



| | Value | Unit |
|--|--------------|-------------|
| | 80 | V |
| | 3.0 | V |
| | 148 | A |
| | 3.8 | m Ω |

Marking



Electrical Characteristics (T_J = 25°C unless otherwise specified)

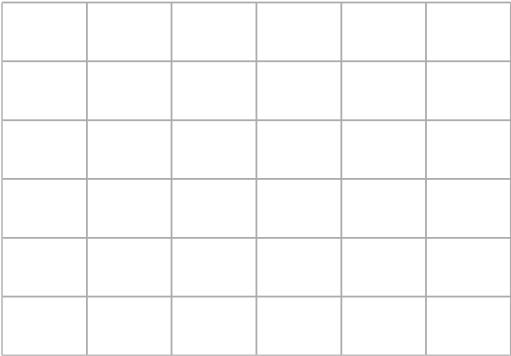
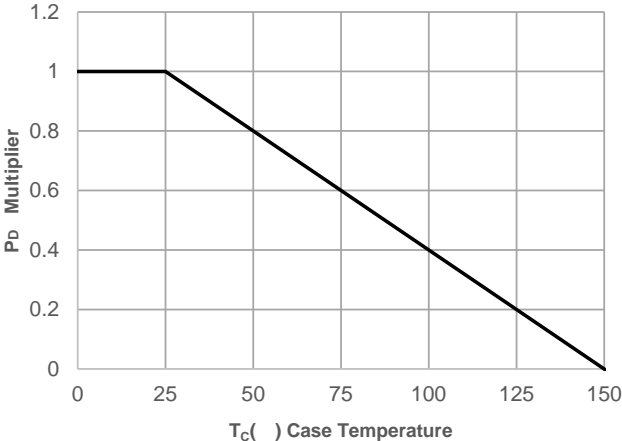
| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------------------|--|---|------|------|------|------|
| Off Characteristics | | | | | | |
| V _{(BR)DSS} | Drain-Source Breakdown Voltage | I _D = 250μA, V _{GS} = 0V | 80 | - | - | V |
| I _{DSS} | Zero Gate Voltage Drain Current | V _{DS} = 64V, V _{GS} = 0V | - | - | 1.0 | μ |
| I _{GSS} | Gate-Body Leakage Current | V _{DS} = 0V, V _{GS} = ±20V | - | - | ±100 | |
| On Characteristics | | | | | | |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} = V _{GS} , I _D = 250μA | 2.1 | 3.0 | 4.0 | V |
| R _{DS(ON)} | Static Drain-Source ON-Resistance ⁽⁴⁾ | V _{GS} = 10V, I _D = 20A | - | 3.8 | 4.2 | mΩ |
| Dynamic Characteristics | | | | | | |
| R _g | Gate Resistance | f = 1MHz | - | 0.7 | - | Ω |
| C _{iss} | Input Capacitance | V _{GS} = 0V, V _{DS} = 40V, f = 1MHz | - | 4769 | 6439 | pF |
| C _{oss} | Output Capacitance | | - | 809 | 1092 | pF |
| C _{rss} | Reverse Transfer Capacitance | | - | 12 | 16 | pF |
| Q _g | Total Gate Charge | V _{GS} = 0 to 10V V _{DS} = 40V, I _D = 20A | - | 67 | - | nC |
| Q _{gs} | Gate Source Charge | | - | 26 | - | nC |
| Q _{gd} | Gate Drain("Miller") Charge | | - | 12 | - | nC |
| Switching Characteristics | | | | | | |
| t _{d(on)} | Turn-On DelayTime | V _{GS} = 10V, V _{DD} = 40V I _D = 20A, R _{GEN} = 3Ω | - | 23 | - | ns |
| t _r | Turn-On Rise Time | | - | 30 | - | ns |
| t _{d(off)} | Turn-Off DelayTime | | - | 36 | - | ns |
| t _f | Turn-Off Fall Time | | - | 10 | - | ns |
| Body Diode Characteristics | | | | | | |
| I _S | Maximum Continuous Body Diode Forward Current | | - | - | 148 | A |
| I _{SM} | Maximum Pulsed Body Diode Forward Current | | - | - | 593 | A |
| V _{SD} | Body Diode Forward Voltage | V _{GS} = 0V, I _S = 20A | - | | 1.2 | V |
| trr | Body Diode Reverse Recovery Time | I _F = 20A, di/dt = 100A/us | 46 | 64 | 86 | ns |
| Qrr | Body Diode Reverse Recovery Charge | | - | 139 | - | nC |

