POINT NINE
Technologies, Inc.

C201 TetraFET

80W - 28V - 1GHz

GOLD METALIZED MULTI-PURPOSE 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 from DC to 1GHz**

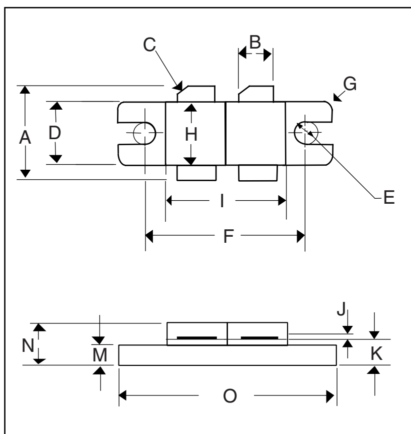
ABSOLUTE MAXIMUM RATINGS
(T_{CASE} = 25°C unless otherwise stated)

P_D	Power Dissipation	243W
BV_{DSS}	Drain-source breakdown voltage	65V
V_{GSS}	Gate-source voltage	±20V
I_D	Drain Current	24A
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. .72°C/W

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

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
		PER SIDE				
BV_{DSS}	Breakdown voltage, drain source	V_{GS}=0 I_D=100mA	65			Vdc
I_{DSS}	Drain leakage current	V_{DS}=28V V_{GS}=0			3	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=2.4A	2.4			Mhos
		TOTAL DEVICE				
G_{PS}	Common source power gain	P_O =80W	10			dB
η	Drain efficiency	V_{DS}=28V I_{DQ}=2.4A	40			%
VSWR	Load mismatch tolerance	f=1GHz	10:1			
		PER SIDE				
C_{iss}	Input capacitance	V_{DS}=0V V_{GS}=-5V f=1MHz			144	pF
C_{oss}	Output capacitance	V_{DS}=28V V_{GS}=0 f=1MHz			60	pF
C_{rss}	Reverse transfer capacitance	V_{DS}=28V V_{GS}=0 f=1MHz			4.5	pF

DIMENSIONS



DM	Millimeter	TOL	Inches	TOL
A	13.7	MIN	.54	MIN
B	5.72	.13	.225	.005
C	45°	5°	45°	5°
D	9.78	.13	.385	.005
E	1.65R	.13	.065R	.005
F	23.75	.13	.935	.005
G	1.52R	.13	.060R	.005
H	9.53	.13	.375	.005
I	19.18	.26	.755	.010
J	.13	.02	.005	.001
K	2.54	.13	.100	.005
M	1.52	.13	.060	.005
N	4.57	.50	.180	.020
O	30.48	.13	1.200	.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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*C201

*PSPICE MODEL FOR POINT NINE RF N-CHANNEL VERTICAL DMOS POWER FET
*May 2004


*                  ____GATE
*                  I   ____DRAIN
*                  I   I   ____SOURCE
*                  I   I   I
.SUBCKT C201  10  20  30
*Cin1,Cin2 & Lin model the input side of the package
Cin1   10    30    0.51p
Lin    10    11    0.44n
Cin2   11    30    0.51p

LG    11    12    0.4n      ;Gate bond wire inductance
CGS   12    13    127.2p    ;Gate-source capacitance
MOS   14    12    13     13  C201   L=0.9U W=0.1308    ;D G S B LEVEL1
JFET  16    13    14    C201                         ;D G S
DBODY 13    16    C201                               ;P N
LS    13    30    0.15n      ;Source bond wire inductance
CGD   12    16    3.6p       ;Gate-drain feedback capacitance

*Cout1,Cout2 & Lout model the output side of the package
Cout1   16    30    1p
Lout    16    20    0.85n
Cout2   20    30    1p

.MODEL C201  NMOS (VTO=3.52 KP=7.77E-4 LAMBDA=0.0224 RD=0.05 RS=0.22)
.MODEL C201  NJF  (VTO=-5.8 BETA=0.4392 LAMBDA=1.357)
.MODEL C201  D    (CJO=180P RS=0.25 VJ=0.7 M=0.33 BV=70)

.ENDS
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