

TECHNICAL DATA  
DATA SHEET 863, REV -

## HERMETIC POWER MOSFET N-CHANNEL

**FEATURES:**

- 100 Volt, 0.020 Ohm MOSFET
- Isolated and Hermetically Sealed
- Surface Mount Package

**MAXIMUM RATINGS**

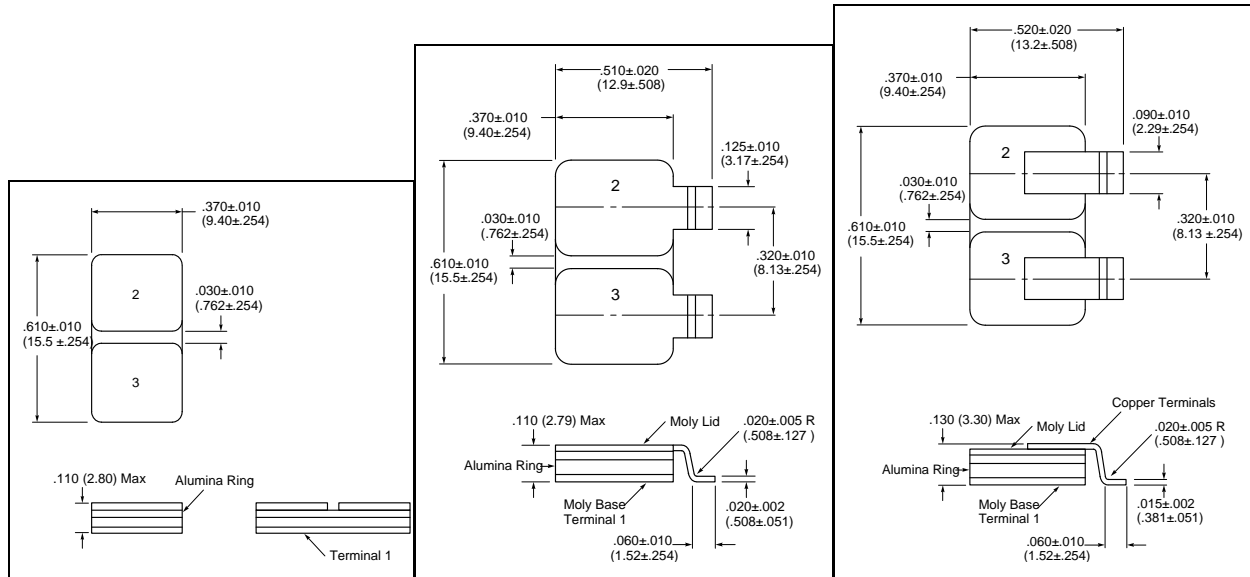
ALL RATINGS ARE AT  $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE SPECIFIED.

| RATING   | SYMBOL           | MIN. | TYP. | MAX.     | UNITS                     |
|--|------------------|------|------|----------|---------------------------|
| GATE TO SOURCE VOLTAGE   | $V_{GS}$         | -    | -    | $\pm 20$ | Volts                     |
| CONTINUOUS DRAIN CURRENT $V_{GS}=10\text{V}, T_C = 25^\circ\text{C}$<br>$V_{GS}=10\text{V}, T_C = 100^\circ\text{C}$ | $I_D$            | -    | -    | 75<br>60 | Amps                      |
| PULSED DRAIN CURRENT @ $T_C = 25^\circ\text{C}$  | $I_{DM}$         | -    | -    | 300      | Amps                      |
| OPERATING AND STORAGE TEMPERATURE  | $T_{OP}/T_{STG}$ | -55  | -    | +150     | $^\circ\text{C}$          |
| TERMAL RESISTANCE JUNCTION TO CASE   | $R_{\theta JC}$  | -    | -    | 0.30     | $^\circ\text{C}/\text{W}$ |
| TOTAL DEVICE DISSIPATION @ $T_C = 25^\circ\text{C}$  | $P_D$            | -    | -    | 300      | Watts                     |

