

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

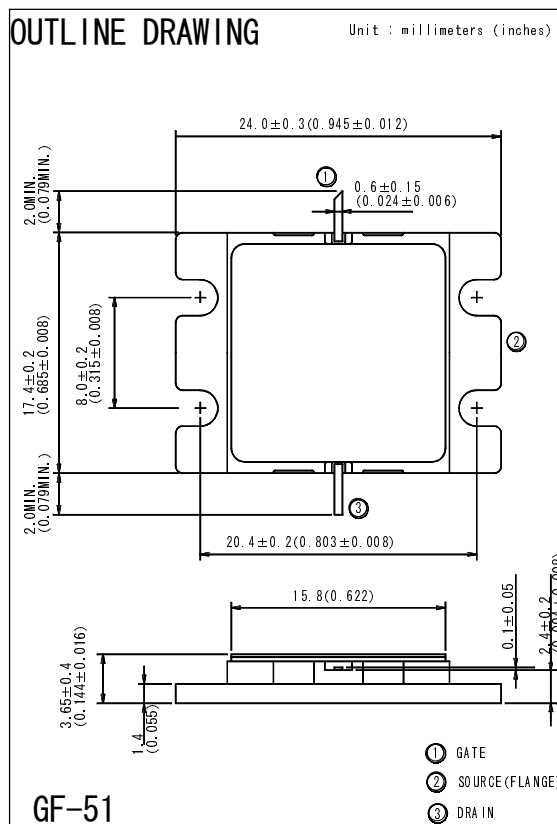
- item 01 : 2.5 - 2.7 GHz band power amplifier
- item 51 : 2.5 - 2.7 GHz band digital ratio communication

QUALITY GRADE

GG

RECOMMENDED BIAS CONDITIONS

- VDS = 10 (V)
- ID = 6.5 (A)
- RG=25 (ohm)



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! >
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ELECTRICAL CHARACTERISTICS

(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

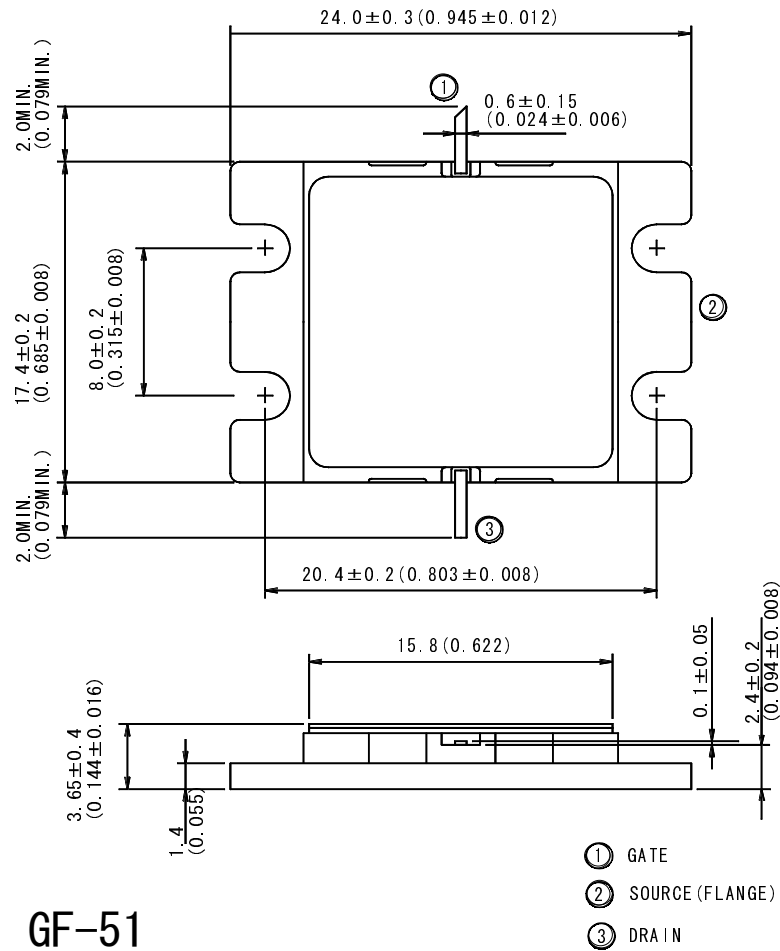
*2 : item -51, 2 tone test, Po=34.5dBm Single Carrier Level, f=2.5, 2.6, 2.7GHz, delta f=5MHz

*3 : Channel-case

S-band 30W Power GaAs FET

OUTLINE DRAWING

Unit : millimeters (inches)



