

100 VOLT, 57 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	100	V
$I_D @ V_{GS} = 10\text{V}, T_c = 25^\circ\text{C}$	Continuous Drain Current <u>1/</u>	57	A
$I_D @ V_{GS} = 10\text{V}, T_c = 100^\circ\text{C}$	Continuous Drain Current <u>1/</u>	40	A
I_{DM}	Pulsed Drain Current	180	A
$P_D @ T_c = 25^\circ\text{C}$	Maximum Power Dissipation	200	W
V_{GS}	Gate to Source Voltage	± 20	V
dv/dt	Peak Diode Recovery dv/dt	5.0	V/ns
T_j	Operating Junction Temperature	-55 to +175	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 to +175	$^\circ\text{C}$
	Lead Temperature (0.063 in. from case for 10s)	300	$^\circ\text{C}$

1/ Package pins limited to 25A continuous

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	100	-	-	V	$V_{GS} = 0\text{V}, I_D = 1.0\text{ mA}$
$R_{DS(on)}$	Static Drain to Source On State Resistance	-	0.028	0.030	Ω	$V_{GS} = 10\text{V}, I_D = 28\text{A}$
$V_{GS(th)}$	Gate Threshold Voltage	2.0	-	4.0	V	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$
g_{fs}	Forward Transconductance	20	-	-		$V_{DS} = 25\text{V}, I_{DS} = 28\text{A}$
I_{DSS}	Zero Gate Voltage Drain Current	-	-	25 250	μA	$V_{DS} = 100\text{V}, V_{GS} = 0\text{V}$ $V_{DS} = 0.8 \times \text{Max. Rating}$ $V_{GS} = 0\text{V}, T_j = 125^\circ\text{C}$
I_{GSS}	Gate to Source Leakage Forward	-	-	100	nA	$V_{GS} = 20\text{V}$
I_{GSS}	Gate to Source Leakage Reverse	-	-	-100	nA	$V_{GS} = -20\text{V}$
Q_g	Total Gate Charge	-	-	190	nC	$I_D = 28\text{A}$ $V_{DS} = \text{Max. Rating} \times 0.8$ $V_{GS} = 1.7\text{V}$
Q_{gs}	Gate to Source Charge	-	-	26		
Q_{gd}	Gate to Drain Charge	-	-	82		

SF57L10D4

PRODUCT DATA SHEET

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

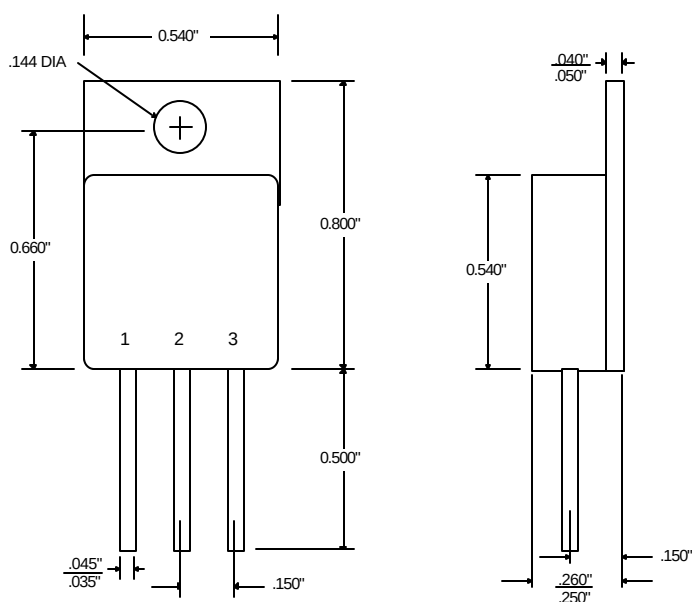
Parameter		Min.	Typ.	Max.	Units	Test Conditions
I_S	Continuous Source Current (Body Diode) <u>1/</u>	-	-	57	A	
I_{SM}	Pulsed Source Current (Body Diode)	-	-	180		
V_{SD}	Diode Forward Voltage	-	-	1.3	V	$T_J = 25^\circ\text{C}$, $I_S = 28\text{A}$, $V_{GS} = 0\text{V}$
t_{rr}	Reverse Recovery Time	-	-	320	nS	$T_J = 25^\circ\text{C}$, $I_F = 28\text{A}$, $di/dt = 100\text{A}/\mu\text{S}$

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THERMAL RESISTANCE

Parameter		Min.	Typ.	Max.	Units	Test Conditions
R_{thJC}	Junction-to-Case	-	-	1.0	$^\circ\text{C}/\text{W}$	
R_{thCS}	Case-to-Sink	-	0.2	-		
R_{thJA}	Junction-to-Ambient	-	-	50		

MECHANICAL OUTLINE



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