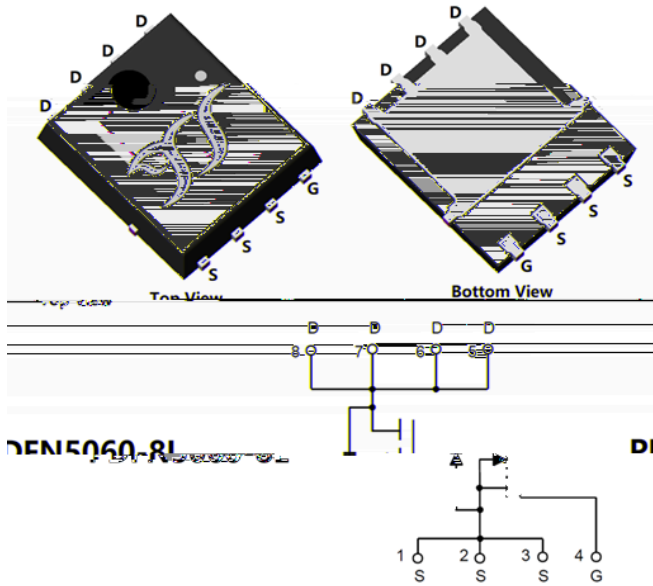




YJG74G10A

N-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	100V
I_D	74A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	6.5m
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	8.5m
100% EAS Tested	
100% V_{DS} Tested	

General Description

Split gate trench MOSFET technology
 Excellent package for heat dissipation
 High density cell design for low $R_{DS(ON)}$
 Moisture Sensitivity Level 1
 Epoxy Meets UL 94 V-0 Flammability Rating

Applications

Power switching application
 Uninterruptible power supply
 DC-DC converter

Absolute Maximum Ratings ($T_A=25$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-source Voltage	V_{DS}	100	V	
Gate-source Voltage	V_{GS}	± 20	V	
Drain Current	I_D	$T_A=25^\circ C$	12	A
		$T_A=100^\circ C$	7.5	
		$T_C=25^\circ C$	74	
		$T_C=100^\circ C$	46	
Pulsed Drain Current ^A	I_{DM}	300	A	
Avalanche energy ^B	EAS	289	mJ	
Total Power Dissipation ^C	P_D	$T_A=25^\circ C$	2.5	W
		$T_A=100^\circ C$	1	
		$T_C=25^\circ C$	104	
		$T_C=100^\circ C$	41	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 +150	$^\circ C$	

Thermal resistance

Parameter	Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^D	R_{JA}	40	50	$^\circ C/W$
Thermal Resistance Junction-to-Case	R_{JC}	1	1.2	

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG74G10A	F1	YJG74G10A	5000	10000	100000	13" reel



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Electrical Characteristics ($T_J=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
		$V_{DS}=100V, V_{GS}=0V, T_J=150^\circ C$	-	-	100	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=37A$	-	5	6.5	m



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Typical Electrical and Thermal Characteristics Diagrams

