HIGH DIODE

T062N10LNC

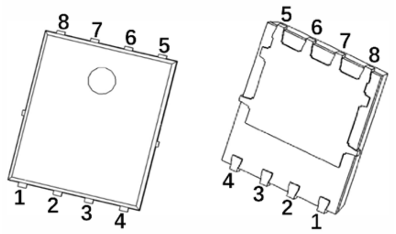
RoHS
COMPLIANT

100V N-Channel MOSFET

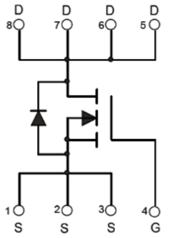
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	6.2mΩ@10V	90A
	8.0mΩ@4.5V	

PDFN5X6-8L



Schematic diagram



Feature

- Split Gate Trench Technology
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

- Power Management
- Motor Driving
- High frequency switching, synchronous rectification

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
T062N10LNC	PDFN5X6-8L	T062N10L	Reel & Tape	330mm	12mm	5000pcs

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current[1]	T_C = 25°C	I_D	90	A
	T_C = 100°C		63	
Pulsed Drain Current[2]		I_{DM}	360	A
Single Pulsed Avalanche Current[3]		I_{AS}	32	A
Single Pulsed Avalanche Energy[3]		E_{AS}	256	mJ
Power Dissipation[5]	T_C = 25°C	P_D	104	W
Thermal Resistance from Junction to Ambient[6]		$R_{\theta JA}$	56	°C/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	1.2	°C/W
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55~ +150	°C

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 100V, V_{GS} = 0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
On Characteristics[4]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.2	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		6.2	8.0	mΩ
		V_{GS} = 4.5V, I_D = 15A		8.0	10	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 50V, V_{GS} = 0V, f = 1MHz		1800		pF
Output Capacitance	C_{oss}			440		
Reverse Transfer Capacitance	C_{rss}			8.0		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		3.1		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 50V, V_{GS} = 10V, I_D = 20A		32		nC
Gate-Source Charge	Q_{gs}			5.1		
Gate-Drain Charge	Q_{gd}			5.8		
Gate Plateau Voltage	$V_{plateau}$			2.9		V
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 50V, V_{GS} = 10V, R_G = 6Ω, R_L = 2.5Ω		11		ns
Turn-On Rise Time	t_r			16		
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	t_f			20		
Source-Drain Diode Characteristics						
Diode Forward Voltage[4]	V_{SD}	V_{GS} = 0V, I_S = 20A			1.2	V
Diode Continuous Forward Current[1]	I_S	T_C = 25℃			90	A
Diode Pulse Forward Current[2]	I_{SM}	T_C = 25℃			360	A
Diode Reverse Recovery Time	t_{rr}	I_F = 20A, dI/dt = 100A/μs		50		ns
Diode Reverse Recovery Charge	Q_{rr}	I_F = 20A, dI/dt = 100A/μs		88		nC

Notes:

1.The maximum current rating is limited by package. And device mounted on a large heatsink.

2.Pulse Test: Pulse Width ≤ 10μs, duty cycle ≤ 1%.

3.E_{AS} condition: V_{DD} = 50V, V_{GS} = 10V, L = 0.5mH, R_G = 25Ω Starting T_J = 25°C.

4.Pulse Test: Pulse Width ≤ 300μs, duty cycle ≤ 2%.

5.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C. And device mounted on a large heatsink.

