

< C band internally matched power GaAs FET >

# MGFC39V7785A

7.7 – 8.5 GHz BAND / 8W

## DESCRIPTION

The MGFC39V7785A is an internally impedance-matched GaAs power FET especially designed for use in 7.7 – 8.5 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=8W (TYP.) @f=7.7 – 8.5GHz
- High power gain  
GLP= 7.5dB (TYP.) @f=7.7 – 8.5GHz
- High power added efficiency  
P.A.E.=27% (TYP.) @f=7.7 – 8.5GHz
- Low distortion [item -51]  
IM3=-45dBc (TYP.) @Po=28dBm S.C.L

## APPLICATION

- item 01 : 7.7 – 8.5 GHz band power amplifier
- item 51 : 7.7 – 8.5 GHz band digital radio communication

## QUALITY

- IG

## RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=2.4A Refer to Bias Procedure • RG=50ohm

## 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	7.5	A
IGR	Reverse gate current	-20	mA
IGF	Forward gate current	42	mA
PT *1	Total power dissipation	42.8	W
Tch	Channel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

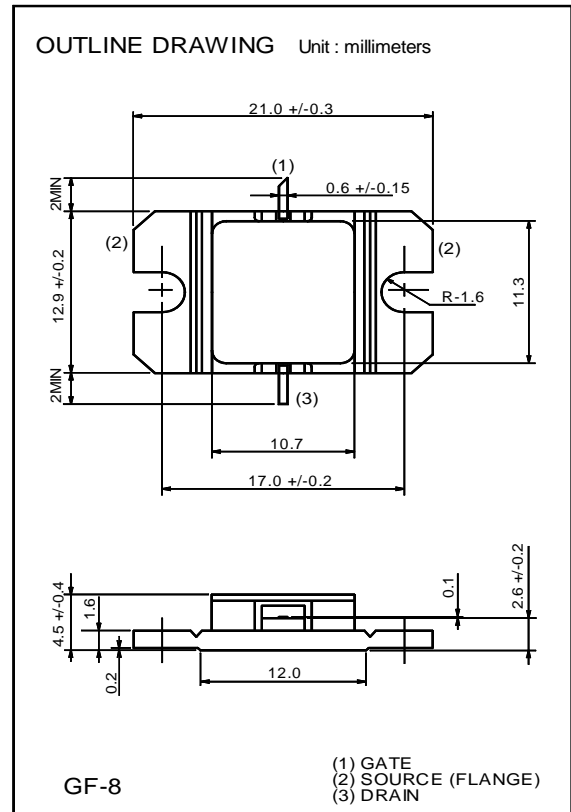
\*1 : Tc=25°C

## Electrical characteristics (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit	
			Min.	Typ.	Max.		
IDSS	Saturated drain current	VDS=3V, VGS=0V	-	-	7.5	A	
gm	Transconductance	VDS=3V, ID=2.2A	-	2	-	S	
VGS(off)	Gate to source cut-off voltage	VDS=3V, ID=20mA	-	-	-4.5	V	
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=2.4A f=7.7 – 8.5GHz	38	39.5	-	dBm	
GLP	Linear Power Gain		6	7.5	-	dB	
ID	Drain current		-	-	3	A	
P.A.E.	Power added efficiency		-	27	-	%	
IM3 *2	3rd order IM distortion		-42	-45	-	dBc	
Rth(ch-c) *3	Thermal resistance		delta Vf method	-	-	3.5	°C/W

\*2 : item -51 , 2 tone test, Po=28dBm Single Carrier Level , f=8.5GHz, delta f=10MHz

\*3 : Channel-case



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