

MGFS48V2527

2.5 - 2.7GHz BAND 60W GaAs FET

DESCRIPTION

The MGFS48V2527 is a 60W push-pull type GaAs Power FET especially designed for use in 2.5 - 2.7GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

Push-pull configuration

High output power

$$P_{out} = 60W \text{ (TYP.) @ } f=2.5 - 2.7 \text{ GHz}$$

High power gain

$$GLP = 10 \text{ dB (TYP.) @ } f=2.5 - 2.7GHz$$

High power added efficiency

$$P.A.E. = 45 \% \text{ (TYP.) @ } f=2.5 - 2.7GHz$$

APPLICATION

2.5-2.7GHz band power amplifier

QUALITY GRADE

IG

RECOMMENDED BIAS CONDITIONS

$$V_{DS} = 12 \text{ (V)}$$

$$I_D = 4.0 \text{ (A)}$$

$$R_G = 20 \text{ (ohm) for each gate}$$

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	107.1	W
Tch	Channel temperature	175	deg.C
Tstg	Storage temperature	-65 / +175	deg.C

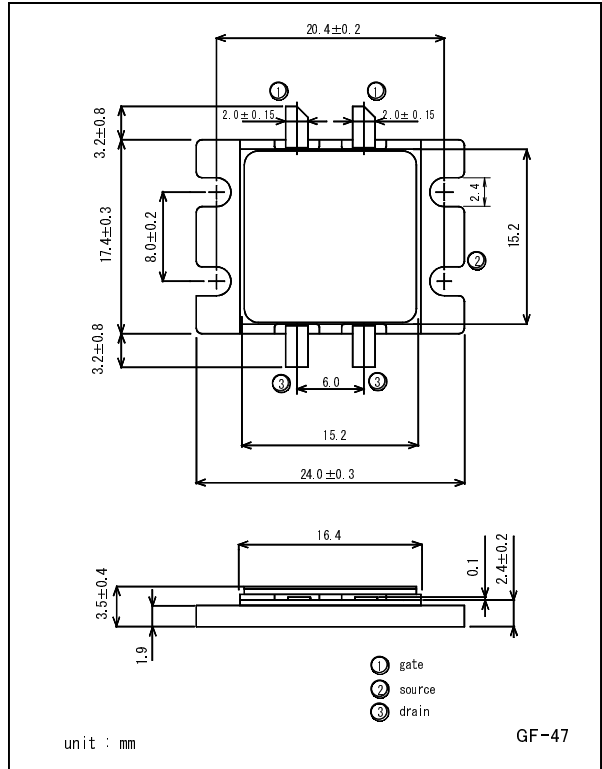
*1 : Tc=25deg.C

ELECTRICAL CHARACTERISTICS

(Ta=25deg.C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
VGS(off)	Cut-off voltage	VDS = 3V , ID = 17.3mA	-1	-	-4	V
P2dB	Output power at 2dB gain compression	VDS=12V, ID(RF off)=4.0A, f=2.5 - 2.7GHz	47	48	-	dBm
GLP	Linear power gain		9	10	-	dB
ID(RF)	Drain current		-	11	15	A
P.A.E.	Power added efficiency		-	45	-	%
Rth (Ch-C)	Thermal resistance		Channel to Case	-	1.0	1.4

