Advance Information

The RF MOSFET Line

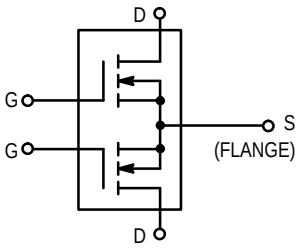
RF POWER Field-Effect Transistor

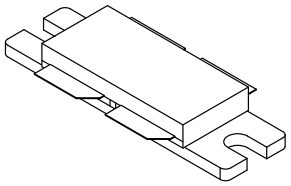
N–Channel Enhancement–Mode Lateral MOSFET

- High Gain, Rugged Device
- Broadband Performance from HF to 1 GHz
- Bottom Side Source Eliminates DC Isolators, Reducing Common Mode Inductances

MRF185

85 WATTS, 1.0 GHz
28 VOLTS
LATERAL N–CHANNEL
BROADBAND
RF POWER MOSFET





CASE 375B–02, STYLE 2

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DSS}	65	Vdc
Gate–Source Voltage	V_{GS}	±20	Vdc
Storage Temperature Range	T_{stg}	– 65 to +150	°C
Operating Junction Temperature	T_J	200	°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	250 1.45	Watts W/°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.7	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

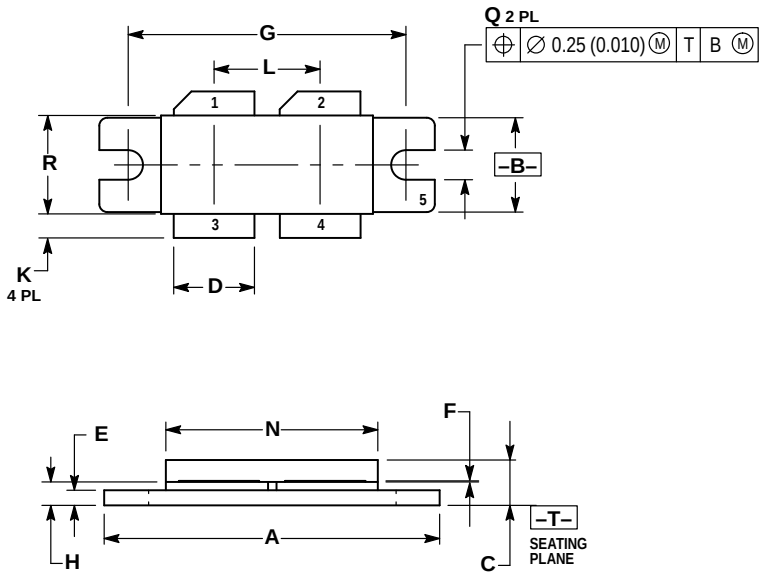
Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Drain–Source Breakdown Voltage (V_{GS} = 0 V, I_D = 1 μAdc)	$V_{(BR)DSS}$	65	–	–	Vdc
Zero Gate Voltage Drain Current (V_{DS} = 28 V, V_{GS} = 0 V)	I_{DSS}	–	–	1	μAdc
Gate–Source Leakage Current (V_{GS} = 20 V, V_{DS} = 0 V)	I_{GSS}	–	–	1	μAdc

NOTE – **CAUTION** – MOS devices are susceptible to damage from electrostatic charge. Reasonable precautions in handling and packaging MOS devices should be observed.

ELECTRICAL CHARACTERISTICS – continued (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
Gate Quiescent Voltage (V_{DS} = 26 V, I_D = 300 mA per side)	$V_{GS(Q)}$	3	4	5	Vdc
Delta Quiescent Voltage between sides (V_{DS} = 26 V, I_D = 300 mA per side)	$\Delta V_{GS(Q)}$	–	0.15	0.3	Vdc
Drain–Source On–Voltage (V_{GS} = 10 V, I_D = 3 A per side)	$V_{DS(on)}$	–	0.75	1	Vdc
Forward Transconductance (V_{DS} = 10 V, I_D = 3 A per side)	g_{fs}	1.6	2	–	s
DYNAMIC CHARACTERISTICS					
Output Capacitance (V_{DS} = 28 V, V_{GS} = 0 V, f = 1 MHz)	C_{oss}	–	38	–	pF
Reverse Transfer Capacitance (V_{DS} = 28 V, V_{GS} = 0 V, f = 1 MHz)	C_{rss}	–	4.6	6	pF
FUNCTIONAL CHARACTERISTICS					
Common Source Power Gain (V_{DD} = 28 V, P_{out} = 85 W, f = 960 MHz, I_{DQ} = 600 mA)	G_{ps}	11	14	–	dB
Drain Efficiency (V_{DD} = 28 V, P_{out} = 85 W, f = 960 MHz, I_{DQ} = 600 mA)	η	45	55	–	%
Load Mismatch (V_{DD} = 28 Vdc, P_{out} = 85 W, f = 960 MHz, I_{DQ} = 600 mA, Load VSWR 5:1 at All Phase Angles)	Ψ	No Degradation in Output Power			

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	1.330	1.350	33.79	34.29
B	0.375	0.395	9.52	10.03
C	0.180	0.210	4.57	5.33
D	0.320	0.340	8.13	8.64
E	0.060	0.070	1.52	1.77
F	0.004	0.006	0.11	0.15
G	1.100 BSC		27.94 BSC	
H	0.093	0.108	2.36	2.74
K	0.085	0.115	2.16	2.92
L	0.425 BSC		10.80 BSC	
N	0.845	0.875	21.46	22.23
Q	0.118	0.130	3.00	3.30
R	0.390	0.410	9.91	10.41

STYLE 2:
PIN 1. DRAIN
2. DRAIN
3. GATE
4. GATE
5. SOURCE

CASE 375B–02
ISSUE A

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