



**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 = -250μA, V _{GS} = 0V	-40	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -40V, V _{GS} = 0V	-	-	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-2.5	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽⁴⁾	V _{GS} = -10V, I _D = -20A	-	9.0	13.0	mΩ
		V _{GS} = -4.5V, I _D = -10A	-	10.6	19.0	mΩ
Dynamic Characteristics						
R _g	Gate Resistance	f = 1MHz	-	9.5	-	Ω
C _{iSS}	Input Capacitance	V _{GS} = 0V, V _{DS} = -20V, f = 1MHz	2599	3639	4913	pF
C _{oss}	Output Capacitance		222	311	420	pF
C _{rSS}	Reverse Transfer Capacitance		177	247	334	pF
Q _g	Total Gate Charge	V _{GS} = 0 to -10V V _{DS} = -20V, I _D = -10A	49	69	93	nC
Q _{gs}	Gate Source Charge		-	10.6	-	nC
Q _{gd}	Gate Drain("Miller") Charge		-	11	-	nC
Switching Characteristics						
t _{d(on)}	Turn-On DelayTime	V _{GS} = -10V, V _{DD} = -20V I _D = -10A, R _{GEN} = 2.7Ω	-	6.7	-	ns
t _r	Turn-On Rise Time		-	6.1	-	ns
t _{d(off)}	Turn-Off DelayTime		-	102	-	ns
t _f	Turn-Off Fall Time		-	117	-	ns
Body Diode Characteristics						
I _S	Maximum Continuous Body Diode Forward Current		-	-	-36	A
I _{SM}	Maximum Pulsed Body Diode Forward Current		-	-	-144	A
V _{SD}	Body Diode Forward Voltage	V _{GS} = 0V, I _S = -20A	-		-1.2	V
trr	Body Diode Reverse Recovery Time	I _F = -10A, di/dt = 100A/us	13	19	25	ns
Qrr	Body Diode Reverse Recovery Charge		-	11	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = -20\text{V}$, $V_{GS} = -10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, $I_{AS} = -21\text{A}$, $V_{DD} = 0\text{V}$ during time in avalanche.
 3. R_g is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB.
 4. Pulse Test: Pulse Width $\leq$ () ($\leq 0.5\%$).



