

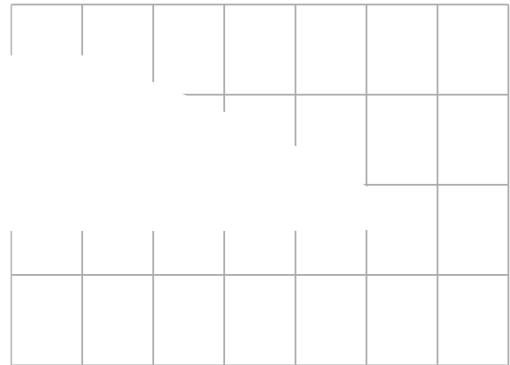
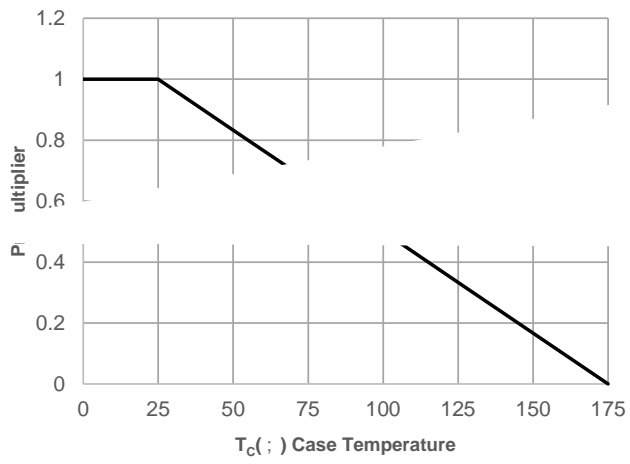
Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------|------|------|-----------|------|
| Off Characteristics | | | | | | |
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $I_D = 250\text{ A}, V_{GS} = 0\text{V}$ | 40 | - | - | V |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS} = 32\text{V}, V_{GS} = 0\text{V}$ | - | - | 1.0 | A |
| I_{GSS} | Gate-Body Leakage Current | $V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$ | - | - | ± 100 | nA |
| On Characteristics | | | | | | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS} = V_{GS}, I_D = 250\text{ A}$ | 2.0 | 2.8 | 3.7 | V |
| $R_{DS(ON)}$ | Static Drain-Source ON-Resistance ⁽⁴⁾ | $V_{GS} = 10\text{V}, I_D = 20\text{A}$ | - | 2.8 | 3.7 | m |
| Dynamic Characteristics | | | | | | |
| R_g | Gate Resistance | $f = 1\text{MHz}$ | - | 0.7 | - | |
| C_{iss} | Input Capacitance | $V_{GS} = 0\text{V}, V_{DS} = 20\text{V}, f = 1\text{MHz}$ | 1398 | 1958 | 2643 | pF |
| C_{oss} | Output Capacitance | | 890 | 1246 | 1682 | pF |
| C_{riss} | Reverse Transfer Capacitance | | 65 | 91 | 123 | pF |
| Q_g | Total Gate Charge | $V_{GS} = 0\text{ to }10\text{V}$ $V_{DS} = 20\text{V}, I_D = 20\text{A}$ | 22 | 30 | 41 | nC |
| Q_{gs} | Gate Source Charge | | - | 10 | - | nC |
| Q_{gd} | Gate Drain("Miller") Charge | | - | 8 | - | nC |
| Switching Characteristics | | | | | | |
| $t_{d(on)}$ | Turn-On DelayTime | $V_{GS} = 10\text{V}, V_{DD} = 20\text{V}$ $I_D = 20\text{A}, R_{GEN} = 3$ | - | 13 | - | ns |
| t_r | Turn-On Rise Time | | - | 28 | - | ns |
| $t_{d(off)}$ | Turn-Off DelayTime | | - | 21 | - | ns |
| t_f | Turn-Off Fall Time | | - | 8 | - | ns |
| Body Diode Characteristics | | | | | | |
| I_S | Maximum Continuous Body Diode Forward Current | | - | - | 137 | A |
| I_{SM} | Maximum Pulsed Body Diode Forward Current | | - | - | 550 | A |
| V_{SD} | Body Diode Forward Voltage | $V_{GS} = 0\text{V}, I_S = 20\text{A}$ | - | | 1.2 | V |
| t_{rr} | Body Diode Reverse Recovery Time | $I_F = 20\text{A}, di/dt = 100\text{A/us}$ | 27 | 38 | 52 | ns |
| Q_{rr} | Body Diode Reverse Recovery Charge | | - | 35 | - | nC |

