MITSUBISHI ELECTRIC

< L/S band internally matched power GaAs FET >

MGFS45V2735

2.7 – 3.5 GHz BAND / 30W

DESCRIPTION

The MGFS45V2735 is an internally impedance-matched GaAs power FET especially designed for use in 2.7 - 3.5 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=30W (TYP.) @f=2.7 - 3.5GHz
- High power gain
  GLP=12.0dB (TYP.) @f=2.7 - 3.5GHz
- High power added efficiency
  P.A.E.=36% (TYP.) @f=2.7 - 3.5GHz
- Low distortion [item -51]
  IM3=-45dBc (TYP.) @Po=34.5dBm S.C.L

APPLICATION

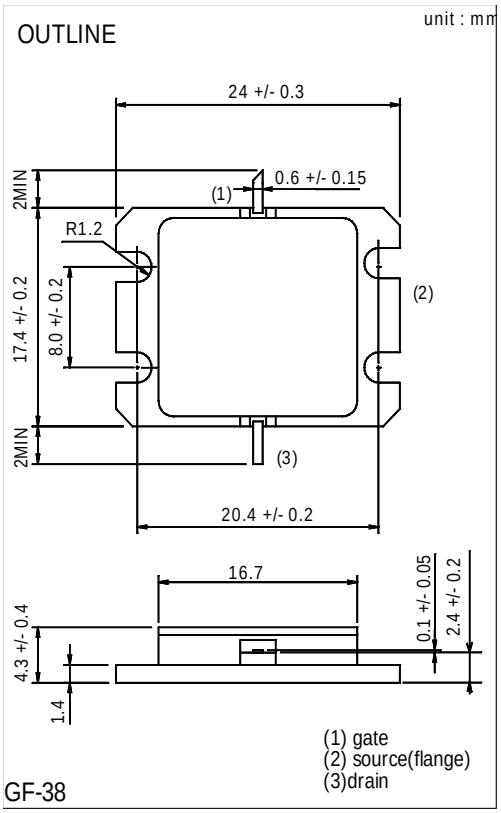
- item 01 : 2.7 - 3.5 GHz band power amplifier
- item 51 : 2.7 - 3.5 GHz band digital radio communication

QUALITY

- IG

RECOMMENDED BIAS CONDITIONS

- VDS=10V • ID=8A • 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	20	A
IGR	Reverse gate current	-80	mA
IGF	Forward gate current	168	mA
PT *1	Total power dissipation	150	W
Tch	Cannel temperature	175	°C
Tstg	Storage temperature	-65 to +175	°C

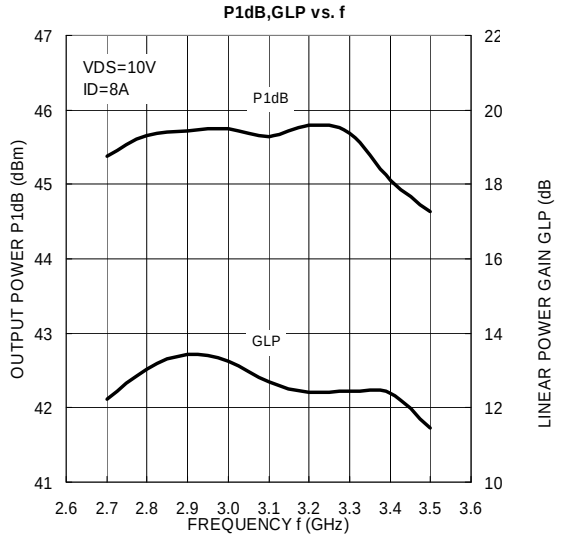
*1 : Tc=25°C

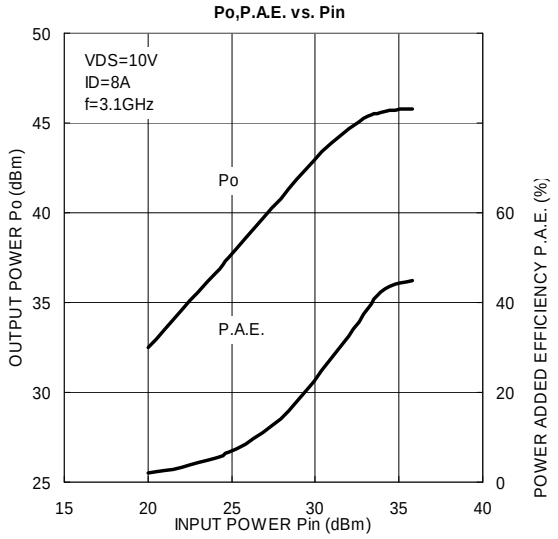
Electrical characteristics (Ta=25°C)

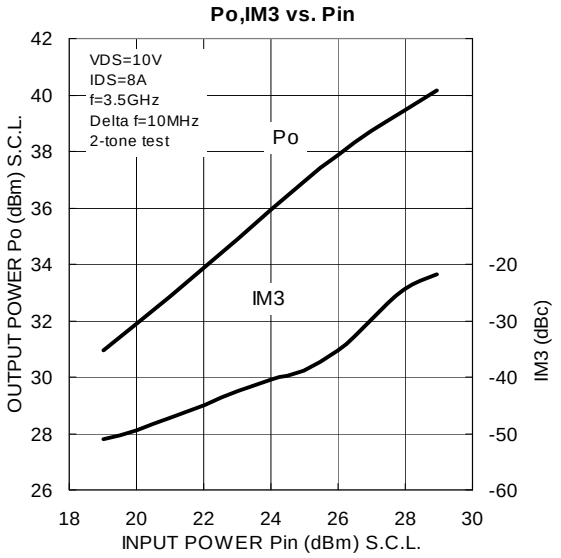
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDSS	Saturated drain current	VDS=3V,VGS=0V	-	24	-	A
gm	Transconductance	VDS=3V,ID=8A	-	8	-	S
VGS(off)	Gate to source cut-off voltage	VDS=3V,ID=160mA	-2	-	-5	V
P1dB	Output power at 1dB gain compression	VDS=10V,ID(RF off)=8.0A	44	45	-	dBm
GLP	Linear Power Gain	f=2.7 – 3.5GHz	11	12	-	dB
ID	Drain current		-	8	-	A
P.A.E.	Power added efficiency		-	36	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	0.8	1	°C/W

*2 :item -51 ,2 tone test,Po=34.5dBm Single Carrier Level ,f=2.7,3.1,3.5GHz,delta f=10MHz
*3 :Channel-case

MGFS45V2735 TYPICAL CHARACTERISTICS







MGFS45V2735 S-parameters(Ta=25deg.C , VDS=10(V),IDS=8(A))

f	S-Parameter (TYP.)							
	S11		S21		S12		S22	
(GHz)	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)
2.60	0.63	88	3.39	38	0.03	-17	0.59	26
2.70	0.58	47	3.90	3	0.04	-52	0.49	-1
2.80	0.51	1	4.30	-31	0.05	-86	0.41	-30
2.90	0.47	-51	4.52	-66	0.06	-122	0.32	-67
3.00	0.47	-105	4.51	-101	0.06	-157	0.27	-106
3.10	0.50	-152	4.33	-135	0.06	166	0.24	-137
3.20	0.51	166	4.15	-168	0.05	134	0.23	-165
3.30	0.49	123	4.04	159	0.06	100	0.21	174
3.40	0.45	61	3.92	117	0.06	49	0.15	149
3.50	0.48	-11	3.60	76	0.06	8	0.05	165
3.60	0.64	-75	2.86	33	0.05	-40	0.16	-115

Keep safety first in your circuit designs!

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