POINT NINE
Technologies, Inc.

D1027 TetraFET

200W - 28V - 200MHz
GOLD METALLISED MULTI-PURPOSE SILICON DMOS RF FET

FEATURES

- **METAL GATE**
- **EXTRA LOW Crss**
- **BROAD BAND**
- **SIMPLE BIAS CIRCUITS**
- **LOW NOISE**
- **HIGH GAIN**

APPLICATIONS

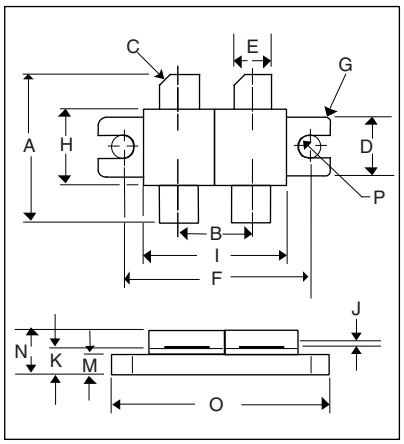
- **HF/VHF/UHF COMMUNICATIONS from DC to 300 MHz**

ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25°C unless otherwise stated)		
P_D	Power Dissipation	438W
BV_{DSS}	Drain-source breakdown voltage	70V
V_{GSS}	Gate-source voltage	±20V
I_D	Drain Current	30A
T_{stg}	Storage temperature	- 65 to 150°C
T_j	Maximum operating junction temperature	200°C
$R_{THj\text{-}case}$	Thermal resistance junction-case	Max. 0.4°C/W

ELECTRICAL CHARACTERISTICS (T_{CASE} = 25°C unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
		PER SIDE				
BV_{DSS}	Drain source, breakdown voltage	V_{GS}=0 I_D=100mA	70			Vdc
I_{DSS}	Zero gate voltage drain current	V_{DS}=28V V_{GS}=0			6	mAdc
I_{GSS}	Gate leakage current	V_{GS}=20V V_{DS}=0			1	µAdc
$V_{GS(th)}$	Gate threshold voltage	I_D=10mA V_{DS}=V_{GS}	1		7	Vdc
gfs	Transconductance (300µs pulse)	V_{DS}=10V I_D=6A	4.8			Mhos
		TOTAL DEVICE				
G_{PS}	Common source power gain	P_O=200W	17			dB
η	Drain efficiency	V_{DS}=28V I_{DQ}=2-4A	50			%
VSWR	Load mismatch tolerance	f=200MHz	20:1			
		PER SIDE				
C_{iss}	Input capacitance	V_{DS}=0V V_{GS}=-5V f=1MHz			360	pF
C_{oss}	Output capacitance	V_{DS}=28V V_{GS}=0 f=1MHz			180	pF
C_{rss}	Reverse transfer capacitance	V_{DS}=28V V_{GS}=0 f=1MHz			15	pF

DIMENSIONS



DM	Millimeter	TOL	Inches	TOL
A	19.05	.50	.750	.020
B	10.9	.25	.430	.010
C	45°	.05	45°	5°
D	9.78	.13	.385	.005
E	5.71	.13	.225	.005
F	27.94	.13	1.100	.005
G	1.52R	.13	.060R	.005
H	10.16	.13	.400	.005
I	22.22	MAX	.875	MAX
J	0.13	.02	.005	.001
K	2.72	.13	.I07	.005
M	1.65	.13	.065	.005
N	5.08	.50	.200	.020
O	34.04	.13	1.340	.005
P	1.65R	.13	.065R	.005

HAZARDOUS MATERIAL WARNING

The ceramic portion of the device between leads and metal flange is beryllium oxide. Beryllium oxide dust is highly toxic and care must be taken during handling and mounting to avoid damage to this area. THESE DEVICES MUST NEVER BE THROWN AWAY WITH GENERAL INDUSTRIAL OR DOMESTIC WASTE.

U.S. PATENTS 5,121,176 & 5,179,032
GLOBAL PATENTS PENDING

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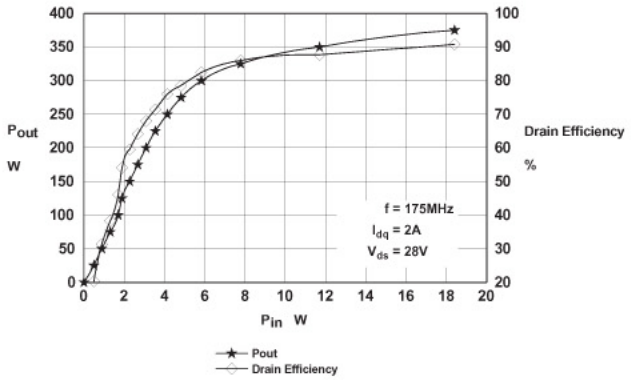


Figure 1 – Power Output and Efficiency vs. Power Input.

