

TECHNICAL DATA  
DATA SHEET 349, REV -

## HERMETIC POWER MOSFET P-CHANNEL

### FEATURES:

- -100 Volt, 0.2 Ohm, -18A MOSFET
- Electrically Isolated Hermetically Sealed
- Low  $R_{DS(on)}$
- Equivalent to IRF9140 Series

### MAXIMUM RATINGS

ALL RATINGS ARE AT  $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE SPECIFIED.

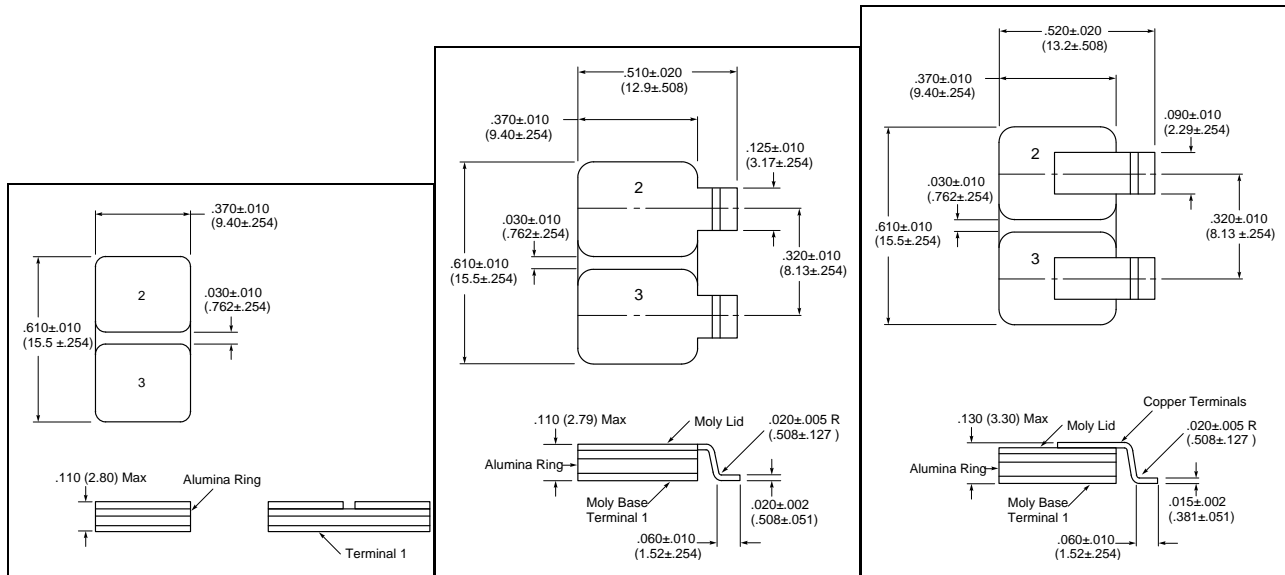
RATING	SYMBOL	MIN.	TYP.	MAX.	UNITS
GATE TO SOURCE VOLTAGE	$V_{GS}$	-	-	$\pm 20$	Volts
CONTINUOUS DRAIN CURRENT $V_{GS}=10\text{V}, T_C=25^\circ\text{C}$ $V_{GS}=10\text{V}, T_C=100^\circ\text{C}$	$I_D$	-	-	-18 -11	Amps
PULSED DRAIN CURRENT @ $T_C=25^\circ\text{C}$	$I_{DM}$	-	-	-72	Amps
OPERATING AND STORAGE TEMPERATURE	$T_{OP}/T_{STG}$	-55	-	+150	$^\circ\text{C}$
TERMAL RESISTANCE JUNCTION TO CASE	$R_{\theta JC}$	-	-	0.75	$^\circ\text{C}/\text{W}$
TOTAL DEVICE DISSIPATION @ $T_C=25^\circ\text{C}$	$P_D$	-	-	167	Watts

### ELECTRICAL CHARACTERISTICS

DRAIN TO SOURCE BREAKDOWN VOLTAGE $V_{GS} = 0\text{V}, I_D = 1.0\text{mA}$	$BV_{DSS}$	-100	-	-	Volts
DRAIN TO SOURCE ON STATE RESISTANCE $V_{GS} = -10\text{V}, I_D = -11\text{A}$ $V_{GS} = -10\text{V}, I_D = -18\text{A}$	$R_{DS(ON)}$	-	-	0.20 0.22	$\Omega$
GATE THRESHOLD VOLTAGE $V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	$V_{GS(th)}$	-2.0	-	-4.0	Volts
FORWARD TRANSCONDUCTANCE $V_{DS} \geq -15\text{V}, I_{DS} = -11\text{A}$	$g_{fs}$	6.2	-	-	$\text{S}(1/\Omega)$
ZERO GATE VOLTAGE DRAIN CURRENT $V_{DS} = 0.8 \times \text{Max. Rating}, V_{GS} = 0\text{V}$ $V_{DS} = 0.8 \times \text{Max. Rating}$ $V_{GS} = 0\text{V}, T_J = 125^\circ\text{C}$	$I_{DSS}$	-	-	-25 -250	$\mu\text{A}$
GATE TO SOURCE LEAKAGE FORWARD $V_{GS} = -20\text{V}$ GATE TO SOURCE LEAKAGE REVERSE $V_{GS} = 20\text{V}$	$I_{GSS}$	-	-	-100 100	nA
TOTAL GATE CHARGE $V_{GS} = -10\text{V}$	$Q_g$	31	-	60	nC
GATE TO SOURCE CHARGE $V_{DS} = \text{Max. Rating} \times 0.5$	$Q_{gs}$	3.7	-	13	
GATE TO DRAIN CHARGE $I_D = -18\text{A}$	$Q_{gd}$	7.0	-	35.2	
TURN ON DELAY TIME $V_{DD} = -50\text{V},$ RISE TIME $I_D = -11\text{A},$	$t_{d(on)}$ $t_r$	-	-	35 85	nsec
TURN OFF DELAY TIME $R_G = 9.1\Omega$ FALL TIME	$t_{d(off)}$ $t_f$	-	-	85 65	
DIODE FORWARD VOLTAGE $T_J = 25^\circ\text{C}, I_S = -18\text{A},$ $V_{GS} = 0\text{V}$	$V_{SD}$	-	-	-4.2	Volts
DIODE REVERSE RECOVERY TIME $T_J = 25^\circ\text{C},$ REVERSE RECOVERY CHARGE $I_F = -18\text{A},$ $di/dt = -100\text{A}/\mu\text{sec},$ $V_{DD} \leq -50\text{V}$	$t_{rr}$ $Q_{rr}$	-	-	280 3.6	nsec $\mu\text{C}$
INPUT CAPACITANCE $V_{GS} = 0\text{V},$ OUTPUT CAPACITANCE $V_{DS} = 25\text{V},$ REVERSE TRANSFER CAPACITANCE $f = 1.0\text{MHz}$ DRAIN TO CASE CAPACITANCE	$C_{iss}$ $C_{oss}$ $C_{rss}$ $C_{DC}$	-	1400 600 200 12	-	pF

**SENSITRON  
DATA SHEET 349  
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**MECHANICAL DIMENSIONS: in Inches / mm**



**SHD-5**

**SHD-5A**

**SHD-5B**

**PINOUT TABLE**

DEVICE TYPE	PIN 1	PIN 2	PIN 3
MOSFET	DRAIN	SOURCE	GATE
SHD-5/A/B PACKAGE			

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