

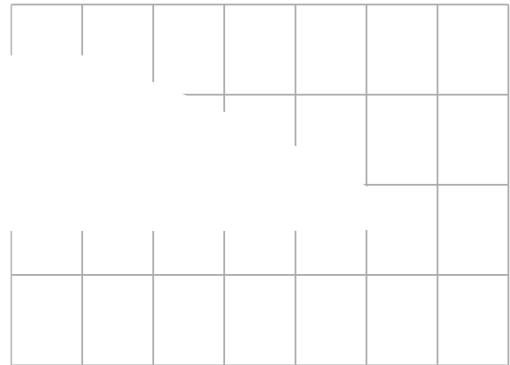
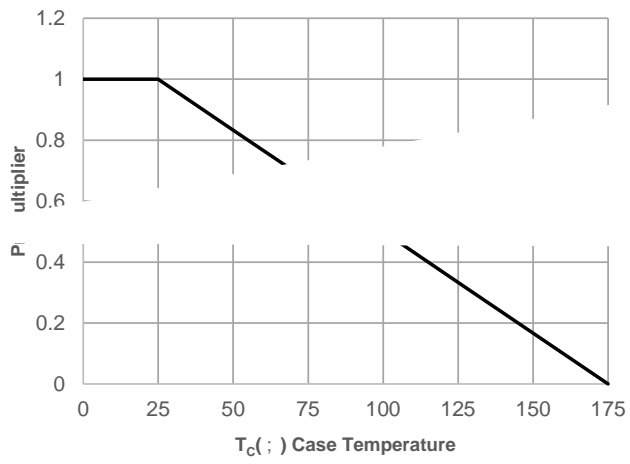
Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

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

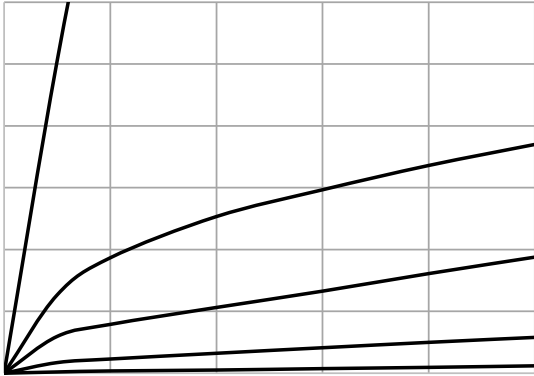
- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J=25^\circ\text{C}$, $V_{DD}=20\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\text{ohm}$, $L=3\text{mH}$, $I_{AS}=11.9\text{A}$, $V_{DD}=0\text{V}$ during time in avalanche.
 3. R_{JA} is measured 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