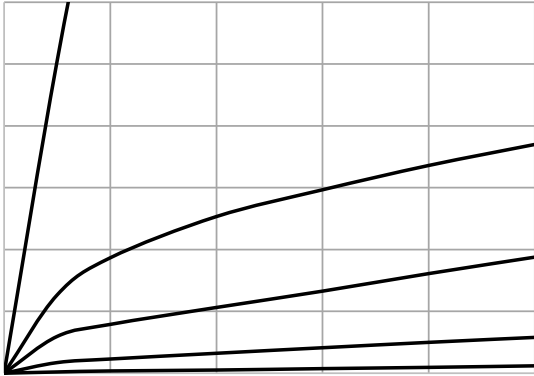
- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J=25^\circ\text{C}$, $V_{DD}=20\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\text{ohm}$, $L=3\text{mH}$, $I_{AS}=11.9\text{A}$, $V_{DD}=0\text{V}$ during time in avalanche.
 3. R_{JA} is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB.
 4. Pulse Test: Pulse Width 300 μs , Duty Cycle 0.5%.

Typical Performance Characteristics

Figure 1: Power De-rating



Typical Performance Characteristics



Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

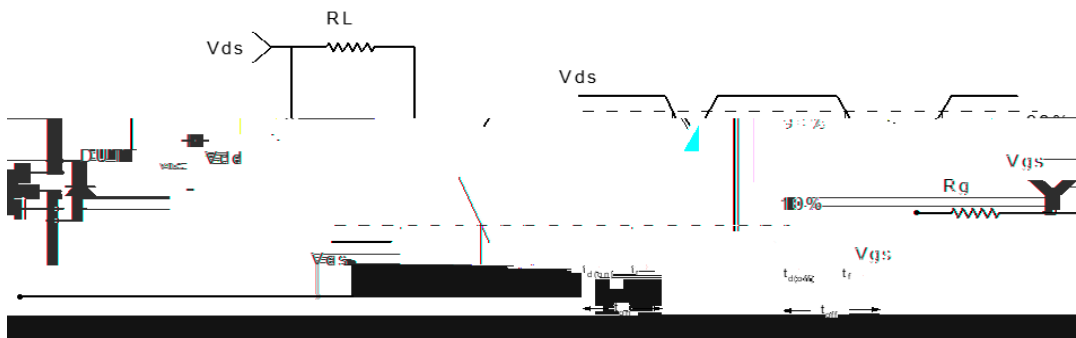


Figure 2: Resistive Switching Test Circuit & Waveform

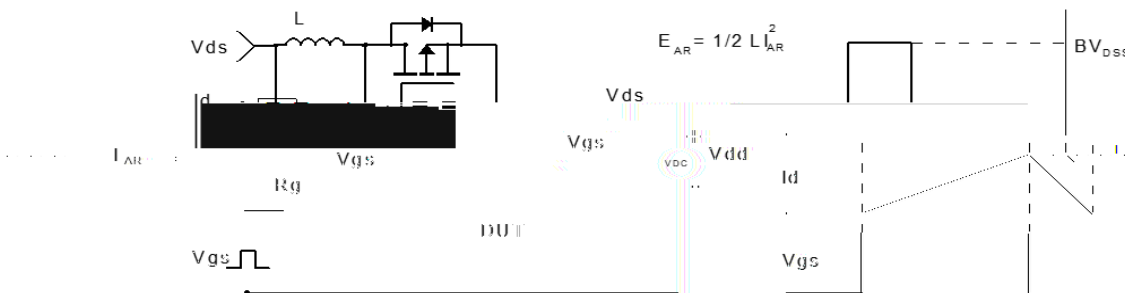