6.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics

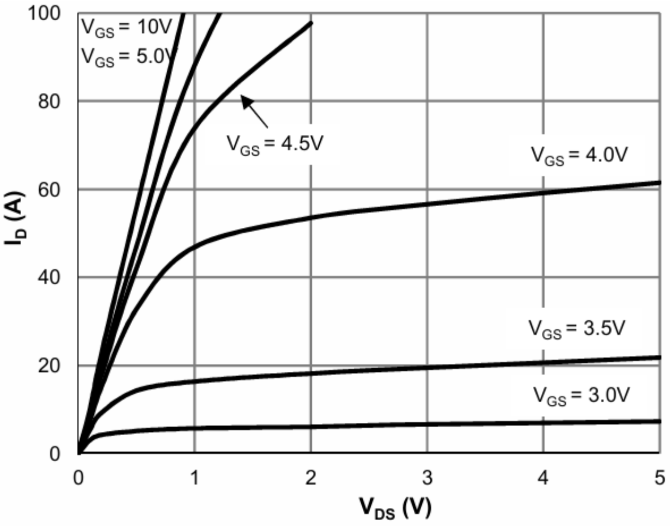


Figure 1: Saturation Characteristics

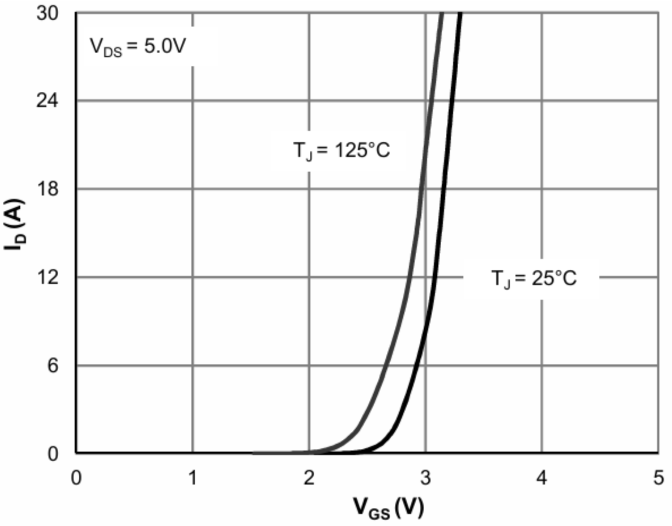


Figure 2: Transfer Characteristics

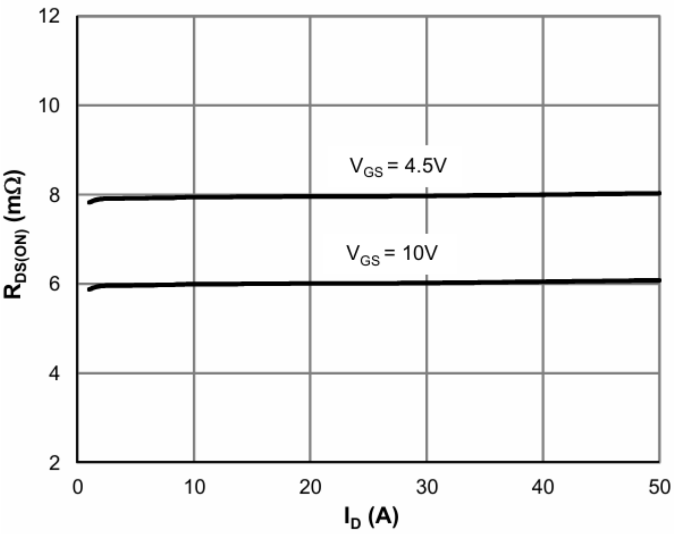


