MITSUBISHI SEMICONDUCTOR <GaAs FET>

MGFS45A2527B

2.5 - 2.7GHz BAND 32W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFS45A2527B is an internally impedance-matched GaAs power FET especially designed for use in 2.5 - 2.7 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 = 32W (TYP.) @ f=2.5 - 2.7 GHz

High power gain

GLP = 12 dB (TYP.) @ f=2.5 - 2.7GHz

High power added efficiency

P.A.E. = 40 % (TYP.) @ f=2.5 - 2.7GHz

3rd order IM distortion

IM = -45dBc (TYP.) @ f=2.5 - 2.7GHz

APPLICATION

item 01 : 2.5 - 2.7 GHz band power amplifier

item 51 : 2.5 - 2.7 GHz band digital ratio communication

QUALITY GRADE

GG

RECOMMENDED BIAS CONDITIONS

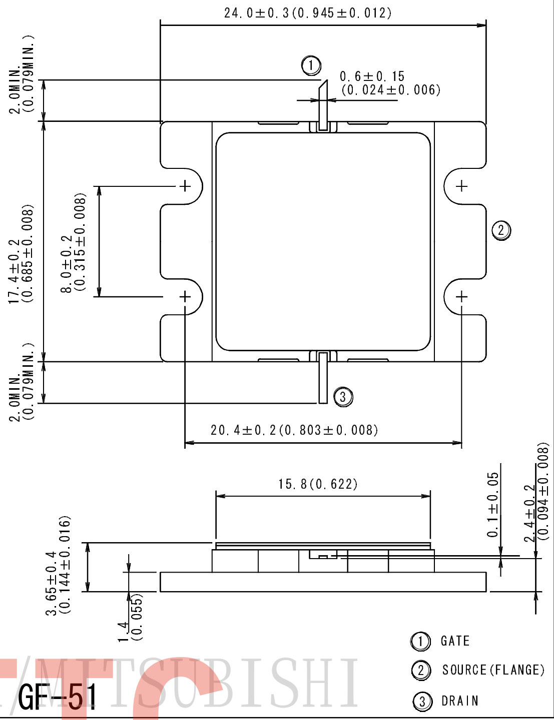
VDS = 10 (V)

ID = 6.5 (A)

RG=25 (ohm)

OUTLINE DRAWING

Unit : millimeters (inches)



ABSOLUTE MAXIMUM RATINGS (Ta=25deg.C)

Symbol	Parameter	Ratings	Unit
VGDO	Gate to drain voltage	-20	V
VGSO	Gate to source voltage	-10	V
PT *1	Total power dissipation	107	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

*1 : Tc=25deg.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 measures such as (1)placement of substitutive, auxiliary circuits, (2)use of non-flammable material or (3)prevention against any malfunction or mishap.

ELECTRICAL CARACTERISTICS (Ta=25deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Gate to source cut-off voltage	VDS = 3V , ID = 84mA	-	-	-5	V
P1dB	Output power	VDS=10V, ID(RF off)=6.5A, f=2.5 - 2.7GHz	44	45	-	dBm
GLP	Linear power gain		11	12	-	dB
ID	Drain current		-	7.5	-	A
P.A.E.	Power added efficiency		-	40	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	1.2	1.4	deg.C/W

*2 : item -51,2 tone test,Po=34.5dBm Single Carrier Level,f=2.5,2.6,2.7GHz,delta f=5MHz

