



	Value	Unit
	80	V
	3.0	V
	148	A
	3.8	mΩ

Marking



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

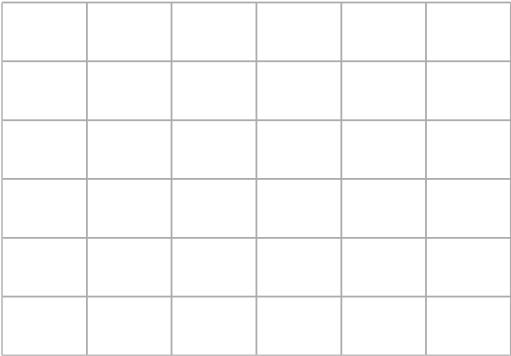
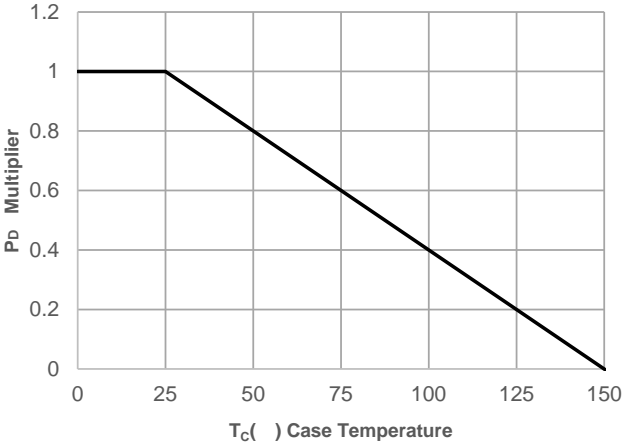
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	80	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 64\text{V}, V_{GS} = 0\text{V}$	-	-	1.0	μ
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	-	-	± 100	
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	2.1	3.0	4.0	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance ⁽⁴⁾	$V_{GS} = 10\text{V}, I_D = 20\text{A}$	-	3.8	4.2	m Ω
Dynamic Characteristics						
R_g	Gate Resistance	$f = 1\text{MHz}$	-	0.7	-	Ω
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 40\text{V},$ $f = 1\text{MHz}$	-	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 $V_{DS} = 40\text{V}, I_D = 20\text{A}$	-	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	$V_{GS} = 10\text{V}, V_{DD} = 40\text{V}$ $I_D = 20\text{A}, R_{GEN} = 3\Omega$	-	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	$V_{GS} = 0\text{V}, I_S = 20\text{A}$	-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	$I_F = 20\text{A}, di/dt = 100\text{A/us}$	46	64	86	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	139	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J=25^\circ\text{C}$, $V_{DD}=40\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\text{ohm}$, $L=3\text{mH}$, $I_{AS}=18.2\text{A}$, $V_{DD}=0\text{V}$ during time in avalanche.
 3. R is measured with the device mounted on a 1inch^2 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

