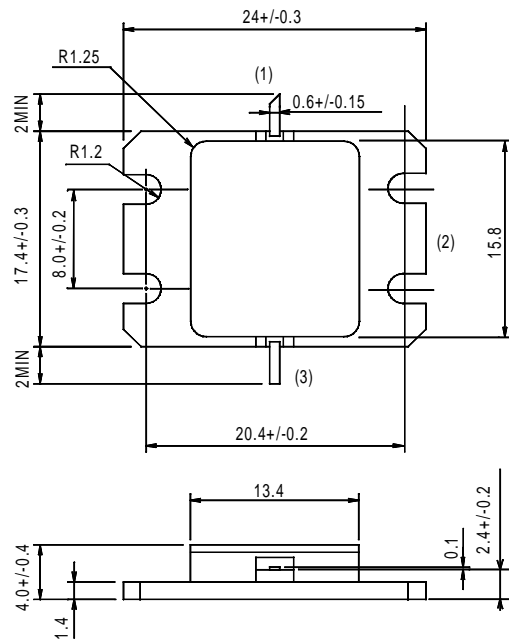
Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
IDSS	Saturated drain current	VDS = 3V , VGS = 0V	-	-	12	A
gm	Transconductance	VDS = 3V , ID = 3.0A	-	3	-	S
VGS(off)	Gate to source cut-off voltage	VDS = 3V , ID = 30mA	-	-	-5	V
P1dB	Output power at 1dB gain compression	VDS = 10V , ID = 3.4A , f = 7.1 - 7.7 GHz	40	41	-	dBm
GLP	Linear power gain		7	8	-	dB
Eadd	Power added efficiency		-	30	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c)	Thermal resistance *1		Delta Vf method	-	-	2.8

\*1 : Channel to case

\*2 : Item-51, 2tone test, Po=30dBm Single Carrier Level, f=7.7GHz, Delta f=10MHz

### OUTLINE DRAWING

Unit: millimeters (inches)



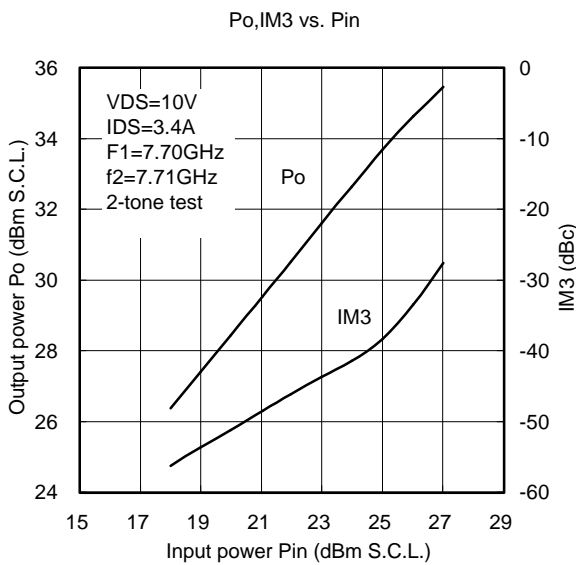
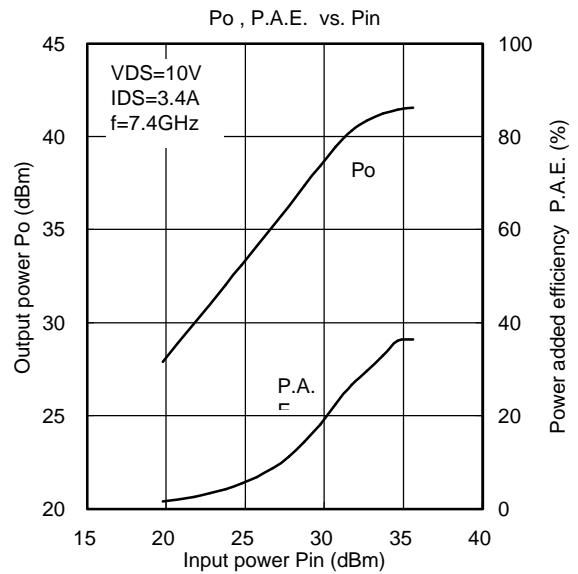
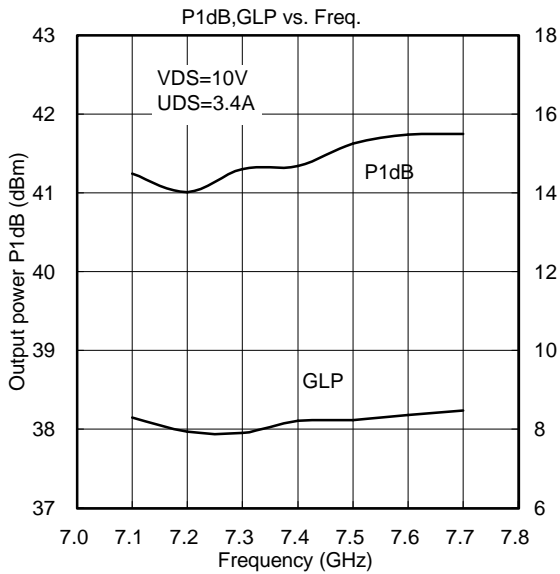
GF-18

- (1): GATE
- (2): SOURCE (FLANGE)
- (3): DRAIN

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### TYPICAL CHARACTERISTICS



### S parameters (Ta=25deg.C, VDS=10(V), IDS=3.4(A))

f (GHz)	S-Parameter (TYP.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)
7.10	0.510	66.000	2.600	-131.000	0.066	172.000	0.220	106.000
7.20	0.450	57.000	2.600	-146.000	0.073	160.000	0.220	89.000
7.30	0.380	48.000	2.640	-161.000	0.079	146.000	0.220	71.000
7.40	0.290	40.000	2.650	-177.000	0.085	133.000	0.210	53.000
7.50	0.180	34.000	2.670	167.000	0.092	118.000	0.180	38.000
7.60	0.060	59.000	2.640	149.000	0.094	103.000	0.130	20.000
7.70	0.130	146.000	2.570	131.000	0.097	86.000	0.070	-13.000

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