OUTLINE



unit : mm

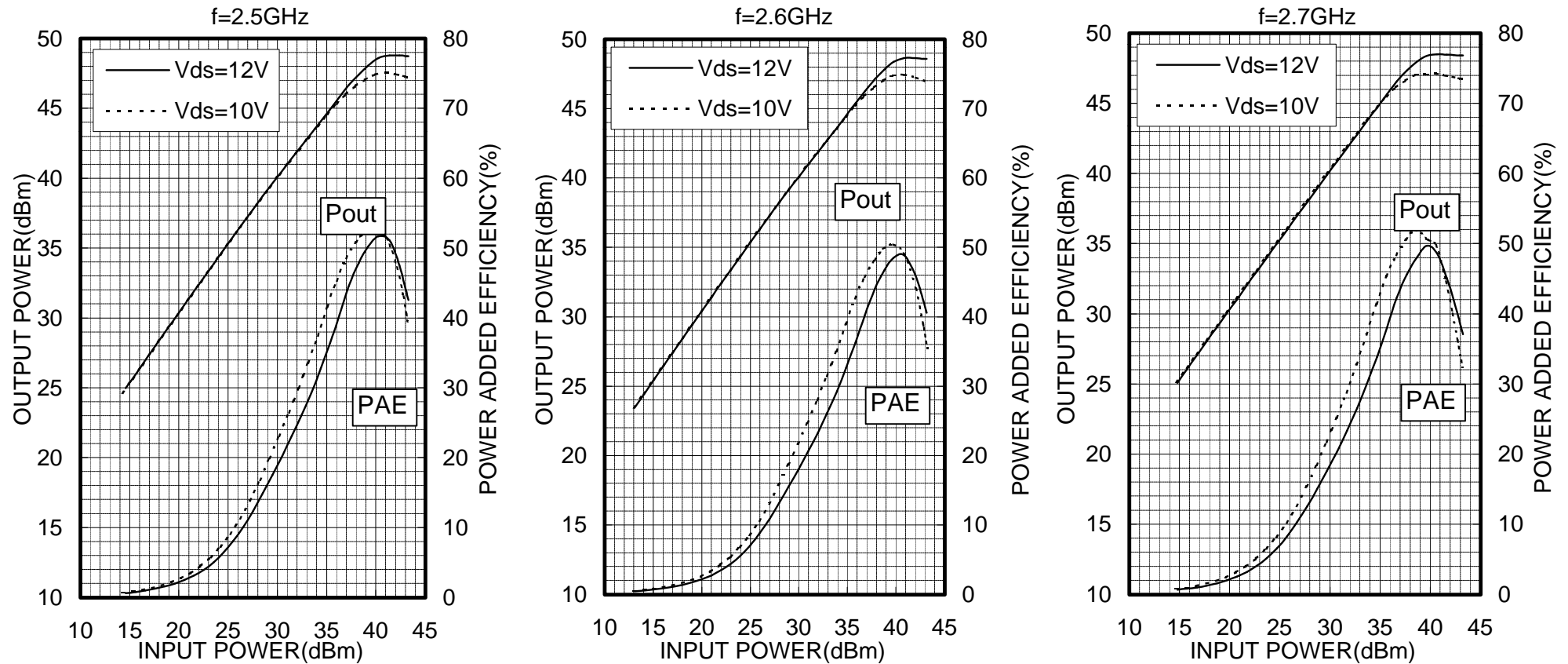
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< Keep safety first in your circuit designs! >

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OUTPUT POWER & POWER ADDED EFFICIENCY vs. INPUT POWER
TEST CONDITIONS : $I_{ds}(RF_{off})=4A$



