



**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 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

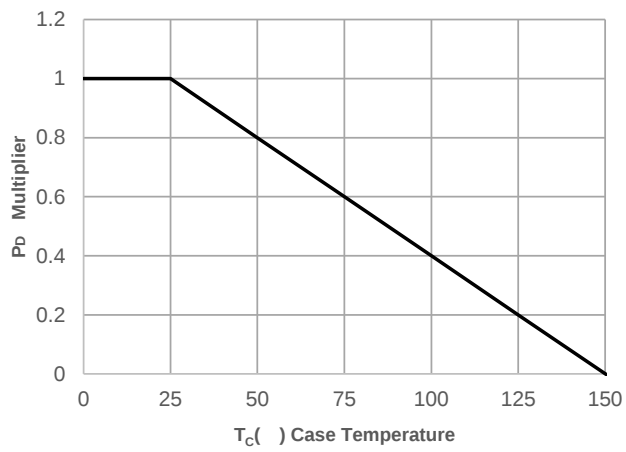
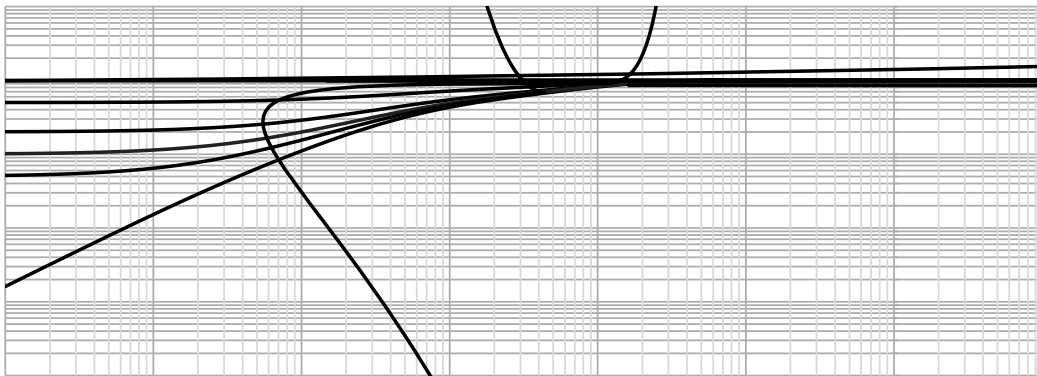
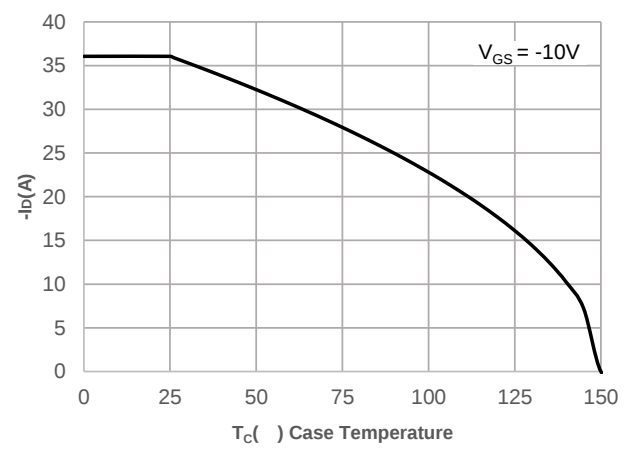
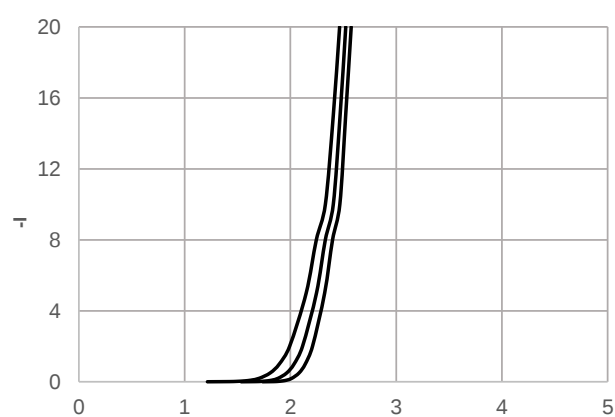
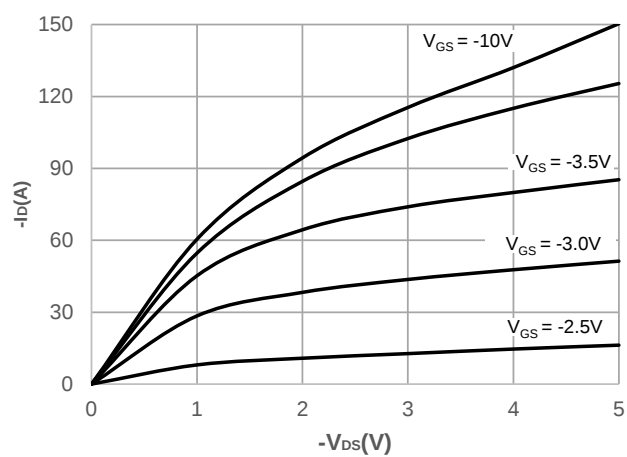