Figure 3: $R_{DS(ON)}$ vs. Drain Current

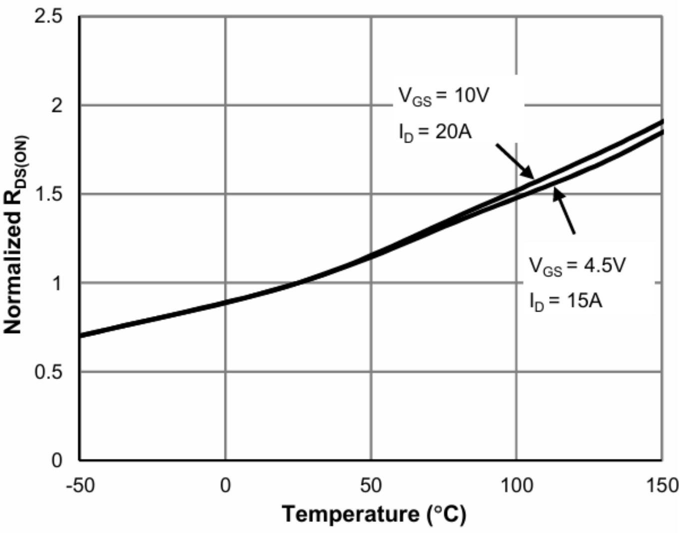


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

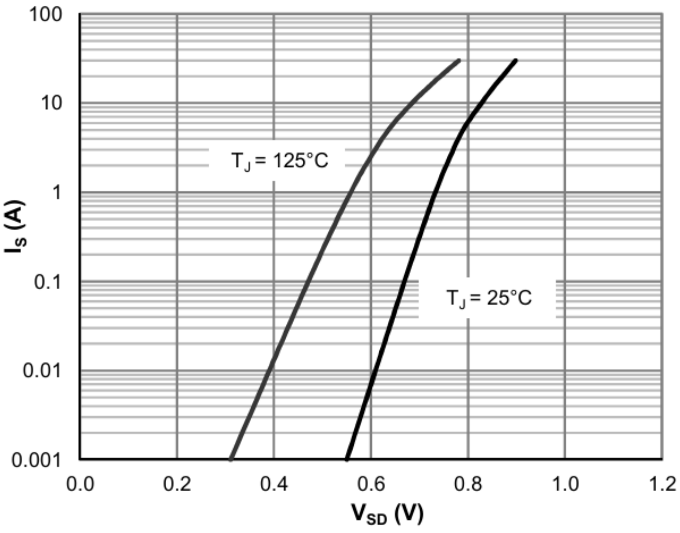


Figure 5: Body-Diode Characteristics

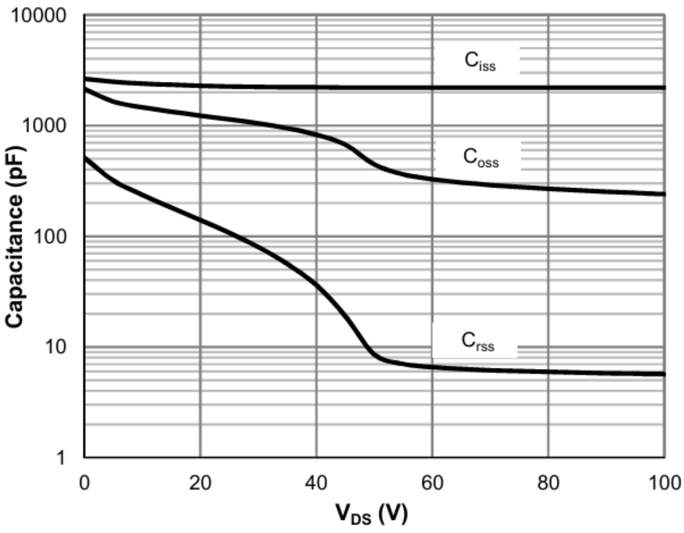