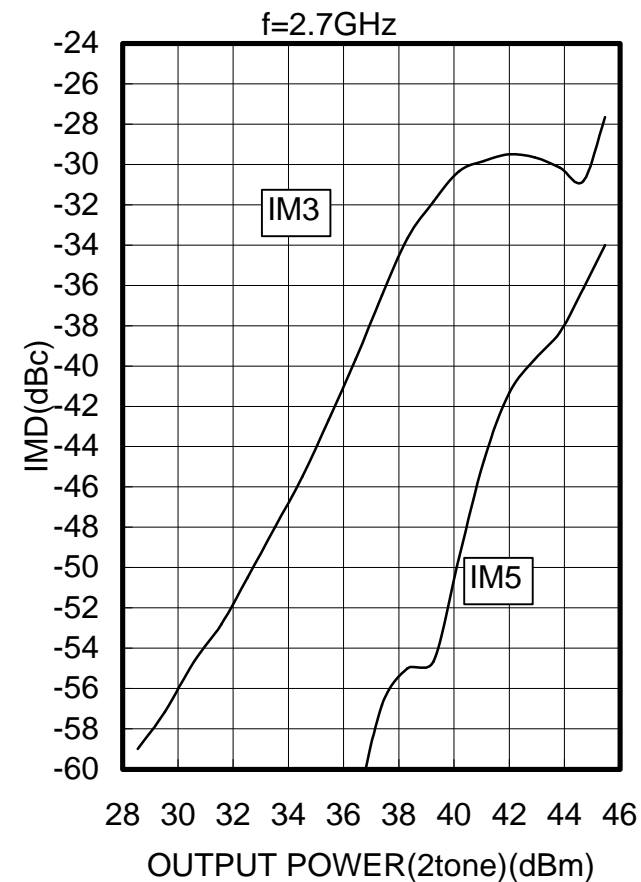
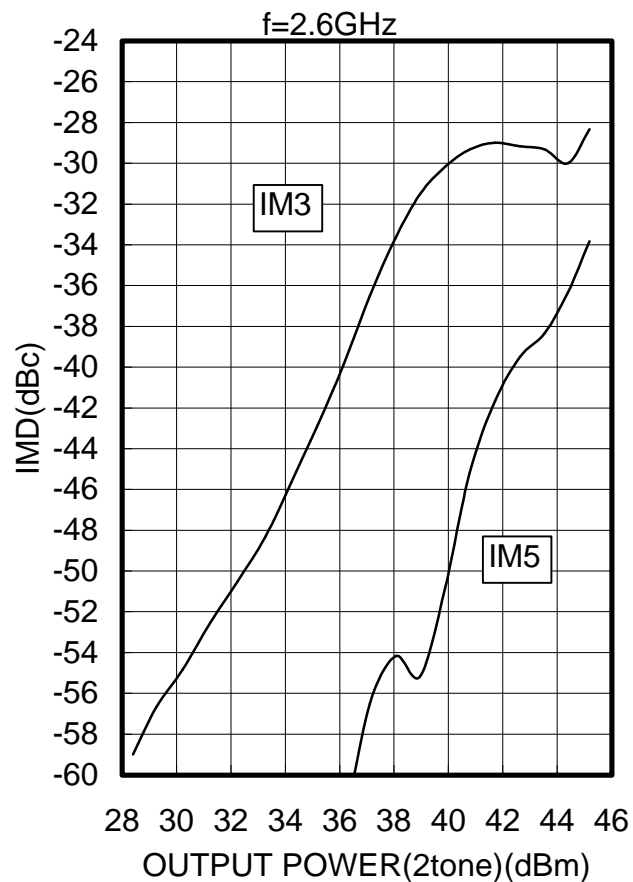
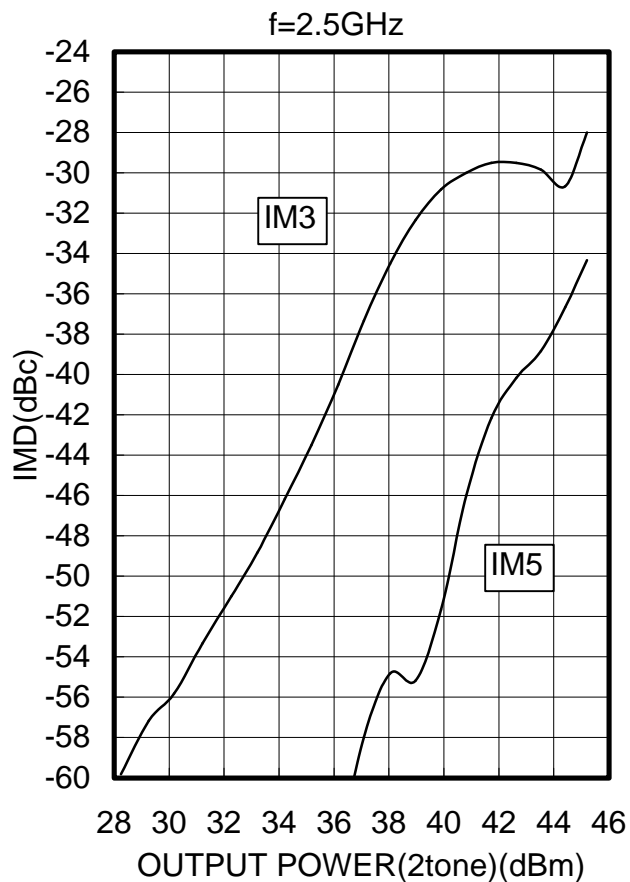
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IMD vs. OUTPUT POWER

