

**75W - 28V - 500MHz**  
**GOLD METALIZED BROADBAND**  
**SILICON DMOS RF FET**

**FEATURES**

- METAL GATE
- EXTRA LOW  $C_{rss}$
- BROAD BAND
- SIMPLE BIAS CIRCUITS
- LOW NOISE
- HIGH GAIN

**APPLICATIONS**

- HF/VHF/UHF COMMUNICATIONS

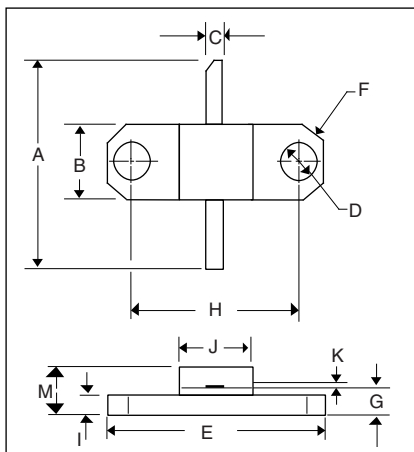
**ABSOLUTE MAXIMUM RATINGS**  
( $T_{CASE} = 25^{\circ}C$  unless otherwise stated)

$P_D$	Power Dissipation	175W
$BV_{DSS}$	Drain-source breakdown voltage	70V
$V_{GS}$	Gate-source voltage	$\pm 20V$
$I_D$	Drain Current	20A
$T_{stg}$	Storage temperature	-65 to 150°C
$T_j$	Maximum operating junction temperature	200°C
$R_{\theta j-c}$	Thermal resistance junction-case	Max. 1.0°C/W

**ELECTRICAL CHARACTERISTICS** ( $T_{CASE} = 25^{\circ}C$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Breakdown voltage, drain source $V_{GS}=0$ $I_D=100mA$	70			Vdc
$I_{DSS}$	Drain leakage current $V_{DS}=28V$ $V_{GS}=0$			4	mAdc
$I_{GSS}$	Gate leakage current $V_{GS}=20V$ $V_{DS}=0$			1	$\mu$ Adc
$V_{GS(th)}$	Gate threshold voltage $I_D=10mA$ $V_{DS}=V_{GS}$	1		7	Vdc
gfs	Transconductance (300 $\mu$ s pulse) $V_{DS}=10V$ $I_D=0.8A$	3.2			Mhos
$C_{iss}$	Input capacitance $V_{DS}=0$ $V_{GS}=-0$ $f=1MHz$			240	pF
$C_{oss}$	Output capacitance $V_{DS}=28$ $V_{GS}=0$ $f=1MHz$			120	pF
$C_{rss}$	Reverse transfer capacitance $V_{DS}=28$ $V_{GS}=0$ $f=1MHz$			10	pF
$G_{PS}$	Common source power gain $P_O=75W$	13			dB
$\eta$	Drain efficiency $V_{DS}=28V$ $I_{DQ}=0.8A$	40			%
VSWR	Load mismatch tolerance $f=500MHz$	20:1			

**DIMENSIONS**



DM	Millimeter	TOL	Inches	TOL
A	16.51	.25	.650	.010
B	6.35	.13	.250	.005
C	1.52	.13	.060	.005
D	3.30	.13	.130	.005
E	18.92	.05	.745	.002
F	1.27 X 45°	.13	.030 X 45°	.005
G	2.16	.13	.085	.005
H	14.22	.05	.560	.002
I	1.52	.13	.060	.005
J	6.35	.13	.250	.005
K	0.10	.02	.004	.001
M	5.08	MAX	.200	MAX

**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

\*D1019

\*PSPICE MODEL FOR POINT NINE TECHNOLOGIES, Inc RF N-CHANNEL VERTICAL DMOS POWER FET  
\*PRELIMINARY DATA, SEPTEMBER 1995

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*      _____GATE
*      I      _____DRAIN
*      I      I      _____SOURCE
*      I      I      I
.SUBCKT D1019  10      20      30
LG      10      11      0.43N
RGATE   11      12      0.20
CG      10      30      0.05P
CRSS    12      17      10P
CISS    12      14      240P
LS      14      30      0.075N
CS      14      30      0.1P
LD      17      20      0.21N
CD      20      30      1.44P
R_RC    16      17      35.73
C_RC    14      16      11.8P
MOS     13      12      14 15  D1019MOS  L=0.71U  W=0.225328  ;D G S B LEVEL1
JFET    17      14      13      D1019JF          ;D G S
DBODY   14      17          D1019DB          ;P N

.MODEL D1019MOS NMOS (VT0=2.2 KP=1.8E-5 LAMBDA=0.1 RD=0.07 RS=0.12)
.MODEL D1019JF  NJF  (VT0=-7.5 BETA=0.04 LAMBDA=1)
.MODEL D1019DB  D    (CJO=354P RS=0.25 VJ=0.7 M=0.33 BV=70)
.ENDS
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