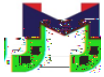




	<b>Value</b>	<b>Unit</b>
	60	V
	1.6	V
	34	A
	11.3	mΩ
	14.6	



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

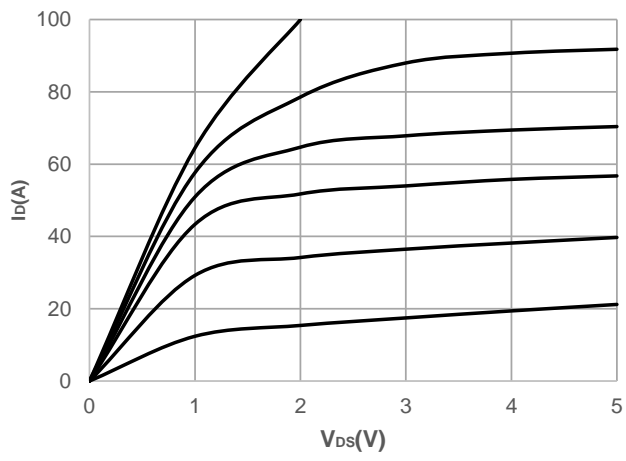
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}$ , $V_{GS} = 0\text{V}$	60	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 48\text{V}$ , $V_{GS} = 0\text{V}$	-	-	1.0	$\mu$
$I_{GSS}$	Gate-Body Leakage Current	$V_{DS} = 0\text{V}$ , $V_{GS} = \pm 20\text{V}$	-	-	$\pm 100$	
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$	1.2	1.6	2.1	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance <sup>(4)</sup>	$V_{GS} = 10\text{V}$ , $I_D = 20\text{A}$	-	11.3	14.7	m $\Omega$
		$V_{GS} = 4.5\text{V}$ , $I_D = 15\text{A}$	-	14.6	19.0	m $\Omega$
<b>Dynamic Characteristics</b>						
$R_g$	Gate Resistance	$f = 1\text{MHz}$	-	1.8	-	$\Omega$
$C_{iss}$	Input Capacitance	$V_{GS} = 0\text{V}$ , $V_{DS} = 30\text{V}$ , $f = 1\text{MHz}$	542	758	1024	pF
$C_{oss}$	Output Capacitance		275	385	520	pF
$C_{riss}$	Reverse Transfer Capacitance		19	26	35	pF
$Q_g$	Total Gate Charge	$V_{GS} = 0$ to $10\text{V}$ $V_{DS} = 30\text{V}$ , $I_D = 20\text{A}$	10	14	19	nC
$Q_{gs}$	Gate Source Charge		-	2.7	-	nC
$Q_{gd}$	Gate Drain("Miller") Charge		-	3.2	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10\text{V}$ , $V_{DD} = 30\text{V}$ $I_D = 20\text{A}$ , $R_{GEN} = 3\Omega$	-	5.4	-	ns
$t_r$	Turn-On Rise Time		-	14	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	16	-	ns
$t_f$	Turn-Off Fall Time		-	4.3	-	ns
<b>Body Diode Characteristics</b>						
$I_S$	Maximum Continuous Body Diode Forward Current		-	-	34	A
$I_{SM}$	Maximum Pulsed Body Diode Forward Current		-	-	135	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	$I_F = 20\text{A}$ , $di/dt = 100\text{A/us}$	16	22	30	ns
$Q_{rr}$	Body Diode Reverse Recovery Charge		-	11	-	nC

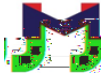
- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
  2.  $E_{AS}$  condition: Starting  $T_J = 25^\circ\text{C}$ ,  $V_{DD} = 30\text{V}$ ,  $V_{GS} = 10\text{V}$ ,  $R_G = 25\text{ohm}$ ,  $L = 3\text{mH}$ ,  $I_{AS} = 5.6\text{A}$ ,  $V_{DD} = 0\text{V}$  during time in avalanche.
  3.  $R$  is measured with the device mounted on a  $1\text{inch}^2$  pad of 2oz copper FR4 PCB.
  4. Pulse Test: Pulse Width 0.5%.





