

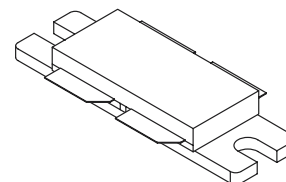
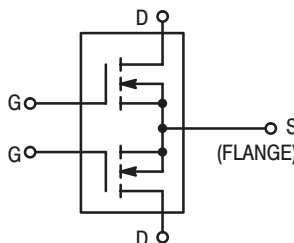


The RF MOSFET Line
RF Power Field-Effect Transistor
N-Channel Enhancement-Mode Lateral MOSFET

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

MRF185

**1.0 GHz, 85 W, 28 V
LATERAL N-CHANNEL
BROADBAND
RF POWER MOSFET**



**CASE 375B-04, STYLE 1
NI-860**

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	$^{\circ}C$
Operating Junction Temperature	T_J	200	$^{\circ}C$
Total Device Dissipation @ $T_C = 25^{\circ}C$ Derate above $25^{\circ}C$	P_D	250 1.45	Watts W/ $^{\circ}C$

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage ($V_{GS} = 0$ Vdc, $I_D = 1$ μ Adc)	$V_{(BR)DSS}$	65	-	-	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 28$ Vdc, $V_{GS} = 0$ Vdc)	I_{DSS}	-	-	1	μ Adc
Gate-Source Leakage Current ($V_{GS} = 20$ Vdc, $V_{DS} = 0$ Vdc)	I_{GSS}	-	-	1	μ Adc

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** ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

Gate Quiescent Voltage ($V_{DS} = 26\text{ V}$, $I_D = 300\text{ mA}$ per side)	$V_{GS(Q)}$	3	4	5	Vdc
Delta Quiescent Voltage between sides ($V_{DS} = 26\text{ V}$, $I_D = 300\text{ mA}$ per side)	$\Delta V_{GS(Q)}$	–	0.15	0.3	Vdc
Drain–Source On–Voltage ($V_{GS} = 10\text{ V}$, $I_D = 3\text{ A}$ per side)	$V_{DS(on)}$	–	0.75	1	Vdc
Forward Transconductance ($V_{DS} = 10\text{ V}$, $I_D = 3\text{ A}$ per side)	g_{fs}	1.6	2	–	s

DYNAMIC CHARACTERISTICS

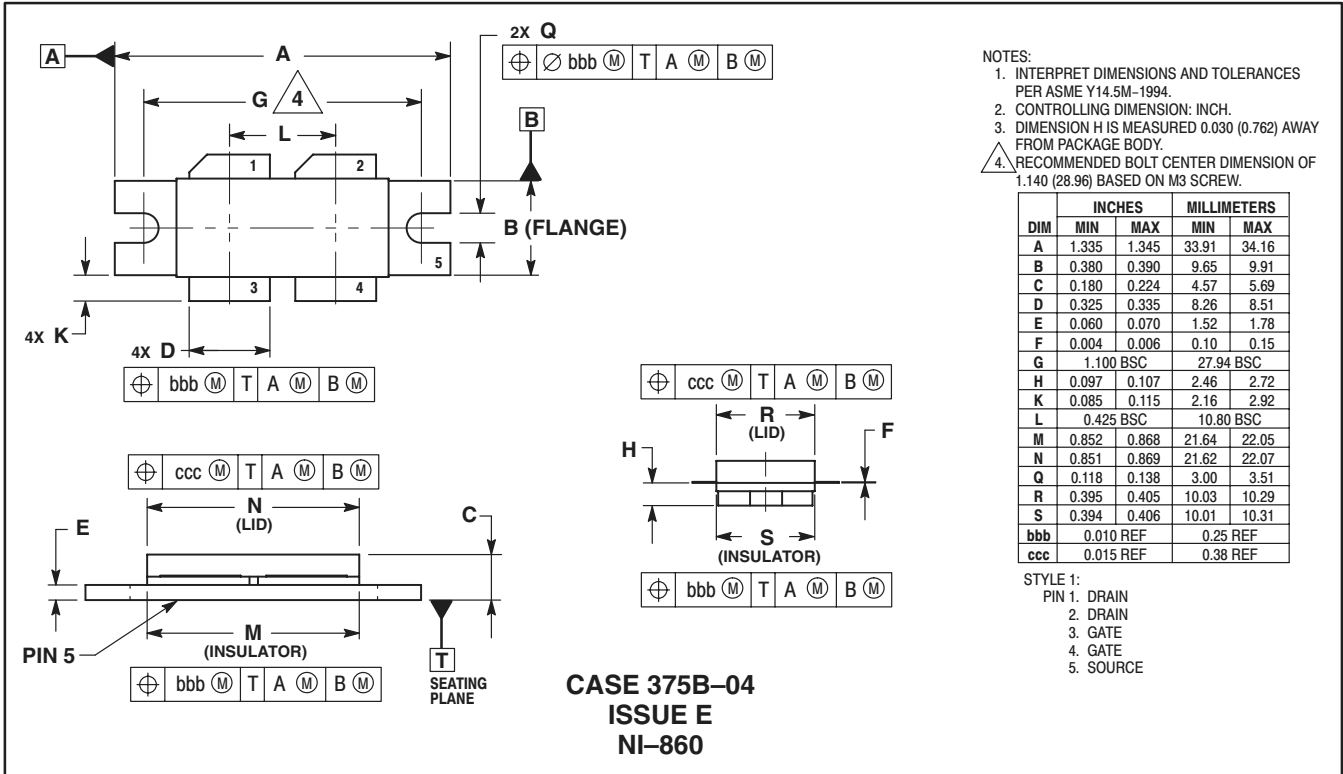
Output Capacitance ($V_{DS} = 28\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 1\text{ MHz}$)	C_{oss}	–	38	–	pF
Reverse Transfer Capacitance ($V_{DS} = 28\text{ V}$, $V_{GS} = 0\text{ V}$, $f = 1\text{ MHz}$)	C_{rss}	–	4.6	6	pF

FUNCTIONAL CHARACTERISTICS

Common Source Power Gain ($V_{DD} = 28\text{ V}$, $P_{out} = 85\text{ W}$, $f = 960\text{ MHz}$, $I_{DQ} = 600\text{ mA}$)	G_{ps}	11	14	–	dB
Drain Efficiency ($V_{DD} = 28\text{ V}$, $P_{out} = 85\text{ W}$, $f = 960\text{ MHz}$, $I_{DQ} = 600\text{ mA}$)	η	45	53	–	%
Load Mismatch ($V_{DD} = 28\text{ Vdc}$, $P_{out} = 85\text{ W}$, $f = 960\text{ MHz}$, $I_{DQ} = 600\text{ mA}$, Load VSWR 5:1 at All Phase Angles)	Ψ	No Degradation in Output Power			



PACKAGE DIMENSIONS



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