Figure 2: Current De-rating



Typical Performance Characteristics

Figure 5: Output Characteristics



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

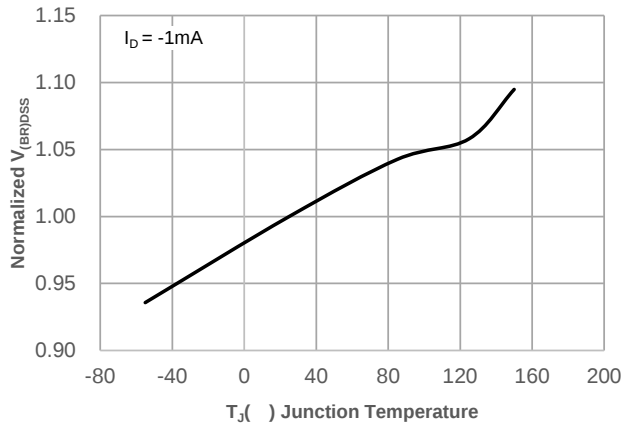


Figure 12: Normalized on Resistance vs. Junction Temperature

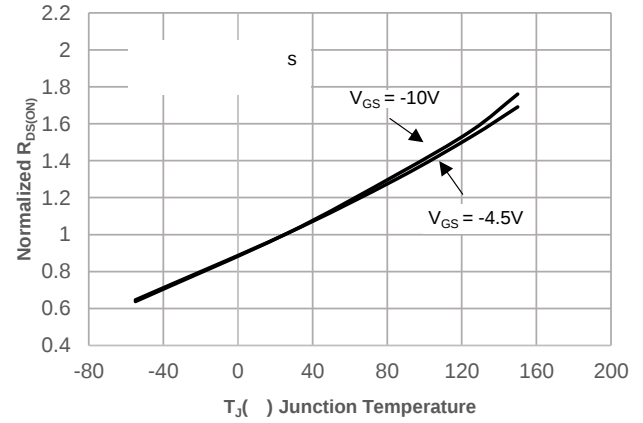


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

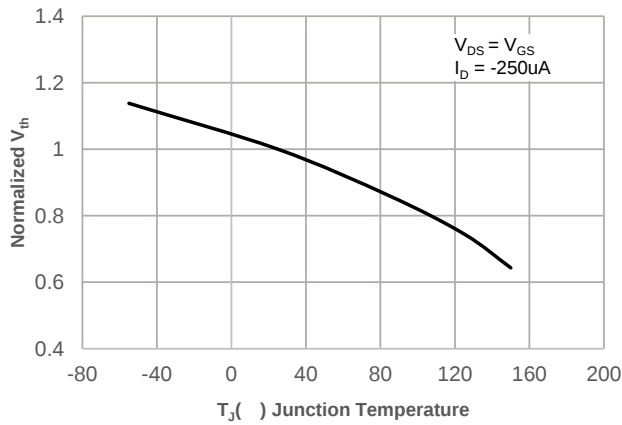


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

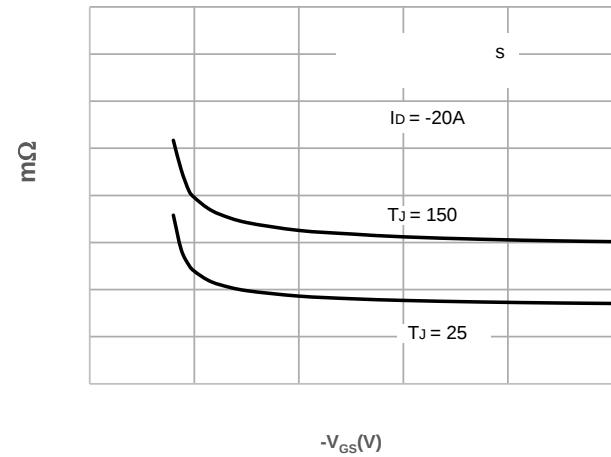
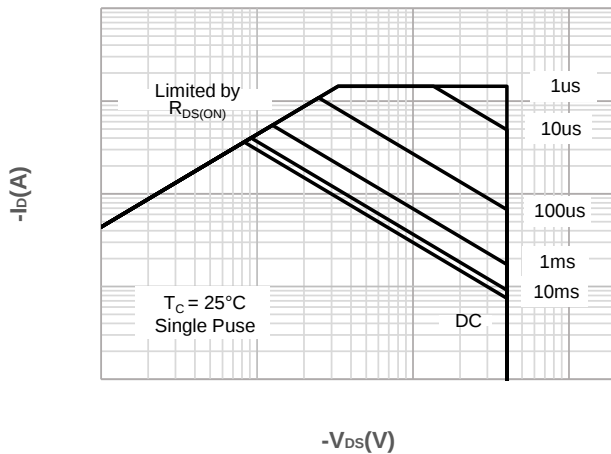