## Typical Performance Characteristics





# Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

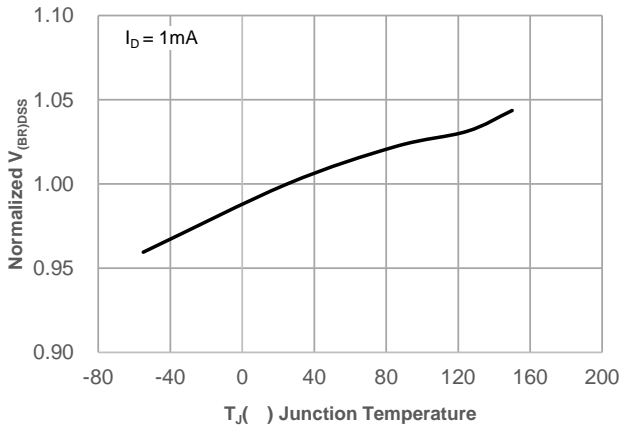


Figure 12: Normalized on Resistance vs. Junction Temperature

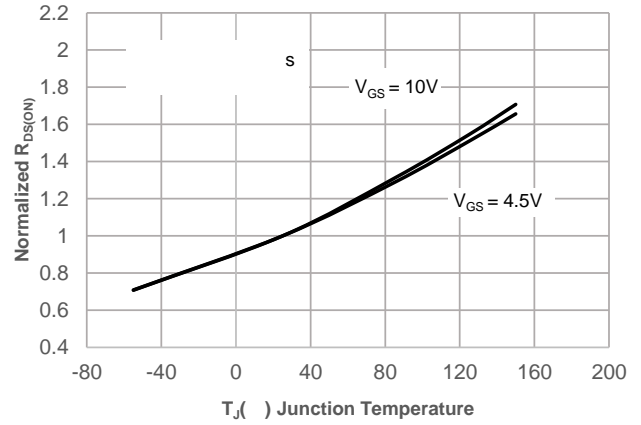


Figure 14:  $R_{DS(ON)}$  vs.  $V_{GS}$

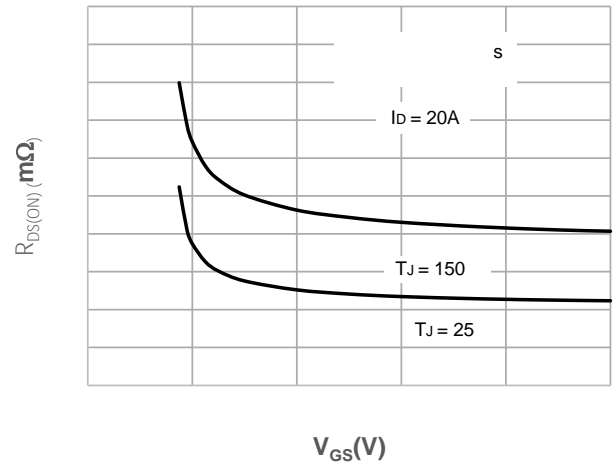
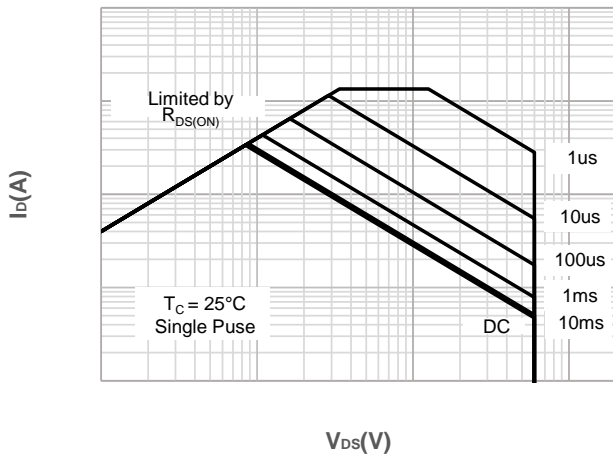