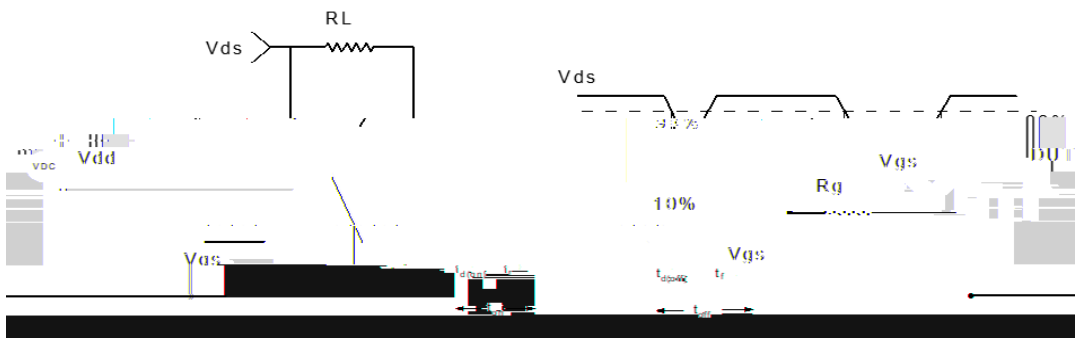


Figure 2: Resistive Switching Test Circuit & Waveform

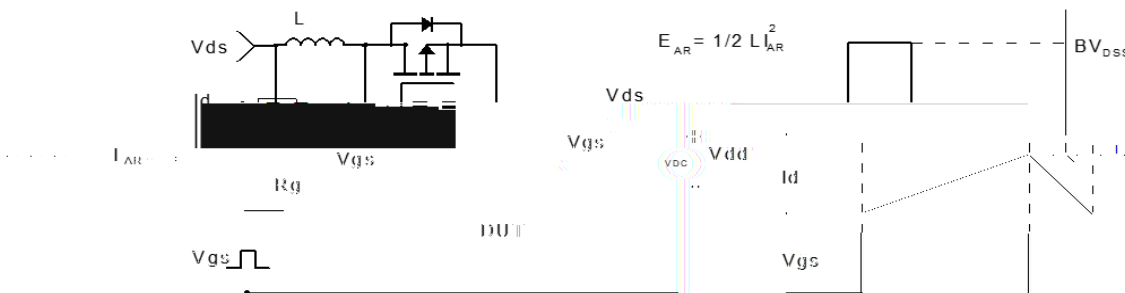


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

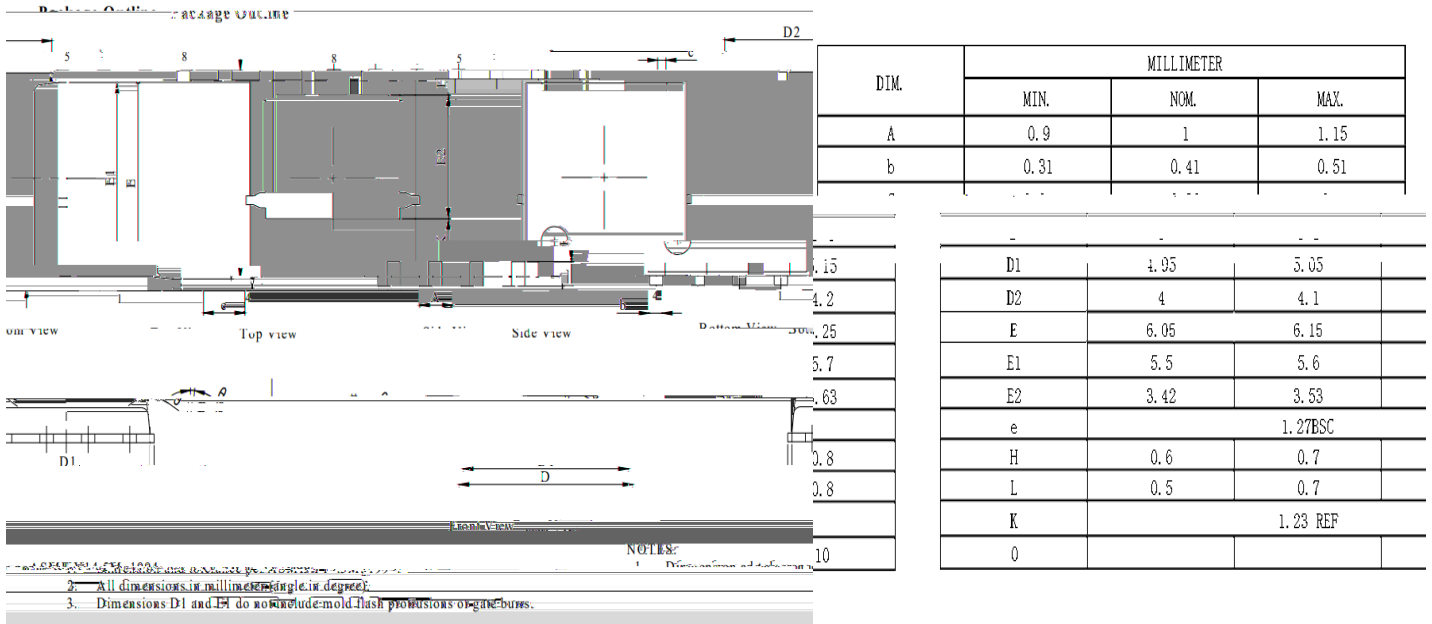


Figure 4: Diode Recovery Test Circuit & Waveform





Package Mechanical Data(PDFN5X6-8L)



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