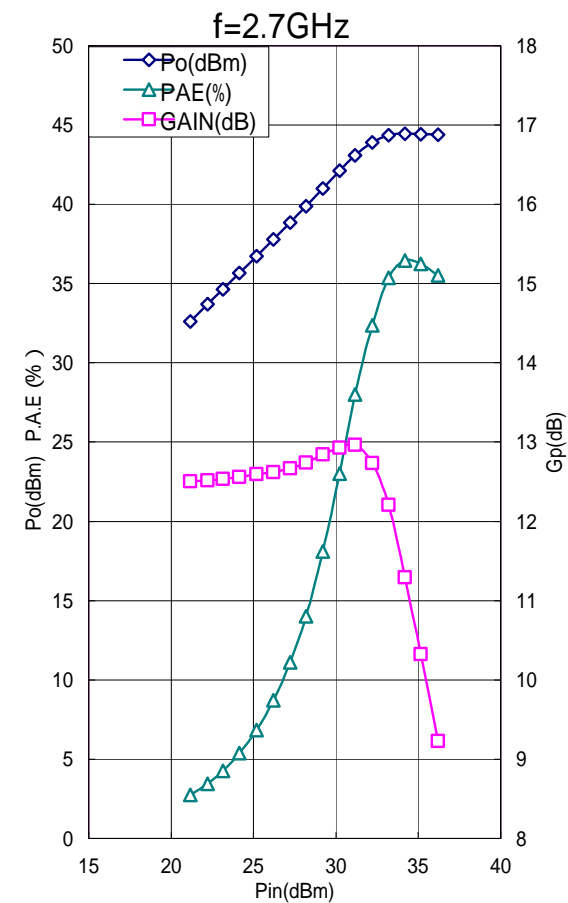
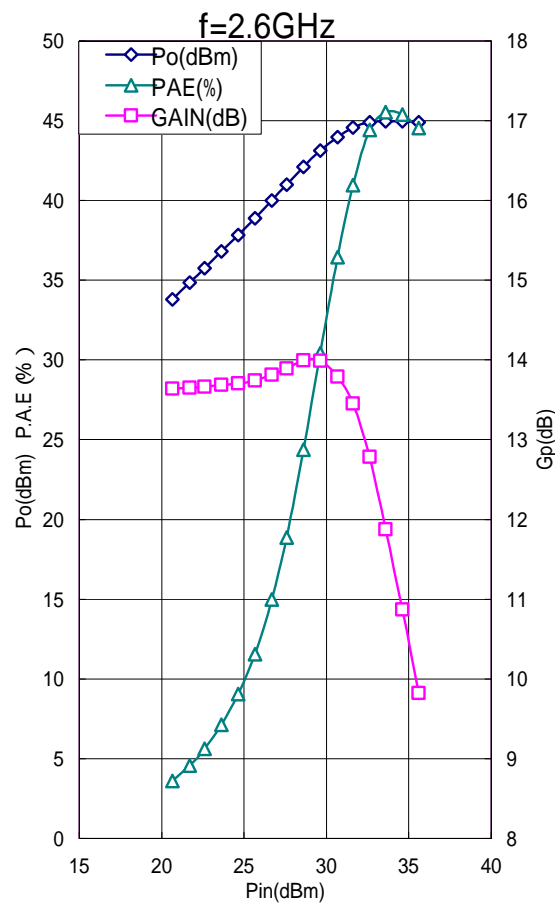
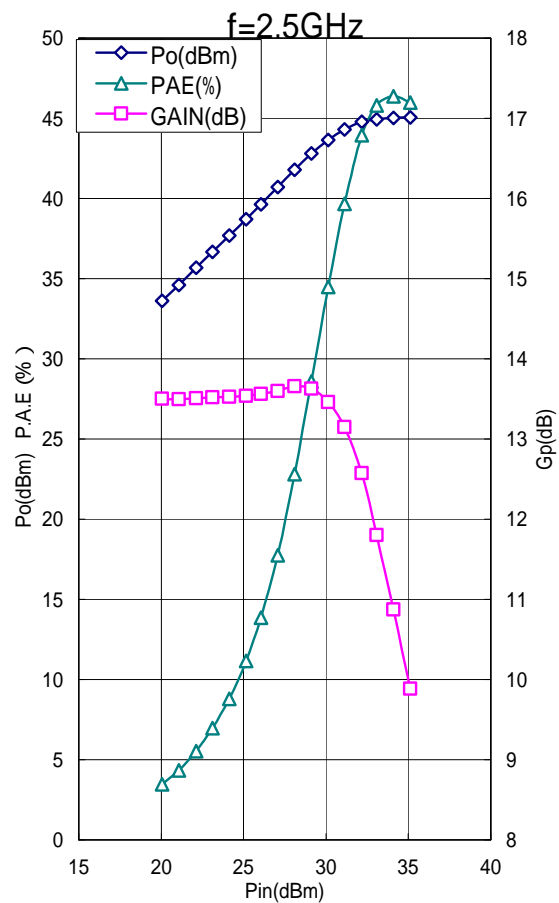
GF-51