Figure 15: Maximum Safe Operating Area



Test Circuit

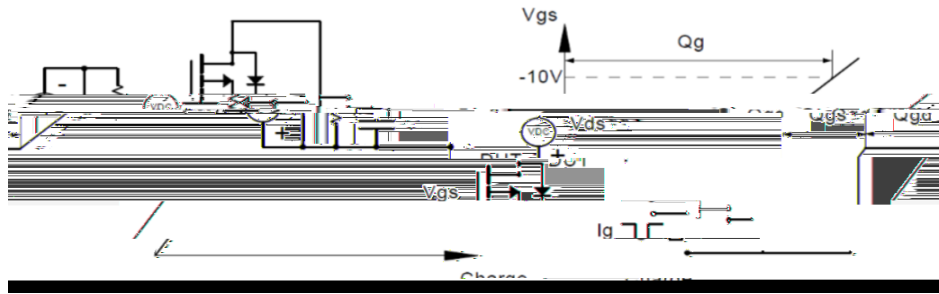


Figure 1: Gate Charge Test Circuit & Waveform

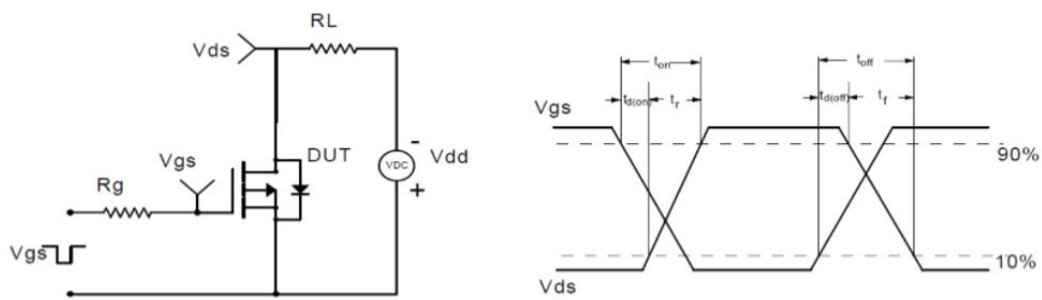


Figure 2: Resistive Switching Test Circuit & Waveform

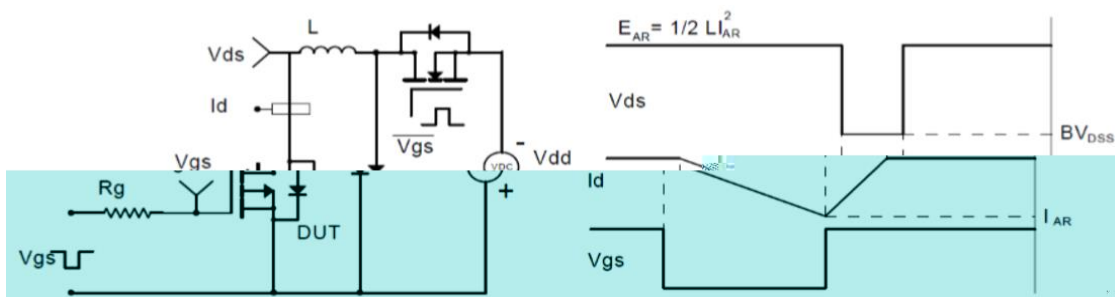


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

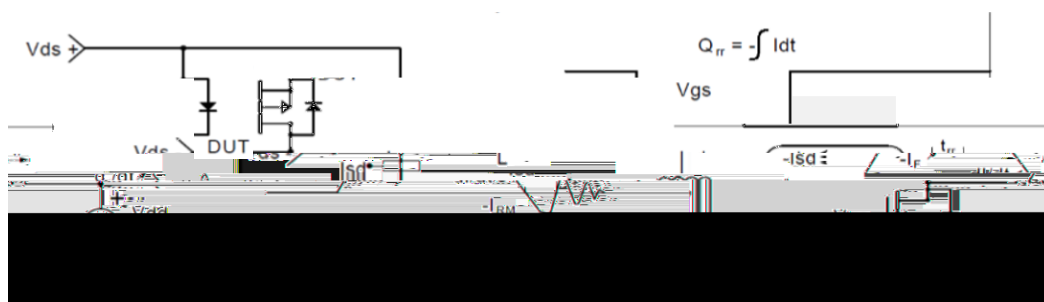
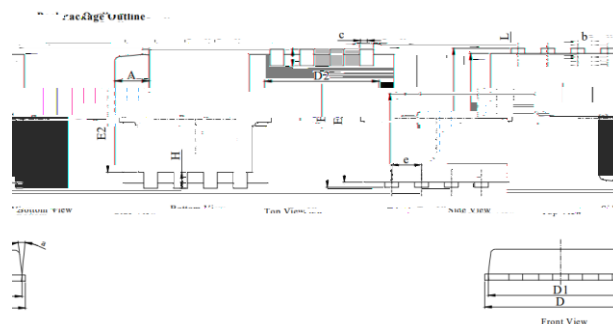


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(PDFN3X3-8L)



NOTES:

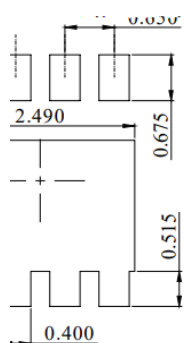
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMENSIONS IN MILLIMETER (ANGLE IN DEGREE).

3. DIMENSIONS FOR THE PACKAGE ARE GIVEN IN MILLIMETERS.

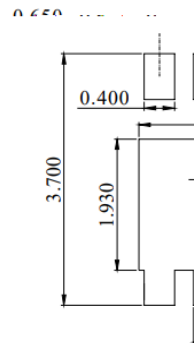
FOR THE PACKAGE DIMENSIONS

DIM.	MIN.	NOM.	MAX.
A	0.75	0.75	0.75
B	0.25	0.25	0.25
C	0.10	0.10	0.10
D	3.00	3.15	3.25
E	2.00	2.05	2.15
F	2.30	2.70	2.90

Recommended Soldering Footprint



IONS:MILLIMETERS



DIMENS

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