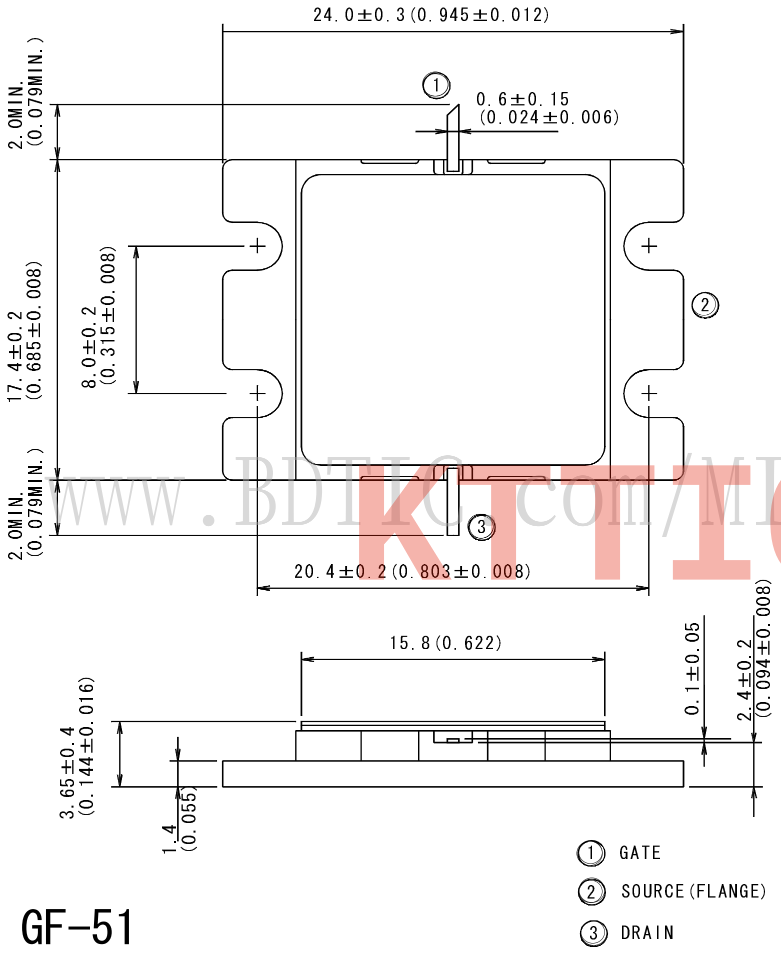
*3 : Channel-case

**MITSUBISHI
ELECTRIC**

June-'04