MITSUBISHI ELECTRIC CORPORATION

June-'04

S-band 30W Power GaAs FET MGFS45A2527B

OUTPUT POWER & POWER ADDED EFFICIENCY vs. INPUT POWER



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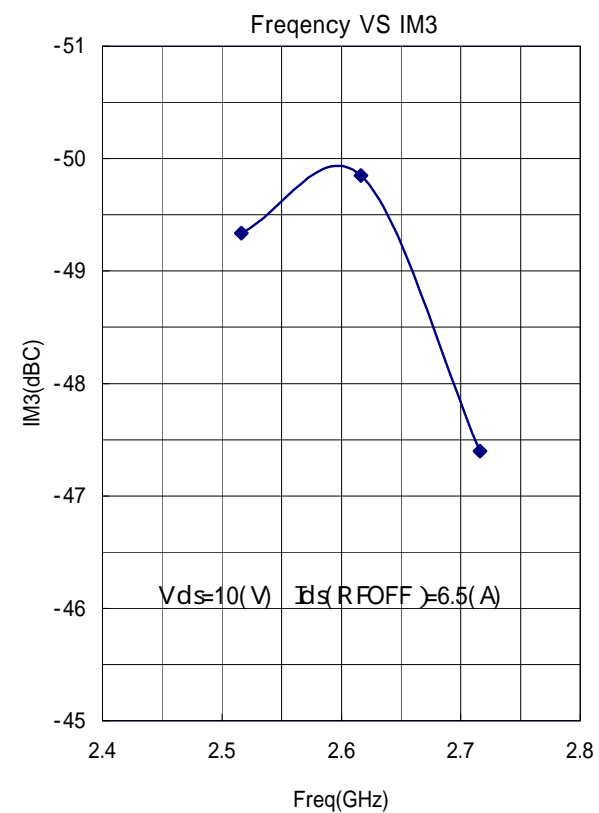
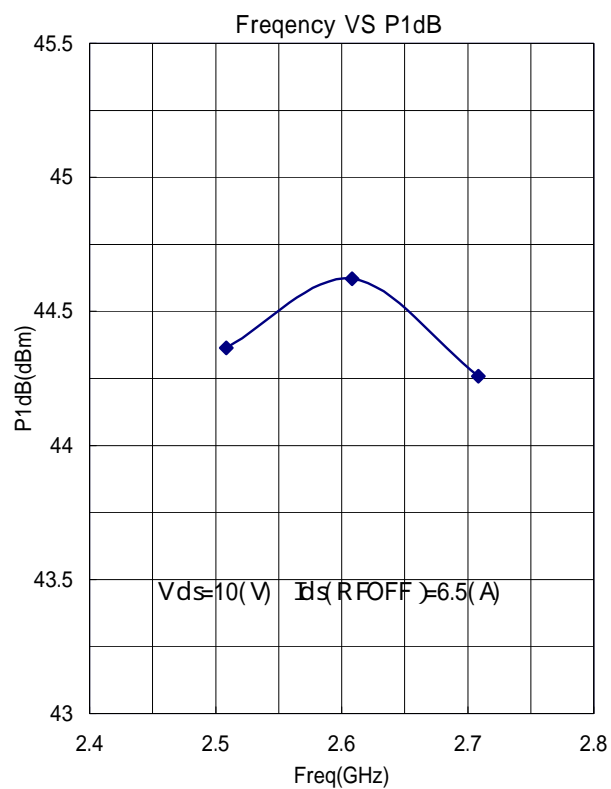
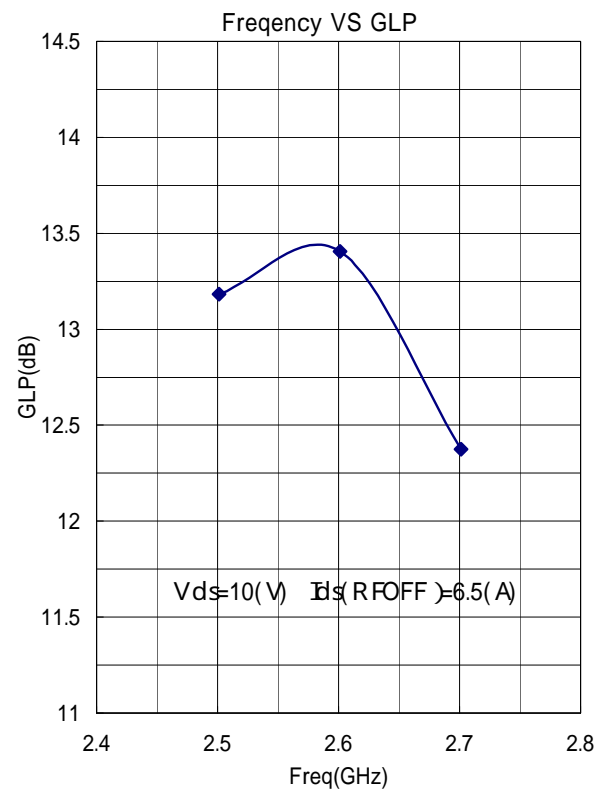
S PARAMETERES(T=25deg.C,VDS=10V,ID=6.5A)

Freq	S11		S21		S12		S22	
	(mag)	(ang)	(mag)	(ang)	(mag)	(ang)	(mag)	(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

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Frequency characteristic



MGFS45A2527B**2.5 - 2.7GHz BAND 32W INTERNALLY MATCHED GaAs FET****Requests Regarding Safety Designs**

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