TEST CONDITIONS : $V_{DS}=12V, I_{D(RF\ off)}=4.0A$
2-tone test , $f=5MHz$

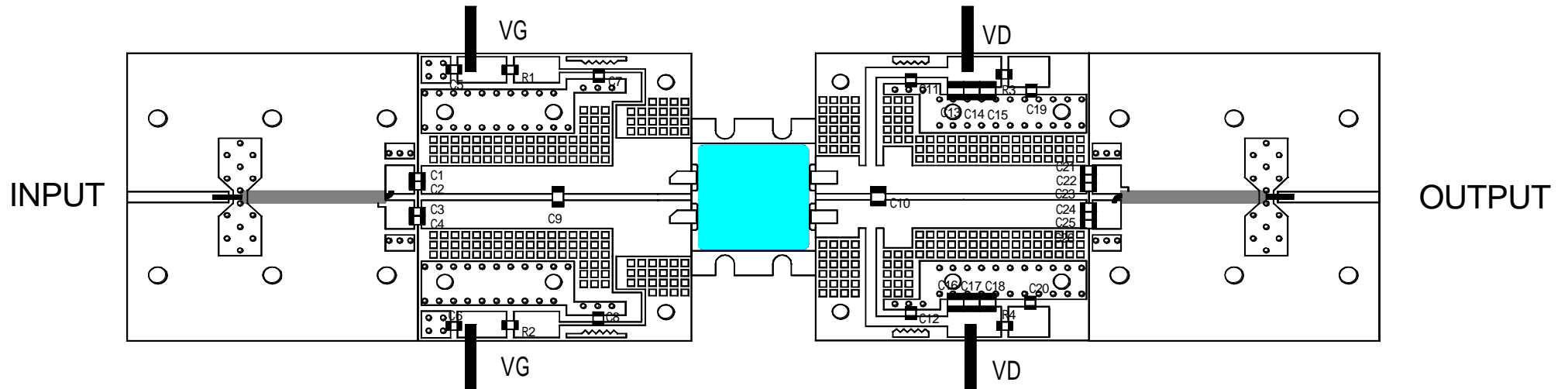


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TEST CIRCUIT

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C1, C2, C3, C4	: 8pF (GR708)
C5, C6	: 1000pF (GR40)
C7, C8	: 20pF (GR40)
C9	: 1.5pF (GR111)
C10	: 1pF (GR111)
C11, C12	: 20pF (GR40)
C13, C14, C15	: 4.7 μ F (CM32B475K)
C16, C17, C18	: 4.7 μ F (CM32B475K)
C19, C20	: 1000pF (GR40)
C21, C22, C23, C24, C25, C26	: 13pF (GR708)
R1, R2	: 20ohm
R3, R4	: 51ohm

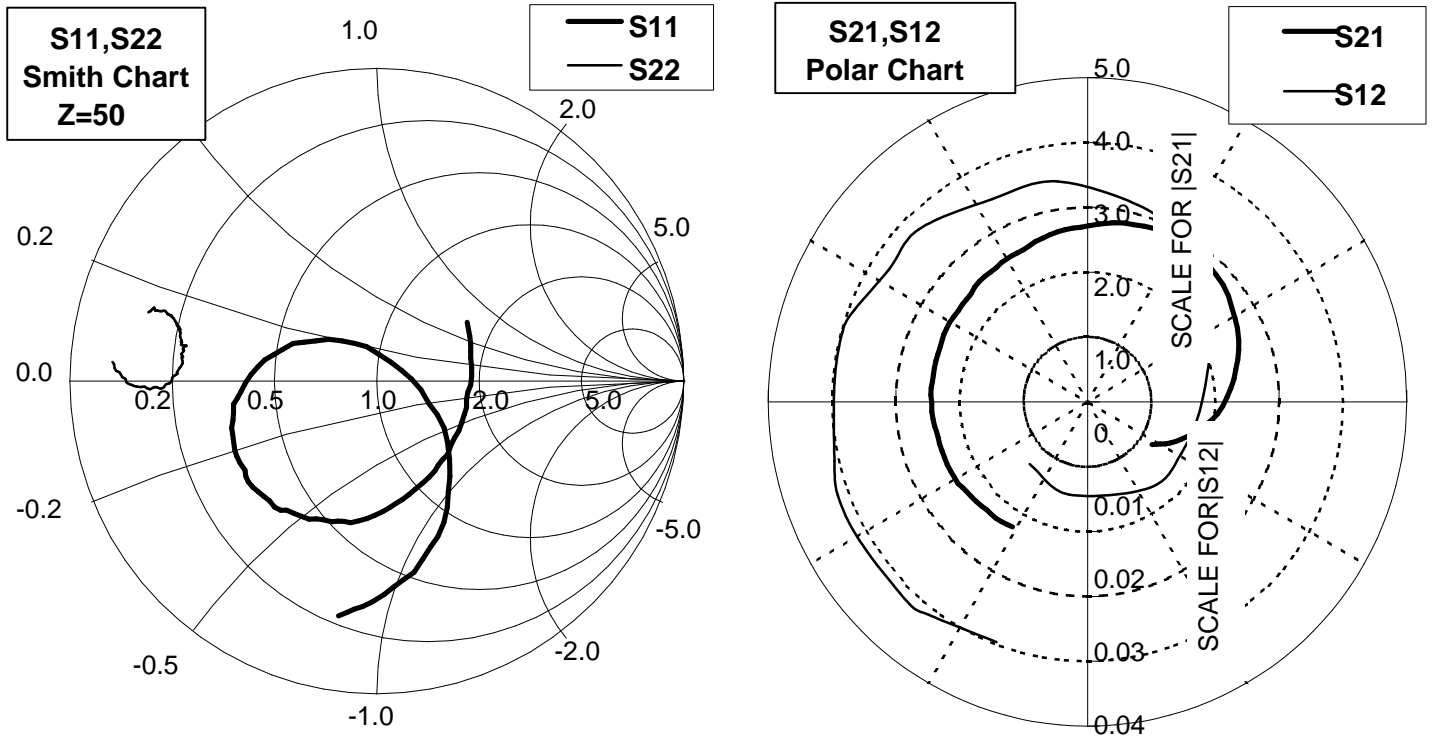
Board material: Teflon thickness=0.6mm
Specific dielectric constant=2.6