Typical Performance Characteristics

Figure 1: Power De-rating

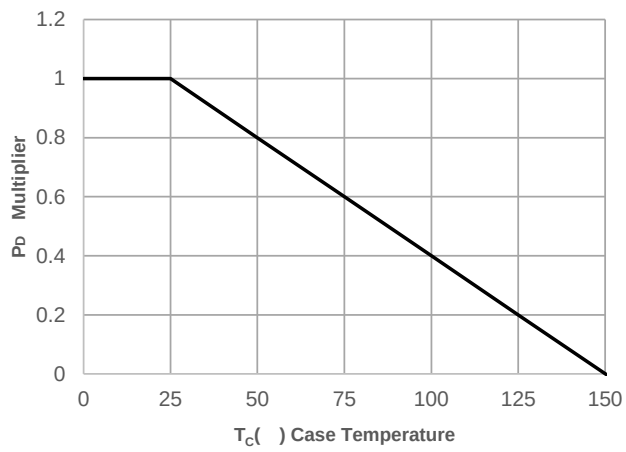
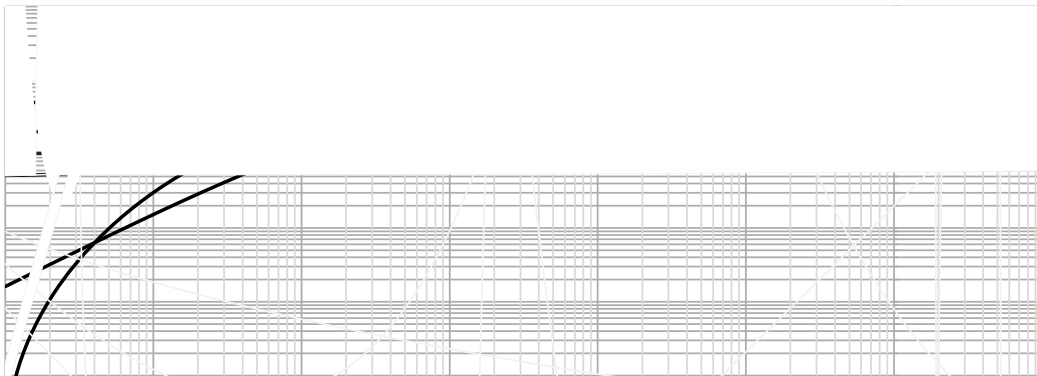
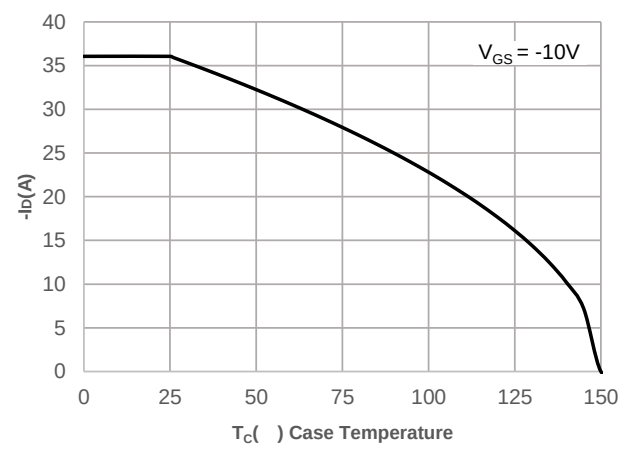
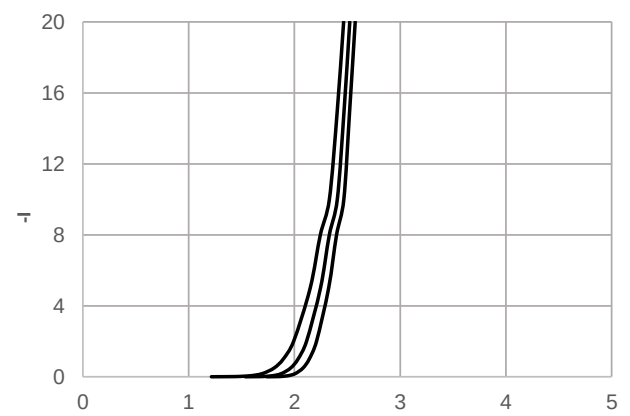
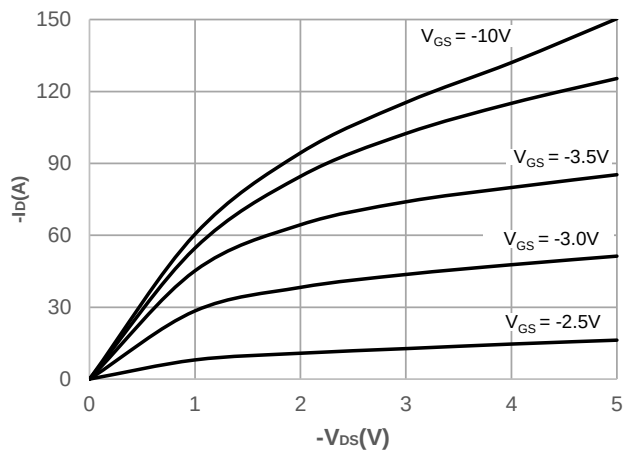