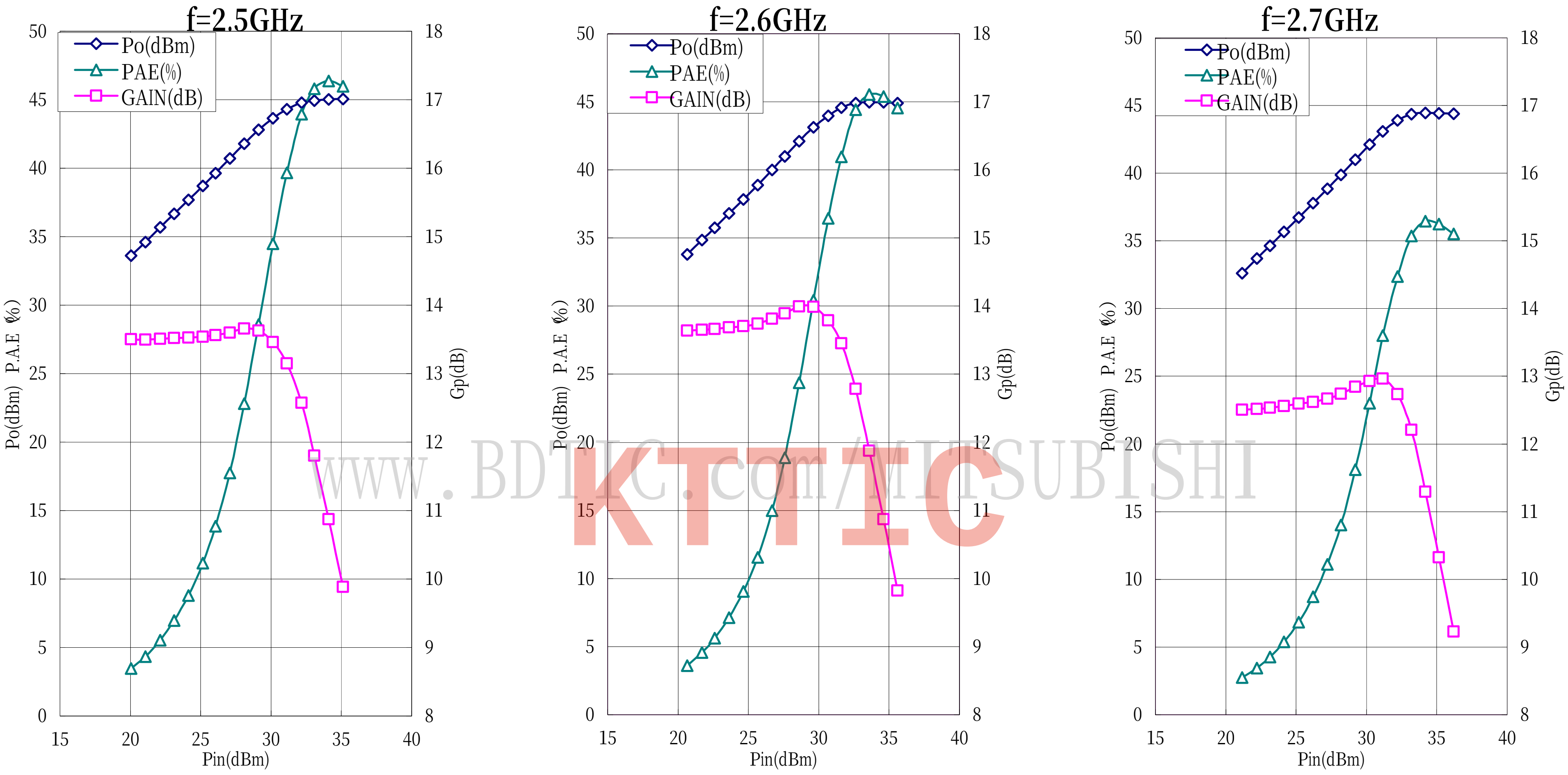
OUTLINE DRAWING

Unit : millimeters (inches)