Figure 6: Capacitance Characteristics

Typical Characteristics

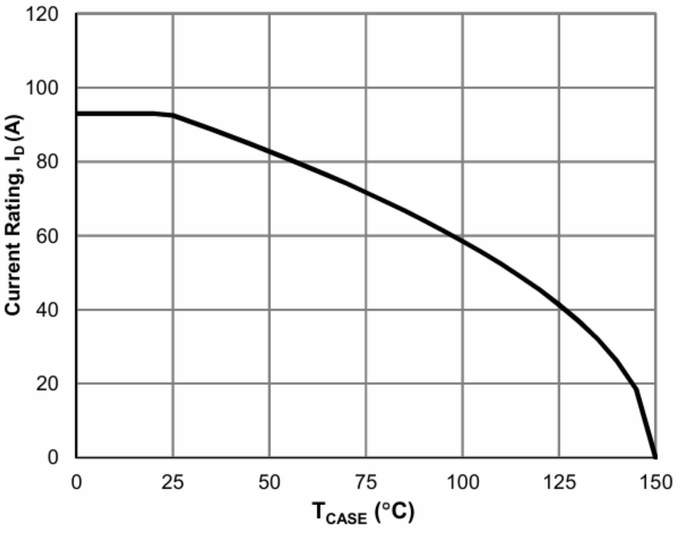


Figure 7: Current De-rating

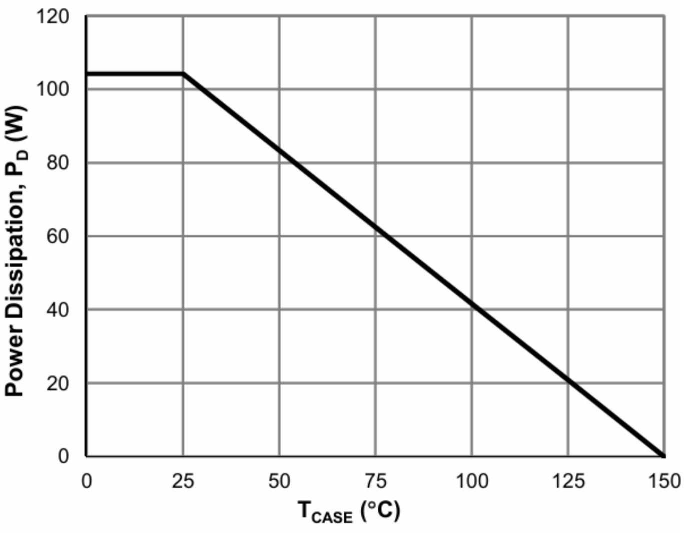


Figure 8: Power De-rating

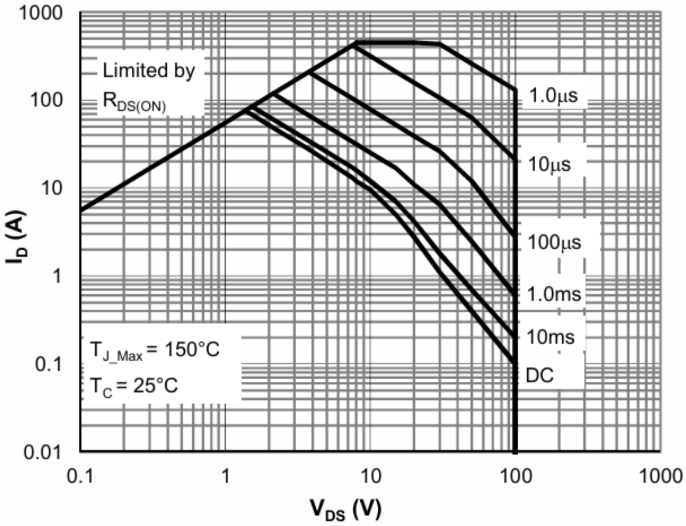


