

SILICON MOS N-CHANNEL RF POWER TRANSISTOR

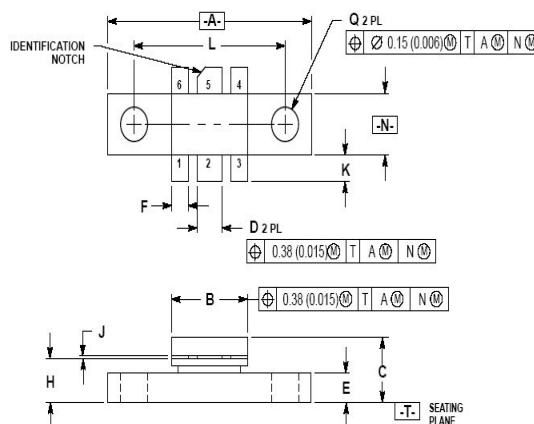
20 W, up to 500 MHz, Enhancement Mode

MRF166C

Designed primarily for wideband large-signal output and driver from 30–500 MHz.

Features:

- Performance at 400 MHz, 28 Vdc
- Power Gain: 14 dB Min
- Output Power: 20 W
- Efficiency: 50 % Min



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

DIM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	0.965	0.985	24.52	25.01
B	0.355	0.375	9.02	9.52
C	0.230	0.260	5.85	6.60
D	0.115	0.125	2.93	3.17
E	0.102	0.114	2.59	2.90
F	0.078	0.085	1.91	2.15
H	0.190	0.170	4.07	4.31
J	0.004	0.006	0.11	0.15
K	0.090	0.110	2.29	2.79
L	0.725 BSC		18.42 BSC	
N	0.225	0.241	5.72	6.12
Q	0.125	0.135	3.18	3.42

STYLE 3:
PIN 1: SOURCE (COMMON)
2: GATE (INPUT)
3: SOURCE (COMMON)
4: SOURCE (COMMON)
5: DRAIN (OUTPUT)
6: SOURCE (COMMON)

Absolute Maximum Ratings

Parameters	Sym	Value	Unit
Drain-Source Voltage	V_{DSS}	65	V_{DC}
Drain Current-Continuous	I_D	4.0	A_{DC}
Gate-Source Voltage	V_{GS}	± 40	V_{DC}
Storage Temperature Range	T_{STG}	-65 to +150	$^{\circ}C$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.5	$^{\circ}C/W$
Total Power Dissipation @ $T_C=25^{\circ}C$	P_D	70	W

CASE 319-07
ISSUE M

Parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage ($I_D=5.0$ mA, $V_{GS}=0$ V)	$V_{(BR)DSS}$	65	—	—	V_{DC}
Gate-Source Leakage Current ($V_{GS}=20$ V, $V_{DS}=0$ V)	I_{GSS}	—	—	1.0	μA_{DC}
Zero Gate Voltage Drain Leakage Current ($V_{DS} = 28$ V, $V_{GS}=0$ V)	I_{DSS}	—	—	1.0	mA_{DC}
Gate Threshold Voltage ($V_{DS} = 10$ V, $I_D = 25$ mA)	$V_{GS(TH)}$	1	—	6	V_{DC}
Forward Transconductance ($V_{DS} = 10$ V, $I_D = 1.5$ A)	G_{FS}	0.6	0.8	—	mhos
Input Capacitance ($V_{DS} = 28$ V, $V_{GS}=0$ V, $f = 1$ MHz)	C_{ISS}	—	30	—	pF
Output Capacitance ($V_{DS} = 28$ V, $V_{GS}=0$ V, $f = 1$ MHz)	C_{OSS}	—	35	—	pF
Reverse Transfer Capacitance ($V_{DS} = 28$ V, $V_{GS}=0$ V, $f = 1$ MHz)	C_{RSS}	—	4.5	—	pF
Power Gain ($V_{DS} = 28$ V, $P_{OUT} = 20$ W, $I_{DQ} = 100$ mA, $f = 400$ MHz)	G_p	14	16	—	dB
Drain Efficiency ($V_{DS} = 28$ V, $P_{OUT} = 20$ W, $I_{DQ} = 100$ mA, $f = 400$ MHz)	η_D	50	55	—	%

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Specification is subject to change without notice