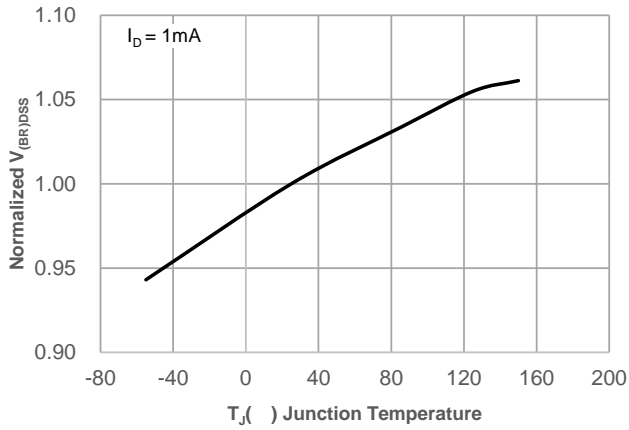


Figure 12: Normalized on Resistance vs. Junction Temperature

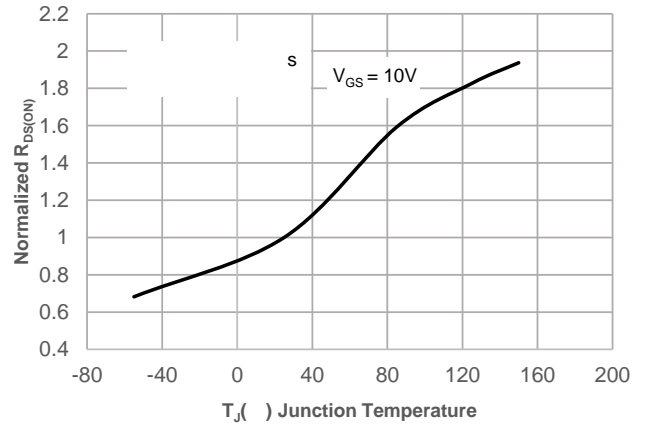


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

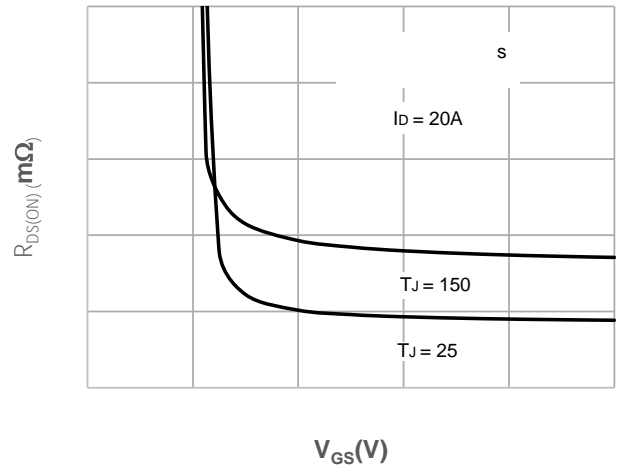
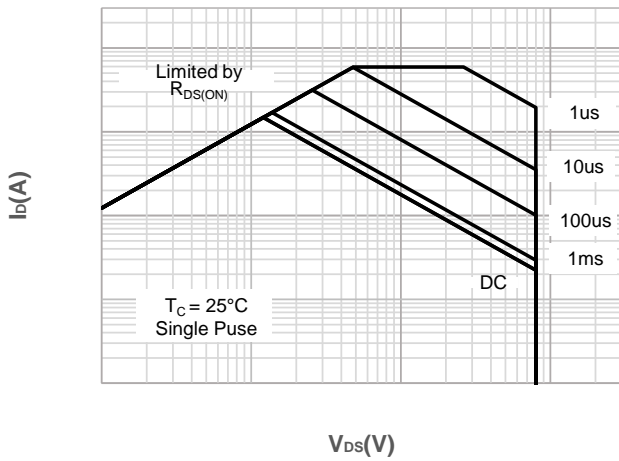


Figure 15: Maximum Safe Operating Area



Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

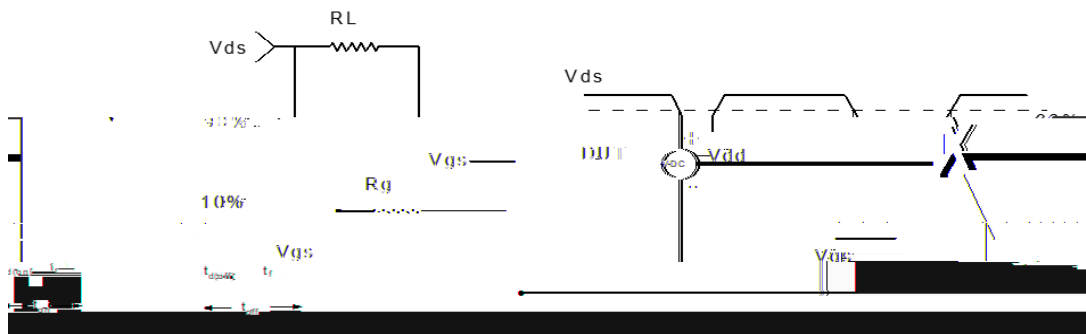


Figure 2: Resistive Switching Test Circuit & Waveform

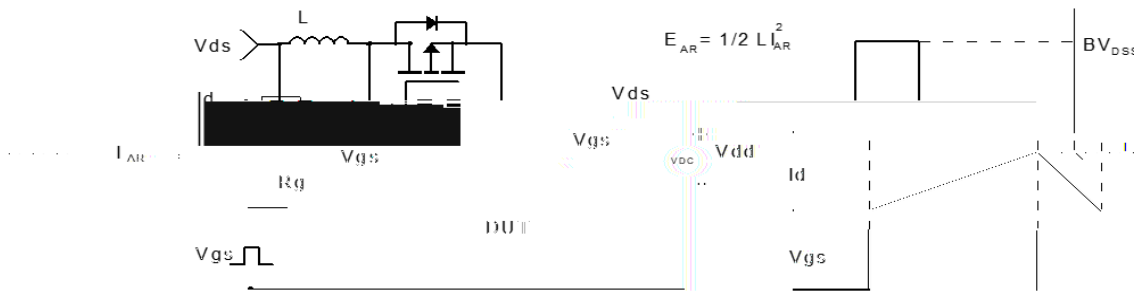


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform



Figure 4: Diode Recovery Test Circuit & Waveform



Package Mechanical Data(TO-220-3L)