S-band 30W Power GaAs FET MGFS45A2527B

OUTPUT POWER & POWER ADDED EFFICIENCY vs. INPUT POWER

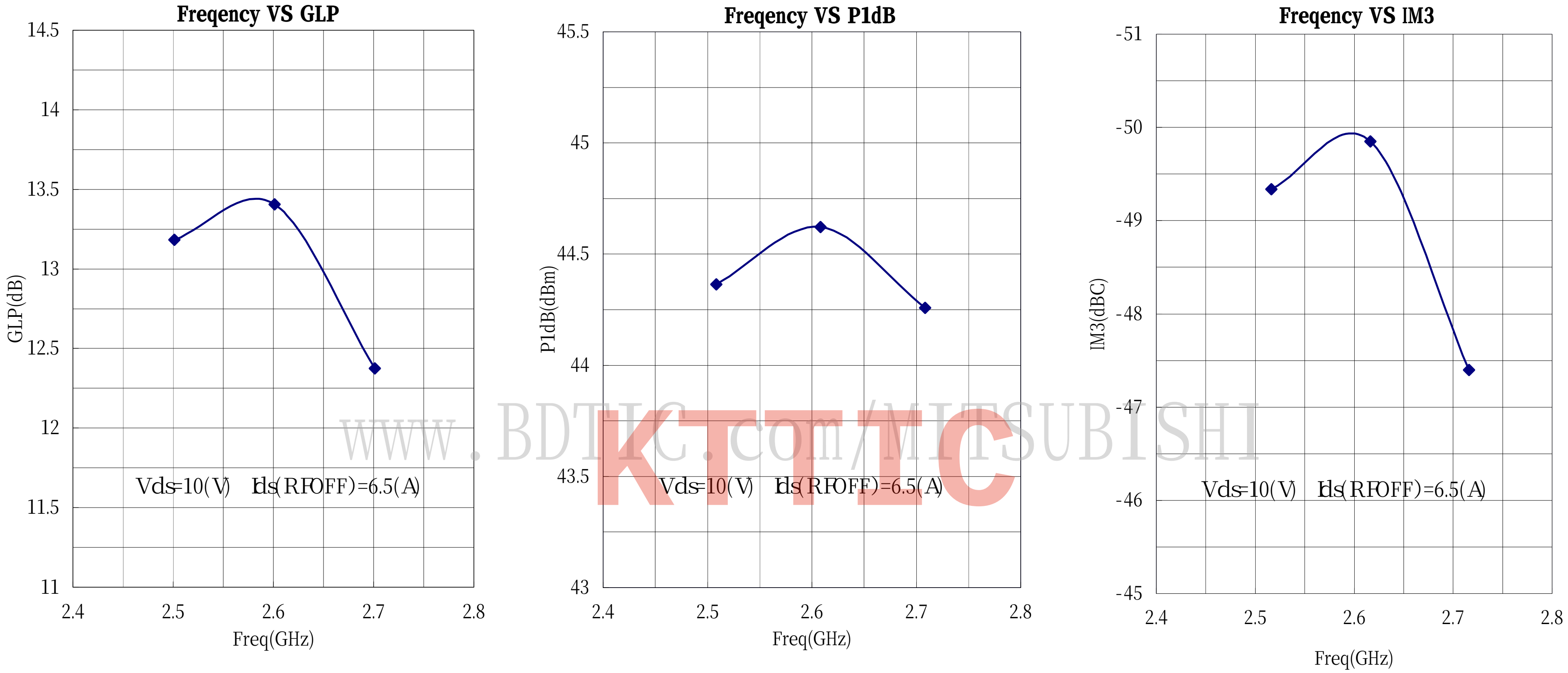


S PARAMETERES(T=25deg.C,VDS=10V,ID=6.5A)

Freq	S11 (mag)	S11 (ang)	S21 (mag)	S21 (ang)	S12 (mag)	S12 (ang)	S22 (mag)	S22 (ang)
2.00	0.88	74.01	1.42	-115.63	0.01	-79.30	0.79	101.57
2.05	0.87	67.63	1.56	-124.88	0.01	-86.26	0.77	95.64
2.10	0.85	60.94	1.72	-134.47	0.01	-102.29	0.75	89.25
2.15	0.82	53.50	1.91	-144.48	0.01	-111.11	0.73	83.20
2.20	0.79	45.38	2.12	-155.53	0.01	-129.00	0.70	75.83
2.25	0.76	36.25	2.38	-167.27	0.01	-140.42	0.67	67.92
2.30	0.72	26.06	2.66	-179.79	0.01	-159.19	0.64	58.86
2.35	0.66	14.95	2.99	166.21	0.02	176.25	0.59	47.67
2.40	0.59	1.86	3.34	150.86	0.02	155.14	0.54	34.08
2.45	0.51	-13.16	3.70	133.43	0.02	126.07	0.48	16.39
2.50	0.40	-31.23	4.01	115.11	0.02	98.68	0.43	-5.01
2.55	0.28	-51.53	4.24	95.76	0.02	71.43	0.39	-31.79
2.60	0.16	-78.16	4.32	75.62	0.02	43.53	0.38	-61.12
2.65	0.07	-146.41	4.27	55.31	0.02	15.41	0.40	-87.87
2.70	0.12	127.83	4.09	35.45	0.03	-11.45	0.45	-109.18
2.75	0.22	95.47	3.80	16.42	0.03	-33.34	0.49	-125.33
2.80	0.30	74.56	3.51	-1.65	0.03	-54.63	0.53	-137.70
2.85	0.38	56.47	3.18	-19.06	0.03	-75.33	0.57	-147.32
2.90	0.45	40.38	2.88	-35.49	0.03	-94.35	0.60	-154.95
2.95	0.51	24.35	2.58	-51.73	0.03	-111.68	0.62	-161.21
3.00	0.58	8.80	2.30	-67.16	0.03	-126.90	0.64	-166.56

This S-Parameter data show measurements performed on each single-ended FET

Frequency characteristic



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