**ELECTRICAL CHARACTERISTICS**

|  |   |     |                      |                      |                      |
|--|---|-----|----------------------|----------------------|----------------------|
| DRAIN TO SOURCE BREAKDOWN VOLTAGE<br>$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$  | $BV_{DSS}$                                    | 100 | -                    | -                    | Volts                |
| DRAIN TO SOURCE ON STATE RESISTANCE<br>$V_{GS} = 10\text{V}, I_D = 37.5\text{A}$<br>$V_{GS} = 10\text{V}, I_D = 37.5\text{A}, T_J = 125^\circ\text{C}$       | $R_{DS(ON)}$                                  | -   | -                    | 0.02<br>0.035        | $\Omega$             |
| GATE THRESHOLD VOLTAGE $V_{DS} = V_{GS}, I_D = 1\text{mA}$   | $V_{GS(th)}$                                  | 2.0 | -                    | 4.0                  | Volts                |
| FORWARD TRANSCONDUCTANCE<br>$V_{DS} \geq 10\text{V}, I_D = 75\text{A}$   | $g_{fs}$                                      | 25  | -                    | -                    | $\text{S}(1/\Omega)$ |
| ZERO GATE VOLTAGE DRAIN CURRENT, $T_J = 25^\circ\text{C}$<br>( $V_{DS} = 0.8 \times \text{Max. Rating}, V_{GS} = 0\text{V}$ ), $T_J = 125^\circ\text{C}$     | $I_{DSS}$                                     | -   | -                    | 250<br>1000          | $\mu\text{A}$        |
| GATE TO SOURCE LEAKAGE FORWARD $V_{GS} = 20\text{V}$<br>GATE TO SOURCE LEAKAGE REVERSE $V_{GS} = -20\text{V}$  | $I_{GSS}$                                     | -   | -                    | 100<br>-100          | nA                   |
| TOTAL GATE CHARGE $V_{GS} = 10\text{V}$ ,<br>GATE TO SOURCE CHARGE $V_{DS} = 50\text{V}$ ,<br>GATE TO DRAIN CHARGE $I_D = 37.5\text{A}$                      | $Q_g$<br>$Q_{gs}$<br>$Q_{gd}$                 | -   | 180<br>36<br>85      | 260<br>70<br>160     | nC                   |
| TURN ON DELAY TIME $V_{DD} = 250\text{V}$ ,<br>RISE TIME $I_D = 3.7\text{A}$ ,<br>TURN OFF DELAY TIME $R_G = 2.0\Omega$ ,<br>FALL TIME $V_{GS} = 15\text{V}$ | $t_{d(ON)}$<br>$t_r$<br>$t_{d(OFF)}$<br>$t_f$ | -   | 20<br>40<br>50<br>20 | 30<br>40<br>75<br>40 | nsec                 |
| DIODE FORWARD VOLTAGE $T_J = 25^\circ\text{C}, I_F = I_S$<br>$V_{GS} = 0\text{V}$  | $V_{SD}$                                      | -   | -                    | 1.3                  | Volts                |
| REVERSE RECOVERY TIME $T_J = 25^\circ\text{C}$ ,<br>$I_S = 10\text{A}$ ,<br>$di/dt \leq 100\text{A}/\mu\text{sec}$ ,   | $t_{rr}$                                      | -   | -                    | 200                  | nsec                 |
| REVERSE RECOVERY CHARGE  | $Q_{rr}$                                      | -   | -                    | 1.4                  | $\mu\text{C}$        |
| INPUT CAPACITANCE $V_{GS} = 0\text{V}, V_{DS} = 25\text{V}$ ,<br>OUTPUT CAPACITANCE $f=1\text{MHz}$  | $C_{iss}$<br>$C_{oss}$<br>$C_{rss}$           | -   | 4500<br>1600<br>800  | -                    | pF                   |

**MECHANICAL DIMENSIONS: in Inches / mm**



**SHD-5/5A/5B**

**PINOUT TABLE**

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

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