MGFS45V2527A

2.5 - 2.7GHz BAND 32W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFS45V2527 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. = 45 % (TYP.) @ f=2.5 - 2.7GHz
Low distortion [item -51]
IM3=-45dBc(TYP.) @Po=34.5dBm S.C.L.

APPLICATION

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

QUALITY GRADE

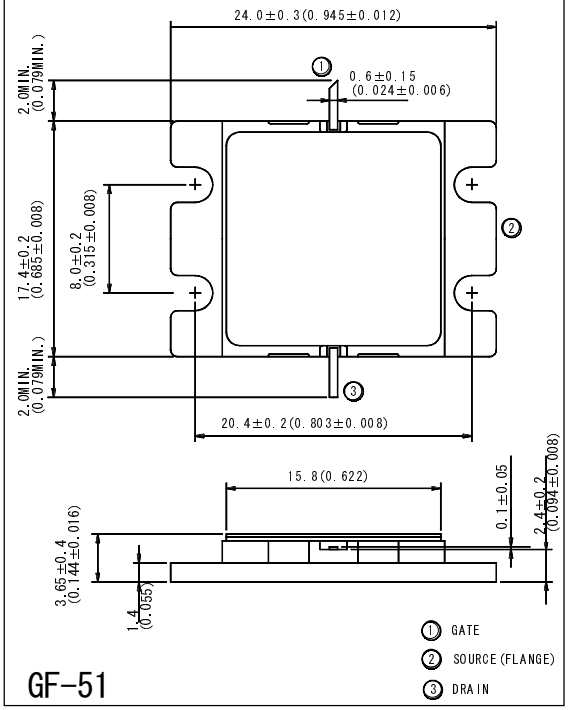
IG

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	-15	V
VGSO	Gate to source voltage	-15	V
ID	Drain current	22	A
IGR	Reverse gate current	-61	mA
IGF	Forward gate current	76	mA
PT *1	Total power dissipation	88	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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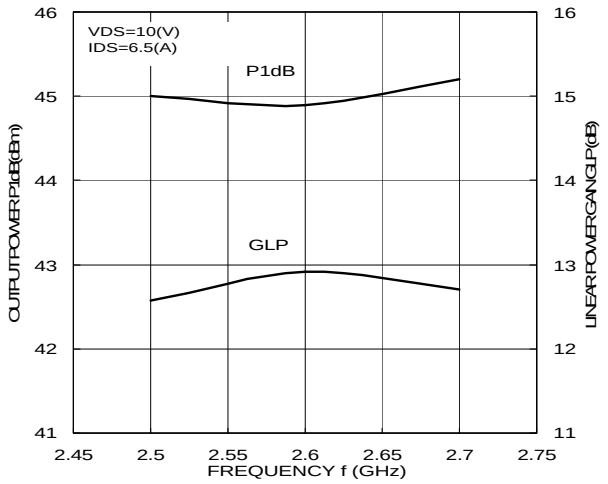
ELECTRICAL CARACTERISTICS (Ta=25deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Saturated drain current	VDS = 3V , ID = 60mA	-	-	-5	V
P1dB	Output power at 1dB gain compression	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		-	45	-	%
IM3 *2	3rd order IM distortion		-42	-45	-	dBc
Rth(ch-c) *3	Thermal resistance	delta Vf method	-	-	1.5	deg.C/W

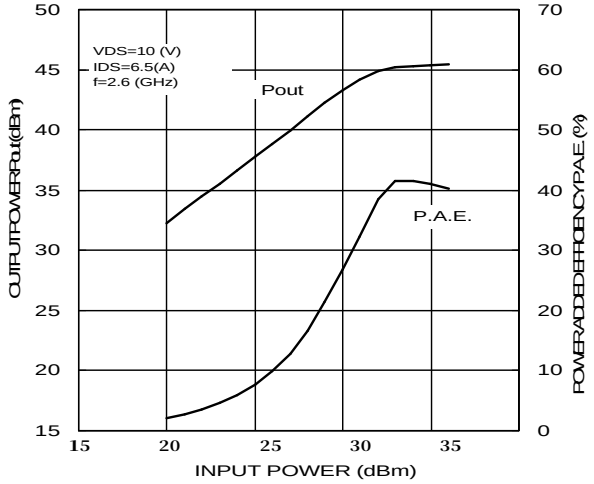
*2 : item -51,2 tone test,Po=34.5dBm Single Carrier Level,f=2.5,2.6,2.7GHz,dfelta f=5MHz
*3 : Channel-case

TYPICAL CHARACTERISTICS

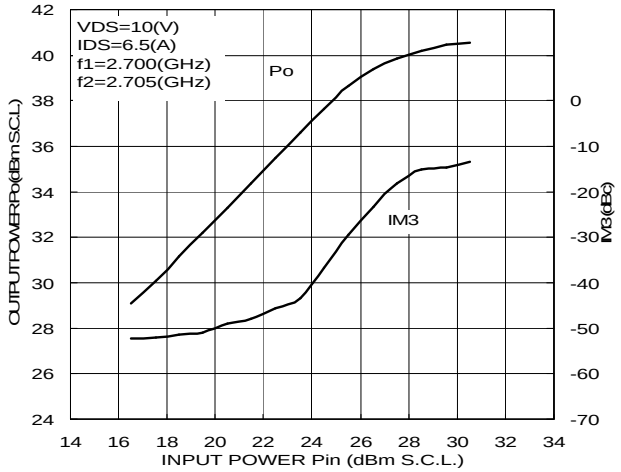
P1dB,GLP vs. f



Po , P.A.E. vs. Pin



Po,IM3 vs. Pin



S parameters (Ta=25deg.C , VDS=10(V),IDS=6.5(A))

f	S-Parameter (TYP.)							
	S11		S21		S12		S22	
(GHz)	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)	Magn.	Angle(deg)
2.40	0.34	-172	4.68	75	0.03	40	0.26	-48
2.42	0.35	-176	4.65	70	0.03	34	0.26	-53
2.44	0.37	177	4.63	64	0.03	26	0.24	-57
2.46	0.40	170	4.60	58	0.03	19	0.24	-65
2.48	0.41	163	4.56	52	0.03	14	0.22	-69
2.50	0.43	157	4.53	46	0.03	5	0.21	-79
2.52	0.43	151	4.51	40	0.03	-1	0.20	-81
2.54	0.44	145	4.49	34	0.04	-9	0.20	-86
2.56	0.45	139	4.47	28	0.03	-15	0.20	-91
2.58	0.45	134	4.44	22	0.04	-22	0.20	-97
2.60	0.45	128	4.43	16	0.04	-29	0.19	-104
2.62	0.45	122	4.42	10	0.04	-37	0.19	-108
2.64	0.44	116	4.41	4	0.04	-42	0.19	-113
2.66	0.44	110	4.40	-2	0.04	-50	0.19	-117
2.68	0.43	103	4.40	-8	0.04	-55	0.19	-120
2.70	0.42	96	4.39	-14	0.04	-62	0.18	-126
2.72	0.40	88	4.37	-21	0.04	-70	0.18	-128
2.74	0.39	80	4.37	-27	0.04	-74	0.17	-133
2.76	0.37	71	4.35	-34	0.04	-79	0.17	-136
2.78	0.36	61	4.34	-40	0.04	-88	0.16	-138
2.80	0.34	50	4.32	-47	0.04	-95	0.16	-141

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