Figure 2: Current De-rating



Typical Performance Characteristics

Figure 5: Output Characteristics



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

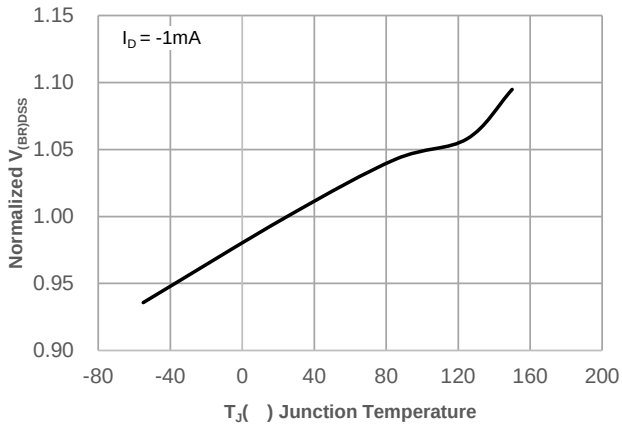


Figure 12: Normalized on Resistance vs. Junction Temperature

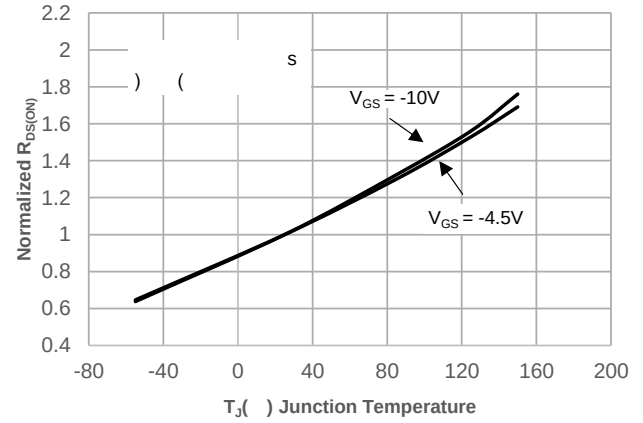


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

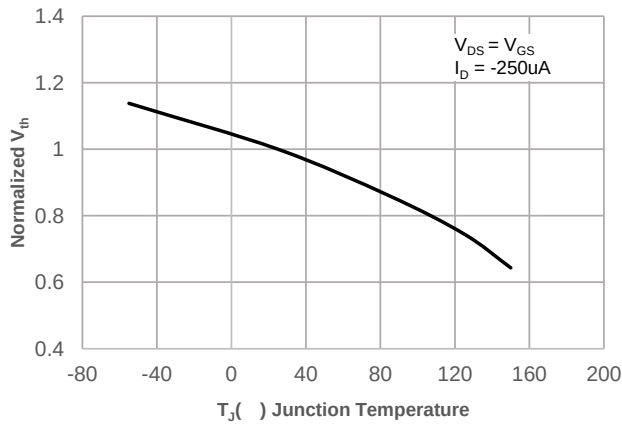


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

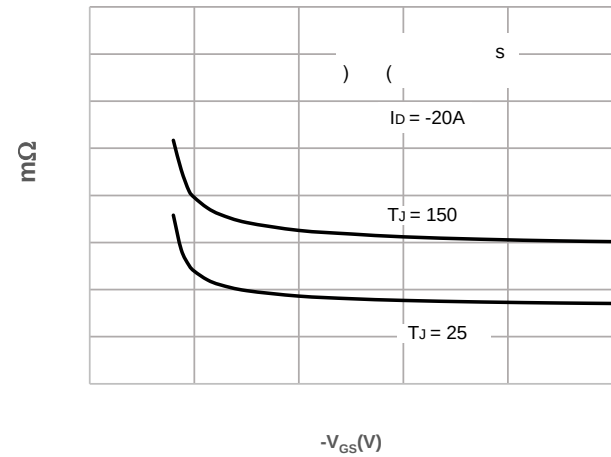
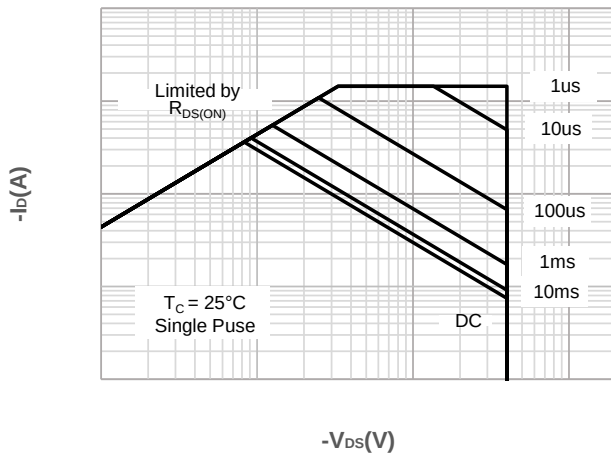


