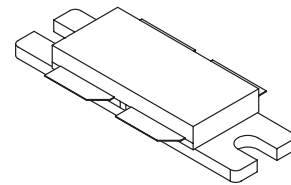
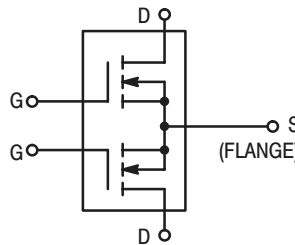


The RF MOSFET Line  
**RF Power Field-Effect Transistor**  
N-Channel Enhancement-Mode Lateral MOSFET

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

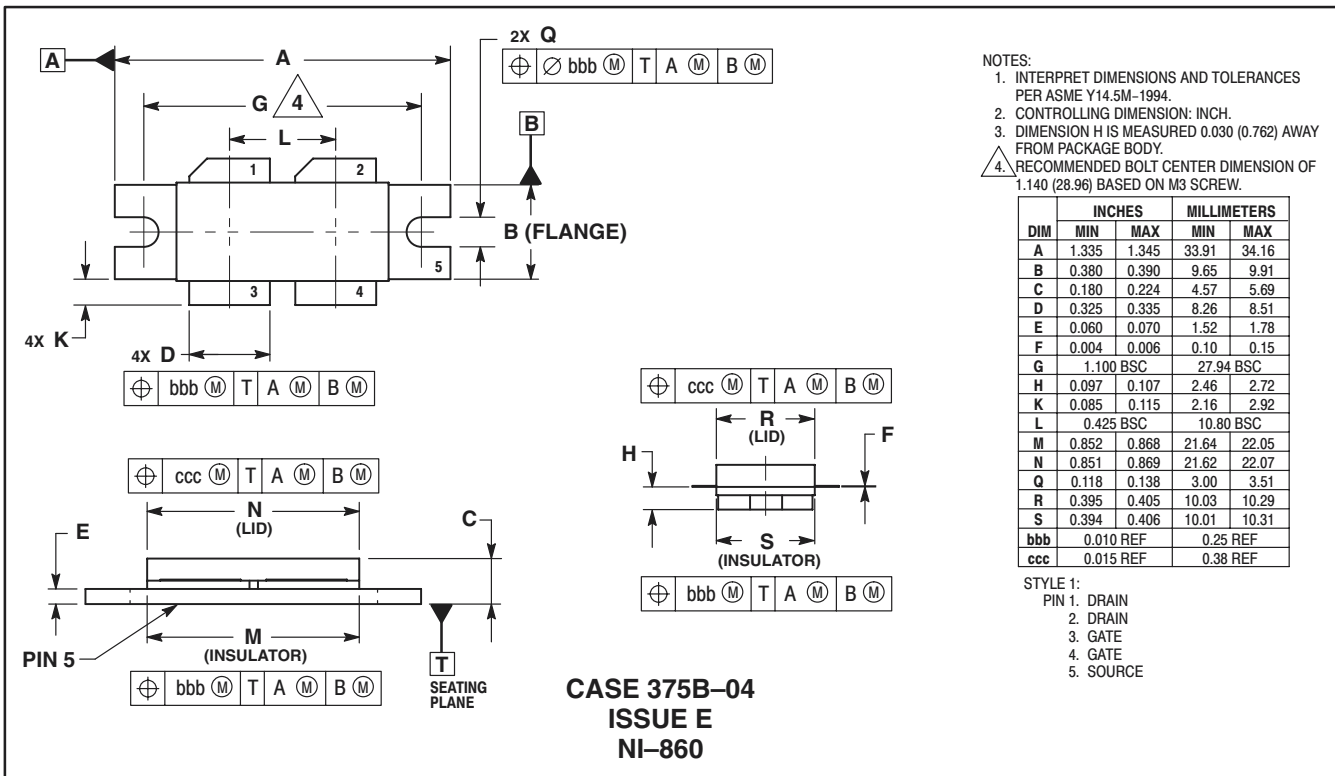
Output Capacitance ( $V_{DS} = 28\text{ V}$ , $V_{GS} = 0\text{ V}$ , $f = 1\text{ MHz}$ )	$C_{oss}$	–	38	–	pF
Reverse Transfer Capacitance ( $V_{DS} = 28\text{ V}$ , $V_{GS} = 0\text{ V}$ , $f = 1\text{ MHz}$ )	$C_{rss}$	–	4.6	6	pF

**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 ( $V_{DD} = 28\text{ V}$ , $P_{out} = 85\text{ W}$ , $f = 960\text{ MHz}$ , $I_{DQ} = 600\text{ mA}$ )	$\eta$	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)	$\Psi$	No Degradation in Output Power			

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PACKAGE DIMENSIONS



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