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TEST CONDITIONS : f=2.0-3.0GHz,VDS=12V,ID=2.0A



S PARAMETERS (Ta=25deg.C,VDS=12V,ID=2.0A)

f (GHz)	S Parameters (TYP.)							
	S11		S21		S12		S22	
	Mag.	Ang(deg.)	Mag.	Ang(deg.)	Mag.	Ang(deg.)	Mag.	Ang(deg.)
2.00	0.343	30.9	2.394	-124.1	0.042	-112.1	0.773	164.4
2.05	0.311	11.3	2.448	-135.3	0.042	-129.0	0.760	163.0
2.10	0.301	-13.6	2.529	-147.0	0.046	-134.8	0.746	163.3
2.15	0.318	-37.2	2.575	-159.1	0.042	-148.3	0.724	162.9
2.20	0.354	-57.5	2.594	-170.4	0.044	-160.2	0.700	163.5
2.25	0.399	-78.1	2.620	176.5	0.045	-167.5	0.690	164.1
2.30	0.452	-94.0	2.597	164.9	0.039	176.5	0.673	165.6
2.35	0.484	-107.7	2.603	153.3	0.042	164.3	0.659	166.6
2.40	0.512	-121.8	2.558	141.8	0.040	161.2	0.655	167.8
2.45	0.529	-134.1	2.569	130.9	0.037	147.6	0.649	169.7
2.50	0.523	-145.4	2.573	119.6	0.039	135.6	0.629	170.7
2.55	0.504	-159.0	2.629	106.5	0.032	121.1	0.636	172.5
2.60	0.460	-171.7	2.665	92.9	0.034	100.6	0.636	175.1
2.65	0.369	171.2	2.734	78.3	0.030	78.4	0.645	177.6
2.70	0.231	149.6	2.731	59.9	0.027	58.1	0.666	-179.9
2.75	0.074	85.3	2.623	41.6	0.022	31.9	0.695	-177.4
2.80	0.188	-26.1	2.380	22.2	0.014	-3.2	0.740	-177.1
2.85	0.395	-53.1	2.085	4.0	0.014	-39.0	0.781	-177.8
2.90	0.569	-72.1	1.730	-13.8	0.018	-60.5	0.818	-179.5
2.95	0.694	-88.0	1.389	-28.6	0.016	-111.6	0.844	178.8
3.00	0.773	-99.3	1.108	-40.4	0.015	-136.5	0.862	176.7

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

MGFS48V2527**2.5 - 2.7GHz BAND 60W GaAs FET****Requests Regarding Safety Designs**

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