Figure 15: Maximum Safe Operating Area



Test Circuit

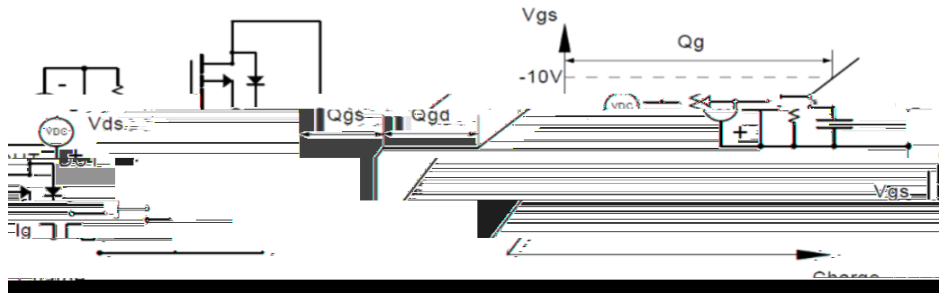


Figure 1: Gate Charge Test Circuit & Waveform

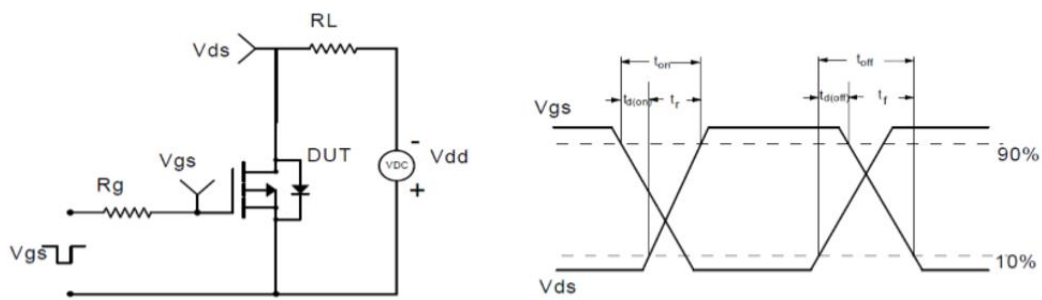


Figure 2: Resistive Switching Test Circuit & Waveform

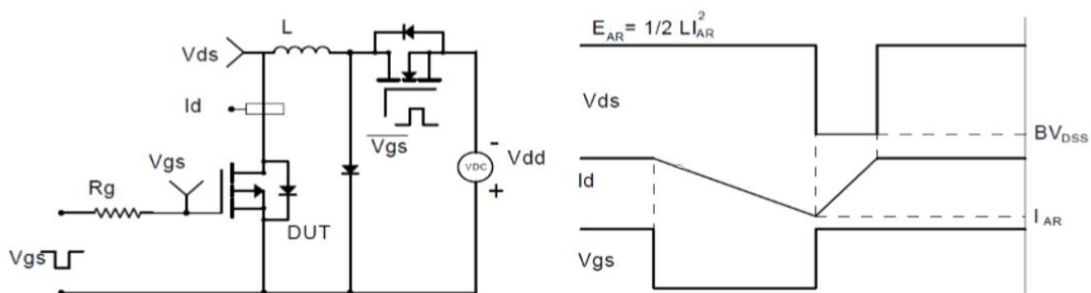


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

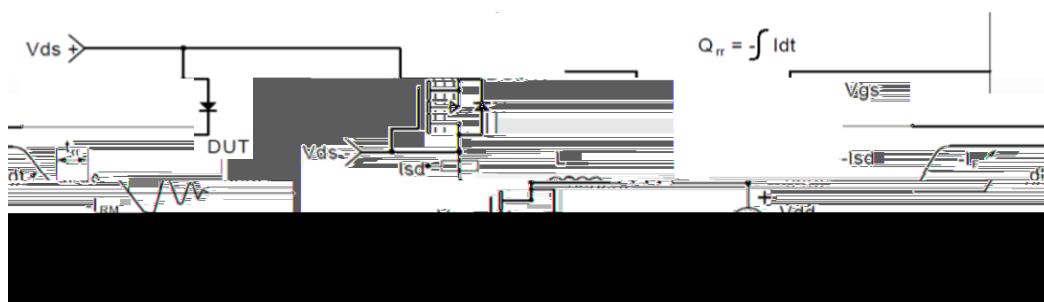
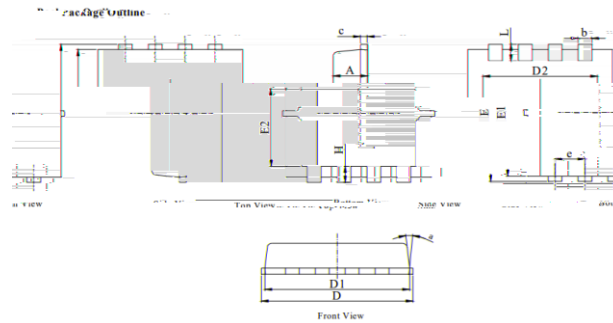


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN3X3-8L)

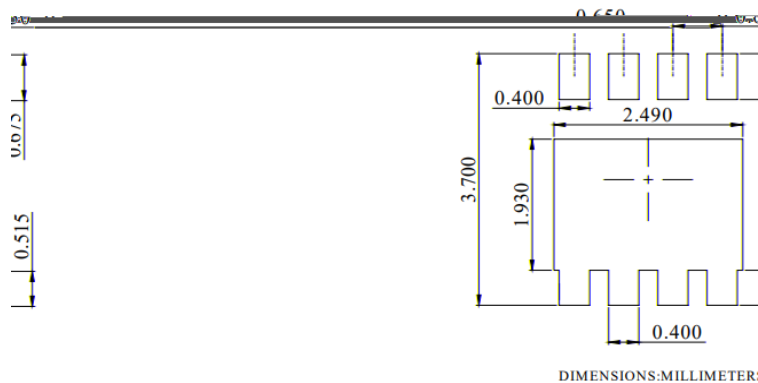


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMENSIONS IN MILLIMETER (ANGLE IN DEGREE).