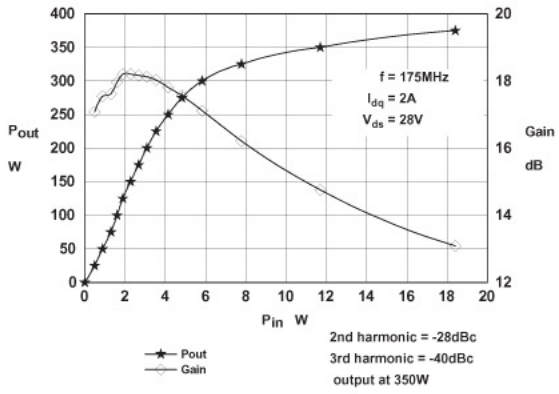


Figure 2 – Power Output & Gain vs. Power Input.

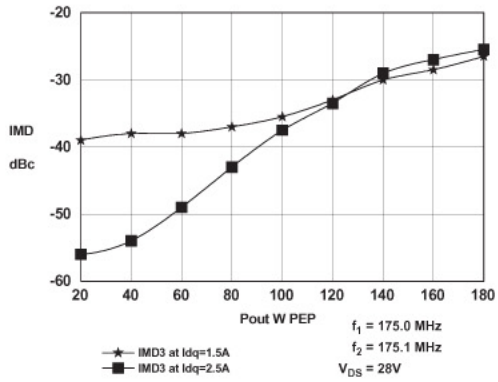


Figure 3 – IMD vs. Output Power.

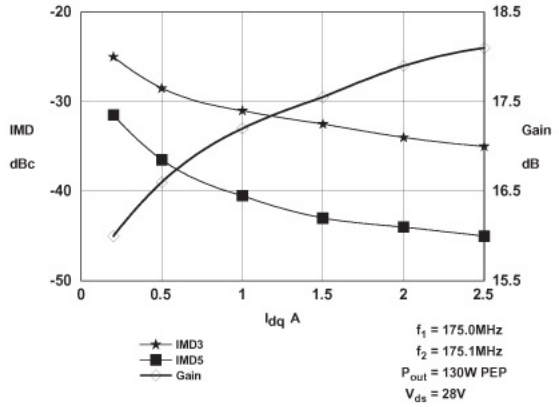
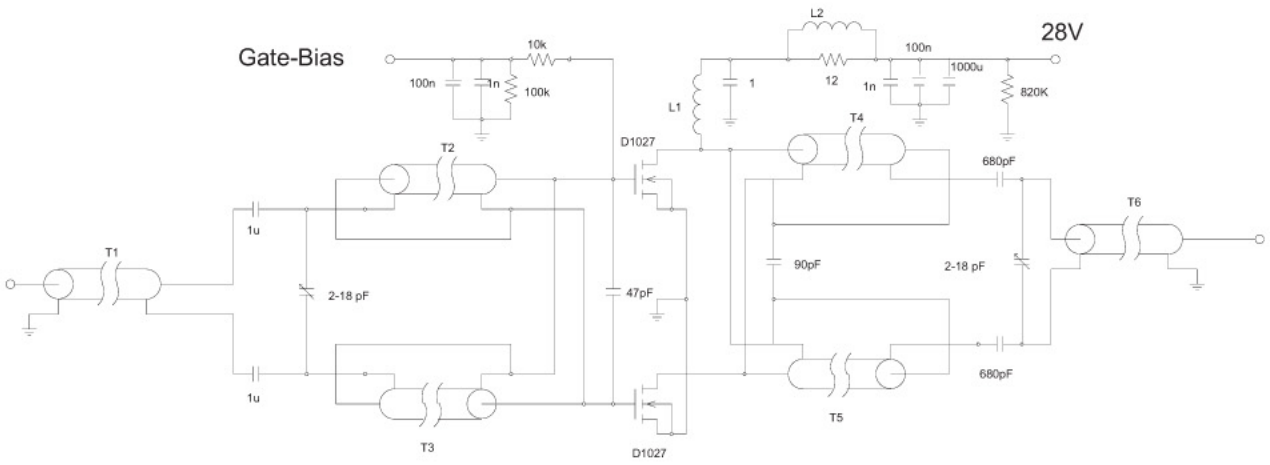


Figure 4 – IMD & Gain vs. I_{dq}



D1027 175MHz TEST FIXTURE

T1,2,3	**7cm Storm Products EXE18 19/30 S1TW coaxial cable on Siemens B62152A1X1 2-hole core.**
T4,5	**14cm Storm Products EXE18 19/30 S1TW coaxial cable.**
T6	**11cm Storm Products EXE18 19/30 S1TW coaxial cable**
L1	**6 turns 1.2mm dia wire, 5mm internal diameter**
L2	**1.5 turns 0.9mm dia wire on Siemens A1 x 1 2 hole core**