Figure 15: Maximum Safe Operating Area



### Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

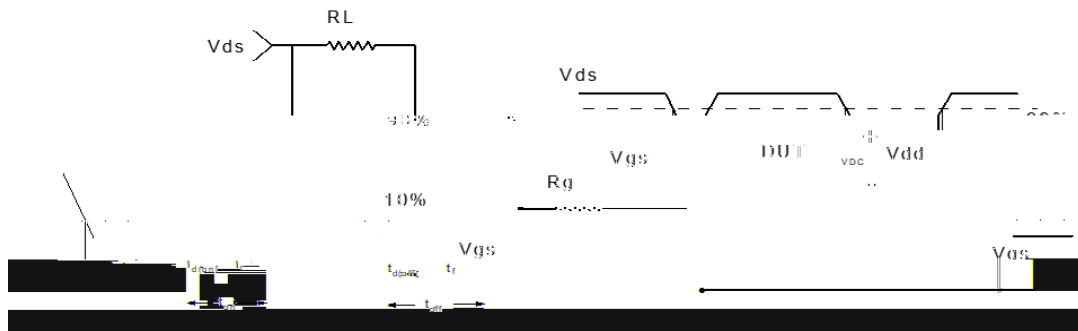


Figure 2: Resistive Switching Test Circuit & Waveform

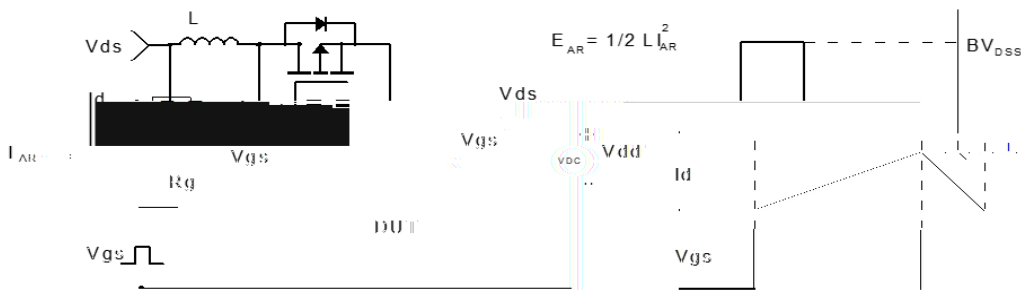


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

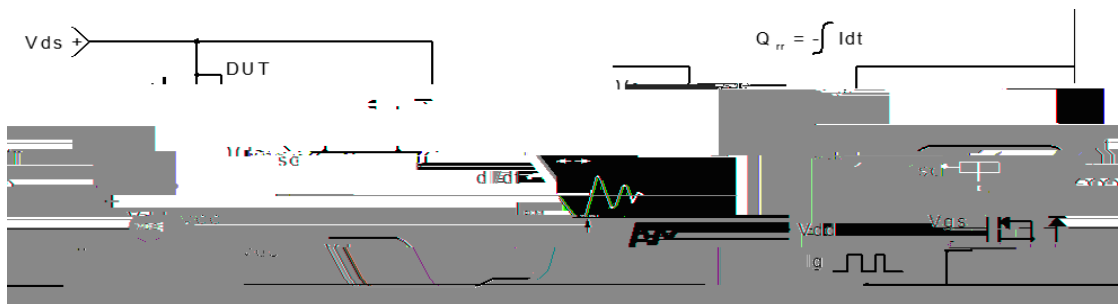


Figure 4: Diode Recovery Test Circuit & Waveform



**Package Mechanical Data(PDFN3X3-8L-D)**

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