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

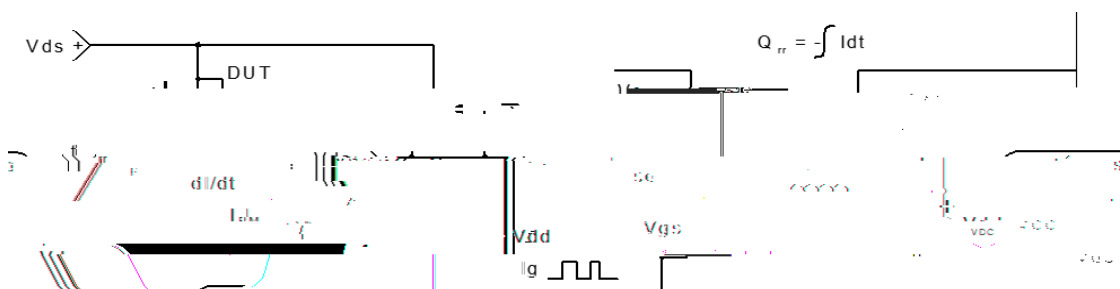
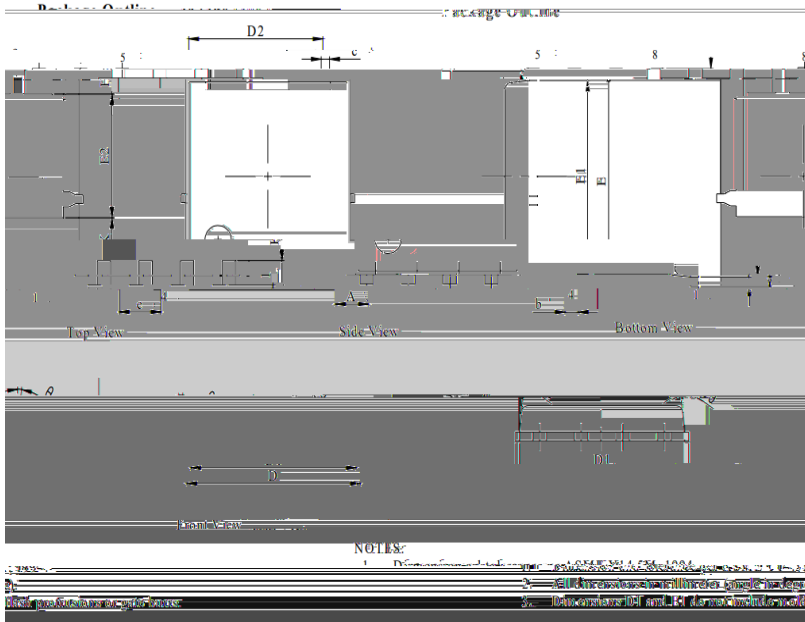


Figure 4: Diode Recovery Test Circuit & Waveform





Package Mechanical Data(PDFN5X6-8L)



| DIM. | MILLIMETER | | |
|------|------------|------|------|
| | MIN. | NOM. | MAX. |
| A | 0.9 | 1 | 1.15 |
| b | 0.31 | 0.41 | 0.51 |

| | | | |
|----|----------|------|--|
| D1 | 4.95 | 5.05 | |
| D2 | 4 | 4.1 | |
| E | 6.05 | 6.15 | |
| E1 | 5.5 | 5.6 | |
| E2 | 3.42 | 3.53 | |
| e | 1.27BSC | | |
| H | 0.6 | 0.7 | |
| L | 0.5 | 0.7 | |
| K | 1.23 REF | | |
| O | | | |



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