NO.	UNIT	VALUE	UNIT	VALUE	UNIT	VALUE
1	MM	0.65	MM	0.65	MM	0.65
2	MM	0.40	MM	0.40	MM	0.40
3	MM	0.40	MM	0.40	MM	0.40
4	MM	0.40	MM	0.40	MM	0.40
5	MM	0.40	MM	0.40	MM	0.40
6	MM	0.40	MM	0.40	MM	0.40
7	MM	0.40	MM	0.40	MM	0.40
8	MM	0.40	MM	0.40	MM	0.40
9	MM	0.40	MM	0.40	MM	0.40
10	MM	0.40	MM	0.40	MM	0.40
11	MM	0.40	MM	0.40	MM	0.40
12	MM	0.40	MM	0.40	MM	0.40
13	MM	0.40	MM	0.40	MM	0.40
14	MM	0.40	MM	0.40	MM	0.40
15	MM	0.40	MM	0.40	MM	0.40
16	MM	0.40	MM	0.40	MM	0.40
17	MM	0.40	MM	0.40	MM	0.40
18	MM	0.40	MM	0.40	MM	0.40
19	MM	0.40	MM	0.40	MM	0.40
20	MM	0.40	MM	0.40	MM	0.40
21	MM	0.40	MM	0.40	MM	0.40
22	MM	0.40	MM	0.40	MM	0.40
23	MM	0.40	MM	0.40	MM	0.40
24	MM	0.40	MM	0.40	MM	0.40
25	MM	0.40	MM	0.40	MM	0.40
26	MM	0.40	MM	0.40	MM	0.40
27	MM	0.40	MM	0.40	MM	0.40
28	MM	0.40	MM	0.40	MM	0.40
29	MM	0.40	MM	0.40	MM	0.40
30	MM	0.40	MM	0.40	MM	0.40
31	MM	0.40	MM	0.40	MM	0.40
32	MM	0.40	MM	0.40	MM	0.40
33	MM	0.40	MM	0.40	MM	0.40
34	MM	0.40	MM	0.40	MM	0.40
35	MM	0.40	MM	0.40	MM	0.40
36	MM	0.40	MM	0.40	MM	0.40
37	MM	0.40	MM	0.40	MM	0.40
38	MM	0.40	MM	0.40	MM	0.40
39	MM	0.40	MM	0.40	MM	0.40
40	MM	0.40	MM	0.40	MM	0.40
41	MM	0.40	MM	0.40	MM	0.40
42	MM	0.40	MM	0.40	MM	0.40
43	MM	0.40	MM	0.40	MM	0.40
44	MM	0.40	MM	0.40	MM	0.40
45	MM	0.40	MM	0.40	MM	0.40
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47	MM	0.40	MM	0.40	MM	0.40
48	MM	0.40	MM	0.40	MM	0.40
49	MM	0.40	MM	0.40	MM	0.40
50	MM	0.40	MM	0.40	MM	0.40
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79	MM	0.40	MM	0.40	MM	0.40
80	MM	0.40	MM	0.40	MM	0.40
81	MM	0.40	MM	0.40	MM	0.40
82	MM	0.40	MM	0.40	MM	0.40
83	MM	0.40	MM	0.40	MM	0.40
84	MM	0.40	MM	0.40	MM	0.40
85	MM	0.40	MM	0.40	MM	0.40
86	MM	0.40	MM	0.40	MM	0.40
87	MM	0.40	MM	0.40	MM	0.40
88	MM	0.40	MM	0.40	MM	0.40
89	MM	0.40	MM	0.40	MM	0.40
90	MM	0.40	MM	0.40	MM	0.40
91	MM	0.40	MM	0.40	MM	0.40
92	MM	0.40	MM	0.40	MM	0.40
93	MM	0.40	MM	0.40	MM	0.40
94	MM	0.40	MM	0.40	MM	0.40
95	MM	0.40	MM	0.40	MM	0.40
96	MM	0.40	MM	0.40	MM	0.40
97	MM	0.40	MM	0.40	MM	0.40
98	MM	0.40	MM	0.40	MM	0.40
99	MM	0.40	MM	0.40	MM	0.40
100	MM	0.40	MM	0.40	MM	0.40

Recommended Soldering Footprint



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