MITSUBISHI ELECTRIC

< C band internally matched power GaAs FET >

MGFC39V5867

5.8 – 6.75 GHz BAND / 8W

DESCRIPTION

The MGFC39V5867 is an internally impedance-matched GaAs power FET especially designed for use in 5.8 – 6.75 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

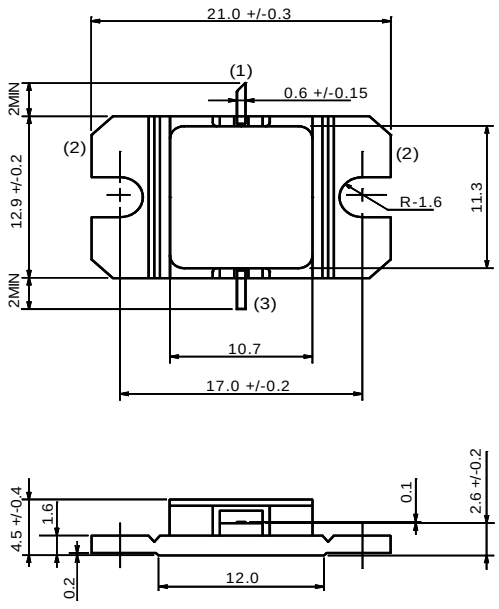
FEATURES

Class A operation
Internally matched to 50(ohm) system
- High output power
  P1dB=8W (TYP.) @f=5.8 – 6.75GHz
- High power gain
  GLP=9dB (TYP.) @f=5.8 – 6.75GHz

APPLICATION

- VSAT

OUTLINE DRAWING Unit : millimeters



GF-8

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

RECOMMENDED BIAS CONDITIONS

- VDS=10V - ID=2.4A - 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	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

*1 : Tc=25°C

Keep Safety first in your circuit designs!

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable , but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury , fire or property damage. Remember to give due consideration to safety when making your circuit designs , with appropriate measure such as (I) placement of substitutive , auxiliary circuits , (ii) use of non-flammable material or (iii) prevention against any malfunction or mishap.

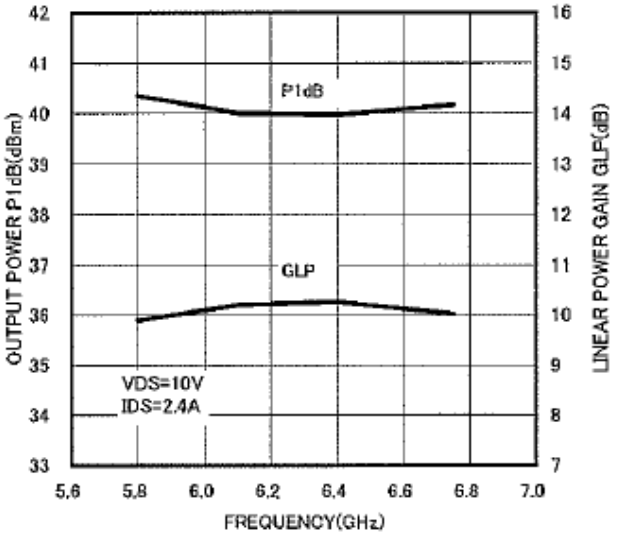
Electrical characteristics (Ta=25°C)

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	38	39	-	dBm
GLP	Linear Power Gain	f=5.8 – 6.75GHz	8	9	-	dB
ID	Drain current		-	-	3	A
P.A.E.	Power added efficiency		-	30	-	%
Rth(ch-c) *2	Thermal resistance	delta Vf method	-	-	3.5	°C/W

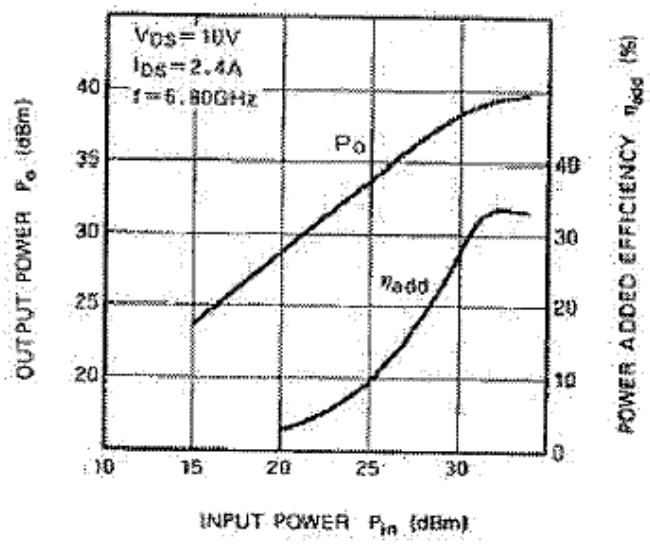
*2 :Channel-case

MGFC39V5867 TYPICAL CHARACTERISTICS(Ta=25deg.C)

P1dB,GLP vs. f



Po,PAE vs. Pin



MGFC39V5867 S-parameters(Ta=25deg.C , VDS=10(V),IDS=2.4(A))

f (GHz)	S Parameters(Typ.)							
	S11		S21		S12		S22	
	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)	Magn.	Angle(deg.)
5.8	0.669	-173	2.927	13	0.043	-28	0.188	-100
5.9	0.658	171	2.916	-1	0.050	-16	0.155	-130
6.0	0.645	156	2.937	-14	0.055	-69	0.148	-160
6.1	0.632	143	2.948	-28	0.055	-76	0.166	176
6.2	0.618	130	2.933	-42	0.058	-90	0.201	154
6.3	0.598	119	2.928	-55	0.060	-104	0.241	139
6.4	0.574	108	2.909	-68	0.063	-117	0.282	126
6.5	0.543	98	2.903	-81	0.066	-131	0.320	115
6.6	0.502	87	2.927	-94	0.070	-143	0.353	104
6.7	0.450	76	2.945	-107	0.071	-156	0.380	94
6.8	0.384	65	2.995	-121	0.076	-168	0.398	84

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