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting T_J=25C, V_{DD}=40V, V_{GS}=10V, R_G=25ohm, L=3mH, I_{AS}=18.2A, V_{DD}=0V during time in avalanche.
 3. R is measured with the device mounted on a 1inch² pad of 2oz copper FR4 PCB.
 4. Pulse Test: Pulse Width 0.5%.



Typical Performance Characteristics

Figure 1: Power De-rating



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

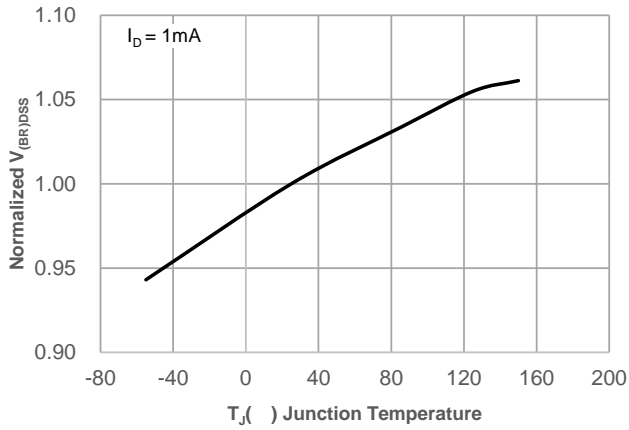


Figure 12: Normalized on Resistance vs. Junction Temperature

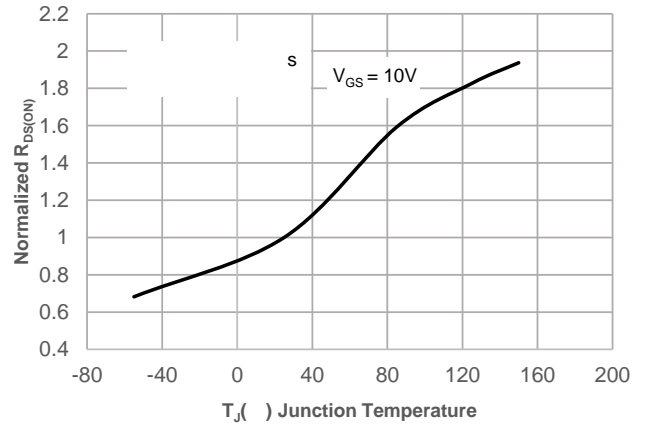


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

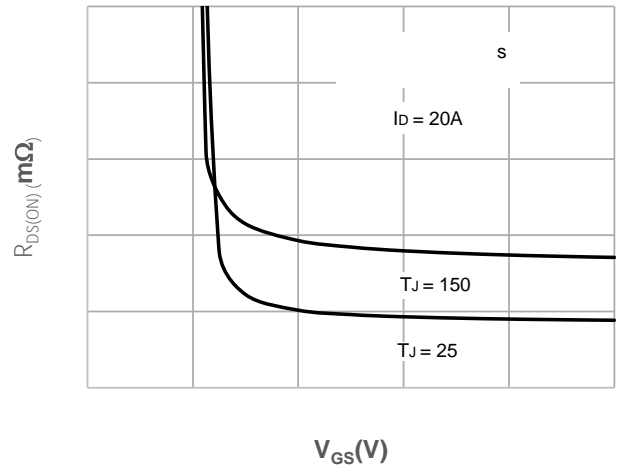
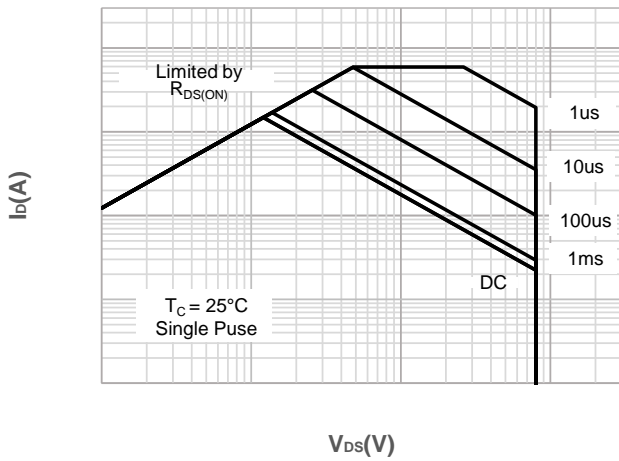


