

< C band internally matched power GaAs FET >

MGFC42V7785A

7.7 – 8.5 GHz BAND / 16W

DESCRIPTION

The MGFC42V7785A 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=16W (TYP.) @f=7.7 – 8.5GHz
- High power gain
GLP=7.0dB (TYP.) @f=7.7 – 8.5GHz
- High power added efficiency
P.A.E.=28% (TYP.) @f=7.7 – 8.5GHz
- Low distortion [item -51]
IM3=-45dBc (TYP.) @Po=32.0dBm S.C.L

APPLICATION

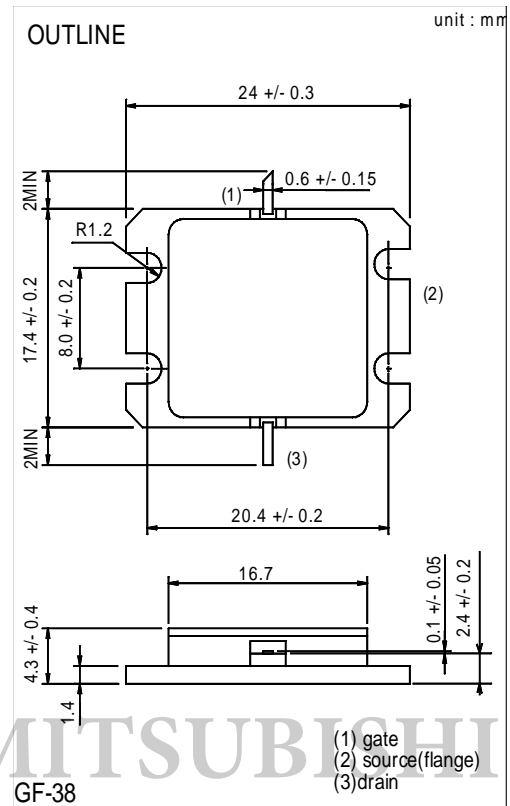
- item 01 : 7.7 – 8.5 GHz band power amplifier
- item 51 : 7.7 – 8.5 GHz band digital radio communication

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=4.5A Refer to Bias Procedure • RG=25ohm



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	15	A
IGR	Reverse gate current	-40	mA
IGF	Forward gate current	84	mA
PT *1	Total power dissipation	93.7	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	-	-4	V	
P1dB	Output power at 1dB gain compression	VDS=10V, ID(RF off)=4.5A f=7.7 – 8.5GHz	41	42	-	dBm	
GLP	Linear Power Gain		6	7	-	dB	
ID	Drain current		-	4	-	A	
P.A.E.	Power added efficiency		-	28	-	%	
IM3 *2	3rd order IM distortion		-42	-45	-	dBc	
Rth(ch-c) *3	Thermal resistance		delta Vf method	-	-	1.6	°C/W

*2 : item -51 , 2 tone test, Po=31.0dBm Single Carrier Level , f=8.5GHz, delta f=10MHz

*3 : Channel-case

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