Figure 9: Maximum Safe Operating

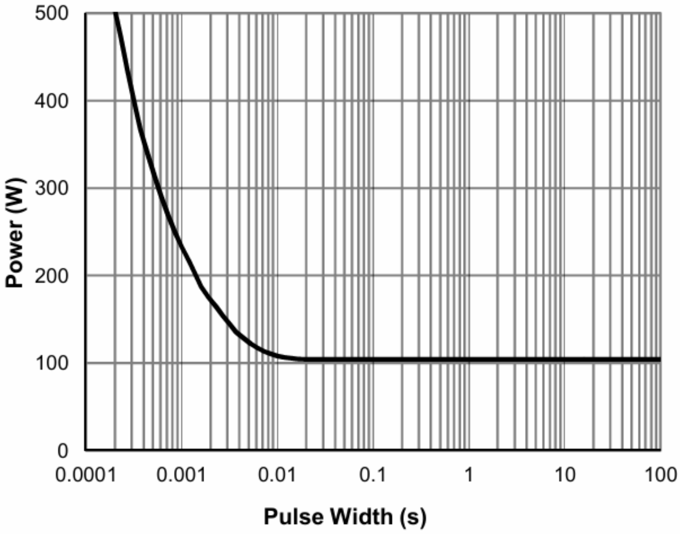


Figure 10: Single Pulse Power Rating, Junction-to-Case

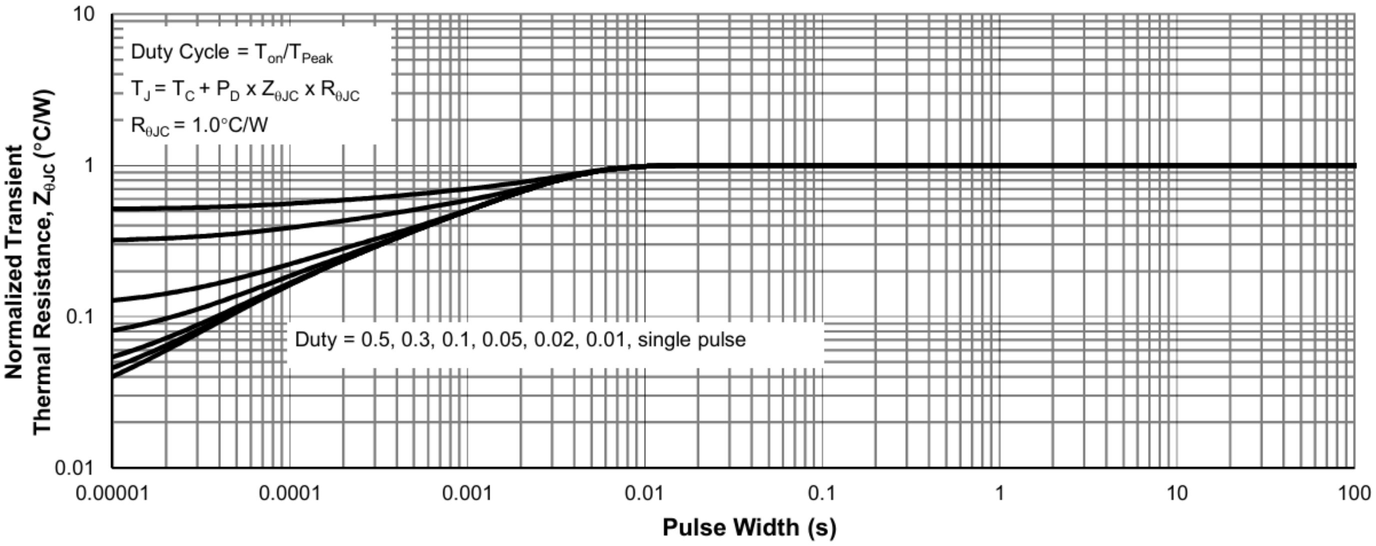
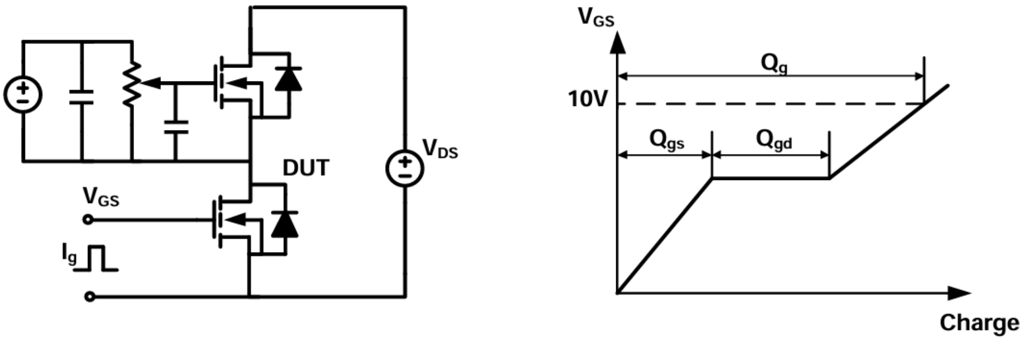
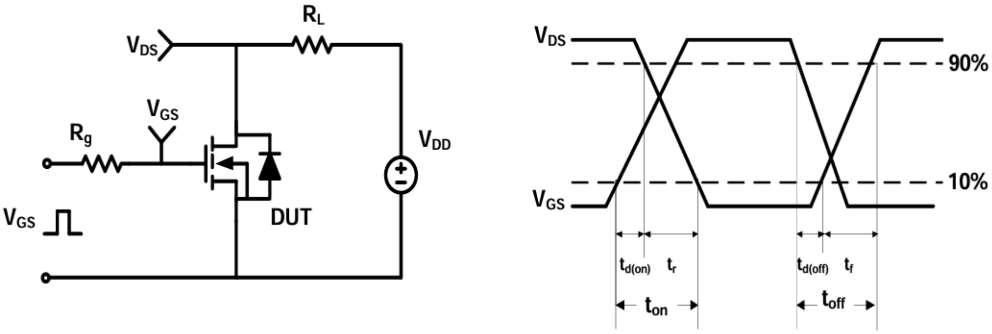


