

200 VOLT, 25 AMP N-CHANNEL MOSFET IN HERMETIC TO-254 PACKAGE

ABSOLUTE MAXIMUM RATINGS @ $T_c = 25^\circ\text{C}$, unless otherwise stated

Parameter		Rating	Units
BV_{DSS}	Drain to Source Breakdown Voltage	200	V
$I_D @ V_{GS} = 10V, T_c = 25^\circ\text{C}$	Continuous Drain Current	35	A
$I_D @ V_{GS} = 10V, T_c = 100^\circ\text{C}$	Continuous Drain Current	28	A
I_{DM}	Pulsed Drain Current	180	A
$P_D @ T_c = 25^\circ\text{C}$	Maximum Power Dissipation	250	W
V_{GS}	Gate to Source Voltage	± 20	V
dv/dt	Peak Diode Recovery dv/dt	4.3	V/ns
T_J	Operating Junction Temperature	-55 to +150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +150	$^\circ\text{C}$
	Lead Temperature (0.063 in. from case for 10s)	300	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ $T_J = 25^\circ\text{C}$, unless otherwise stated

Parameter		Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS}	Drain to Source Breakdown Voltage	200	-	-	V	$V_{GS} = 0V, I_D = 1.0 \text{ mA}$
$R_{DS(on)}$	Static Drain to Source On State Resistance	-	0.055	0.065		$V_{GS} = 10V, I_D = 28A$
$V_{GS(th)}$	Gate Threshold Voltage	2.0	-	4.0	V	$V_{DS} = V_{GS}, I_D = 250 \mu A$
g_{fs}	Forward Transconductance	22.0	-	-		$V_{DS} = 15V, I_{DS} = 25A$
I_{DSS}	Zero Gate Voltage Drain Current	-	-	25 250	μA	$V_{DS} = 0.8 \times \text{Max. Rating}, V_{GS} = 0V$ $V_{DS} = 0.8 \times \text{Max. Rating}$ $V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate to Source Leakage Forward	-	-	100	nA	$V_{GS} = 20V$
I_{GSS}	Gate to Source Leakage Reverse	-	-	-100	nA	$V_{GS} = -20V$
Q_g	Total Gate Charge	-	-	230	nC	$V_{GS} = 10V, I_D = 35A$ $V_{DS} = \text{Max. Rating} \times 0.5$
Q_{gs}	Gate to Source Charge	-	-	40		
Q_{gd}	Gate to Drain Charge	-	-	110		

SF25N20D4

PRODUCT DATA SHEET

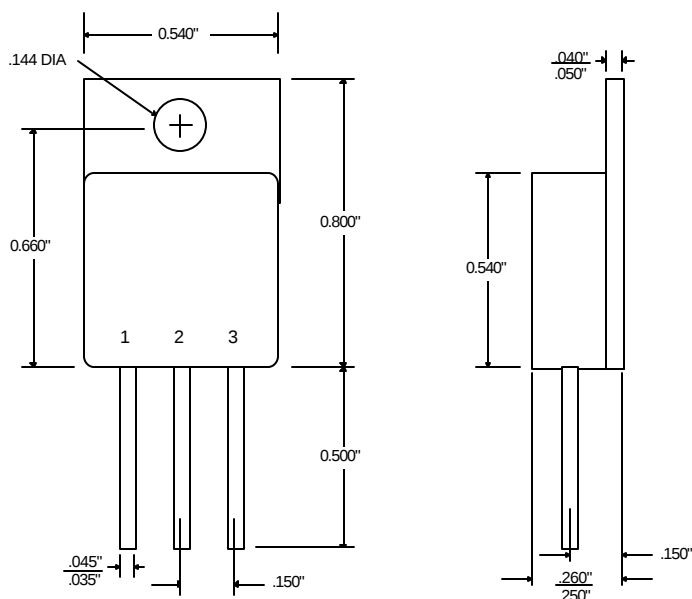
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Parameter	Min.	Typ.	Max.	Units	Test Conditions
I_S			35	A	
Continuous Source Current (Body Diode)	-	-			
I_{SM}			180	V	$T_J = 25^\circ\text{C}$, $I_S = 35\text{A}$, $V_{GS} = 0\text{V}$
Pulsed Source Current (Body Diode)	-	-			
V_{SD}	-	-	1.8	nS	$T_J = 25^\circ\text{C}$, $I_F = 35\text{A}$, $di/dt = 100\text{A}/\mu\text{S}$
t_{rr}	-	-	420		
Reverse Recovery Time	-	-			

THERMAL RESISTANCE

Parameter	Min.	Typ.	Max.	Units	Test Conditions
R_{thJC}			0.50	$^\circ\text{C}/\text{W}$	
Junction-to-Case	-	-			
R_{thCS}		0.2	-		
Case-to-Sink	-	-			
R_{thJA}			50		
Junction-to-Ambient	-	-			

MECHANICAL OUTLINE



PIN CONNECTION
 PIN 1: DRAIN
 PIN 2: SOURCE
 PIN 3: GATE