Figure 15: Maximum Safe Operating Area



Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

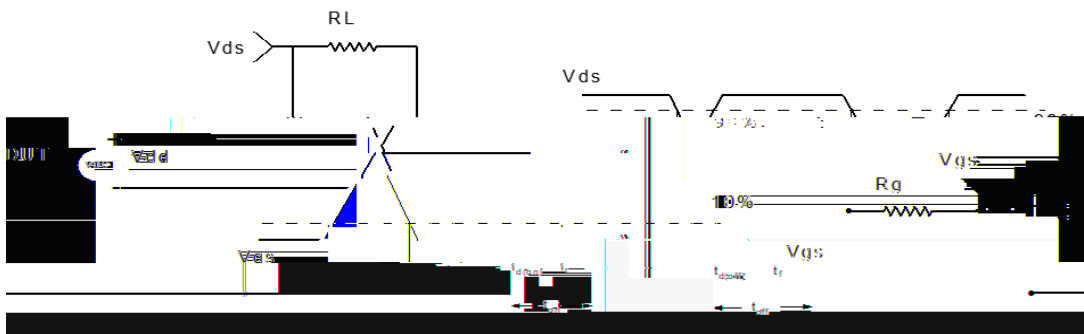


Figure 2: Resistive Switching Test Circuit & Waveform

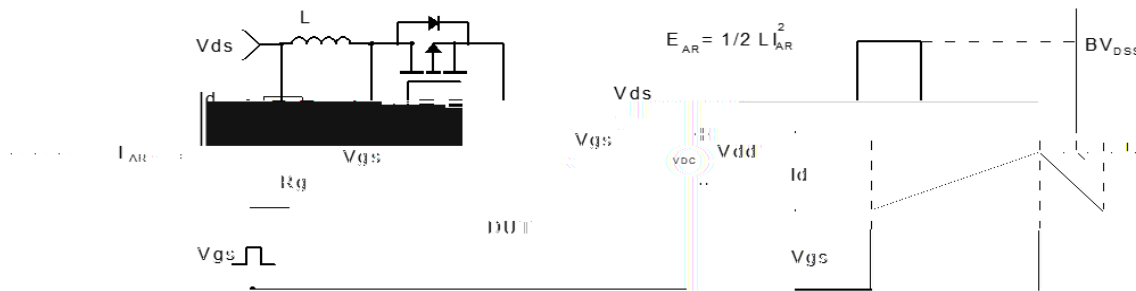


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

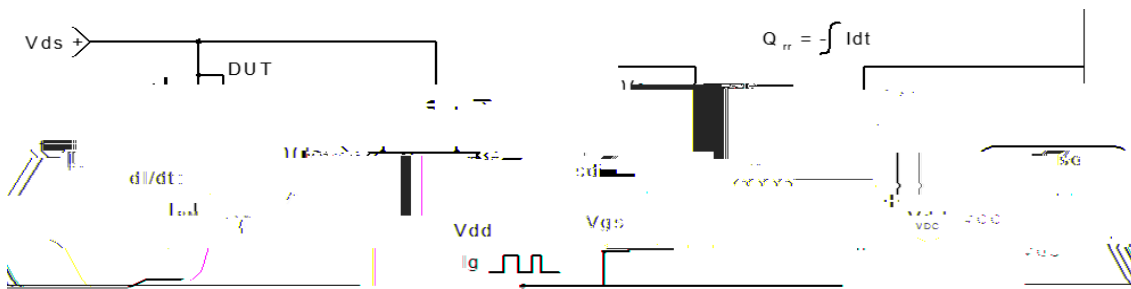


Figure 4: Diode Recovery Test Circuit & Waveform



Package Mechanical Data(TO-220-3L)