Figure 11: Normalized Maximum Transient Thermal Impedance

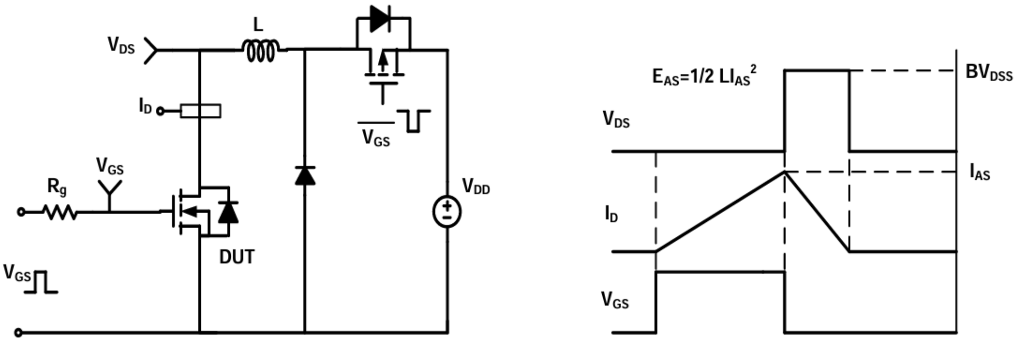
Gate Charge Test Circuit & Waveform



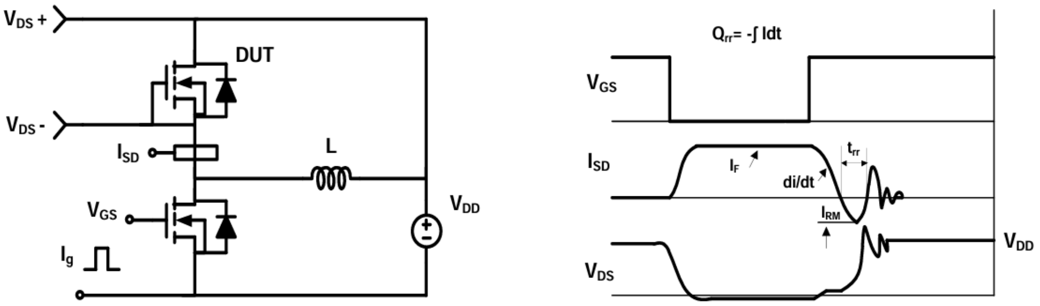
Resistive Switching Test Circuit & Waveform



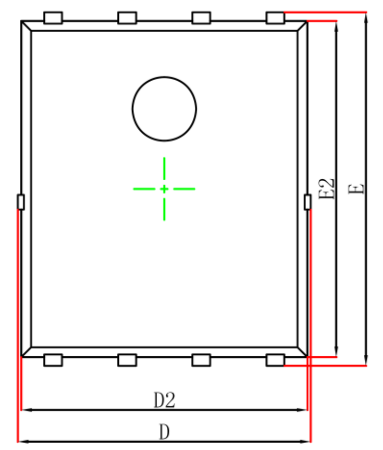
Unclamped Inductive Switching (UIS) Test Circuit & Waveform



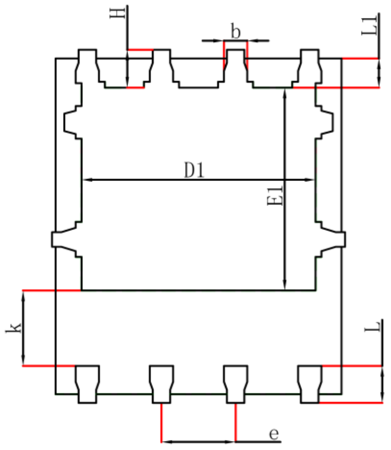
Diode Recovery Test Circuit & Waveform



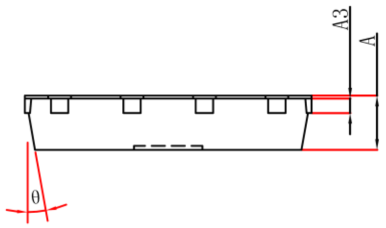
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.10	0.035	0.043
A3	0.254REF		0.010REF	
D	4.700	5.260	0.185	0.207
E	5.750	6.250	0.226	0.246
D1	3.560	4.500	0.140	0.177
E1	3.180	3.660	0.125	0.144
D2	4.700	5.100	0.185	0.201
E2	5.600	6.000	0.220	0.236
k	1.100	-	0.043	-
b	0.300	0.500	0.012	0.020
e	1.270TYP		0.050TYP	
L	0.510	0.710	0.020	0.028
L1	0.424	0.576	0.017	0.023
H	0.510	0.710	0.020	0.028
θ	8°	12°	8°	12°