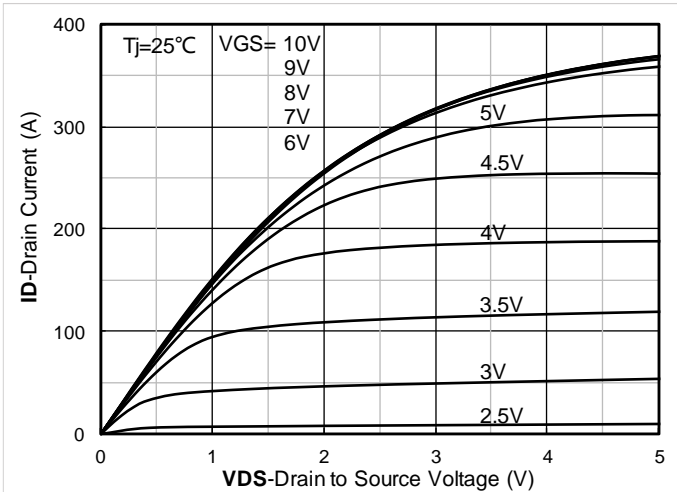


Figure 1. Output Characteristics

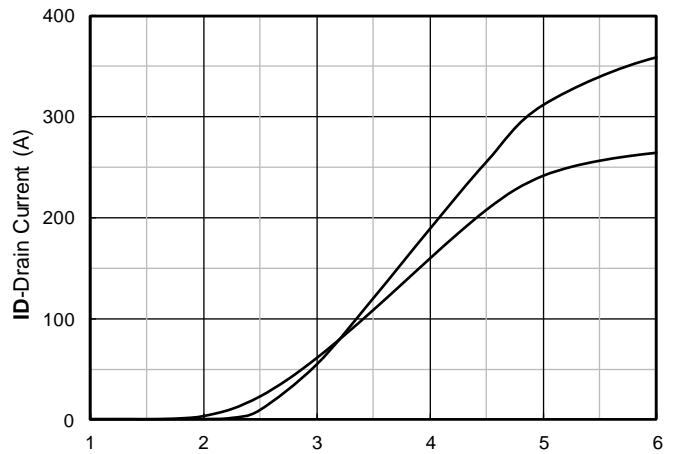


Figure 2. Transfer Characteristics

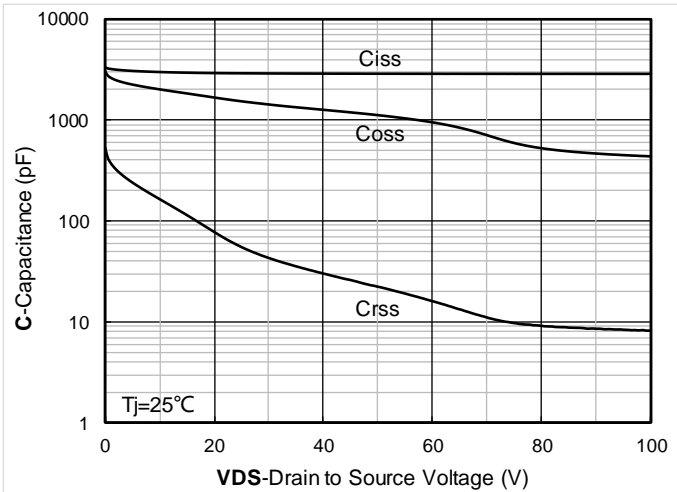


Figure 3. Capacitance Characteristics

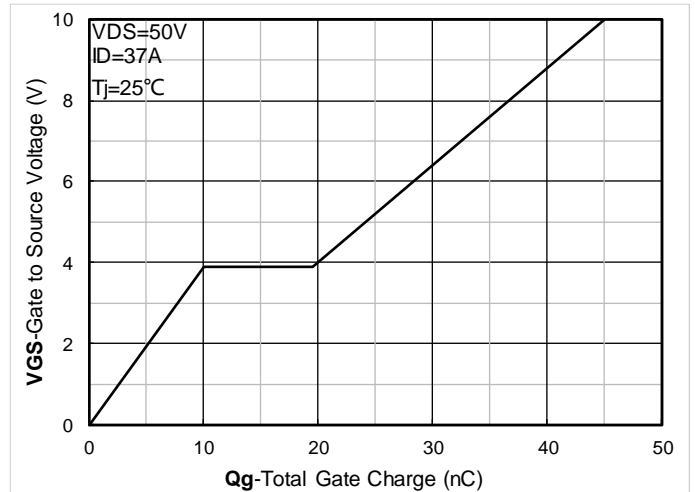


Figure 4. Gate Charge

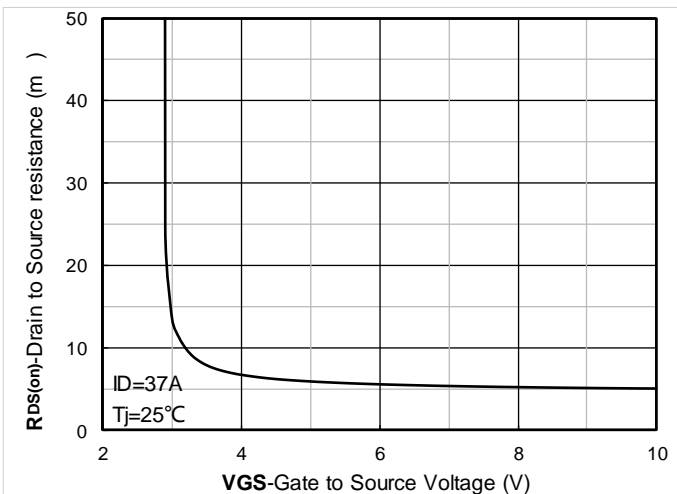


Figure 5. On-Resistance vs Gate to Source Voltage

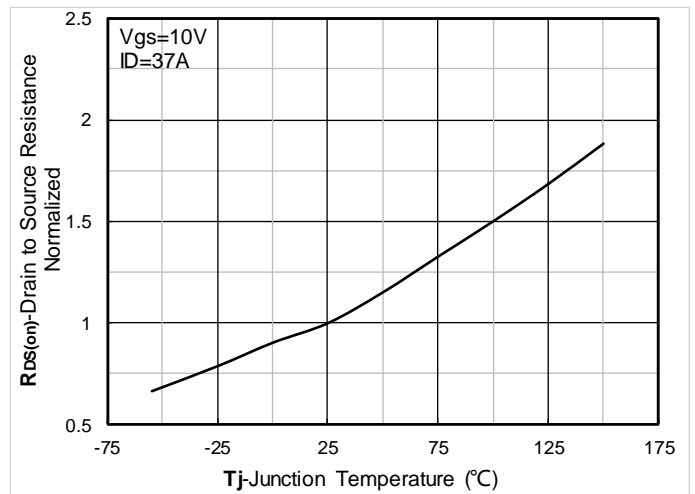


Figure 6. Normalized On-Resistance



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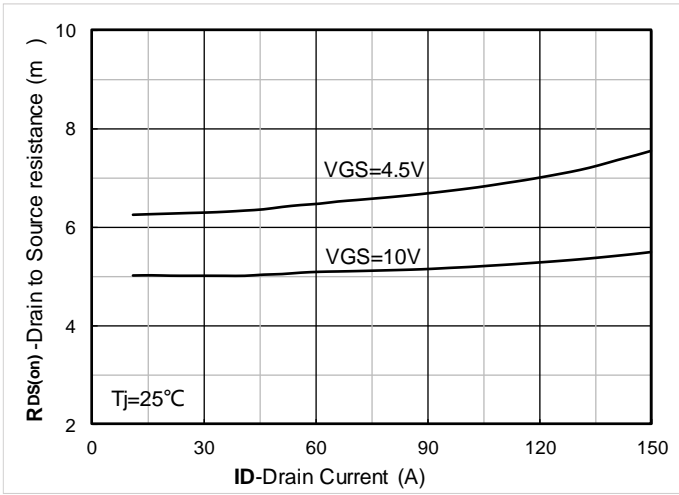


Figure 7. $R_{DS(on)}$ VS Drain Current

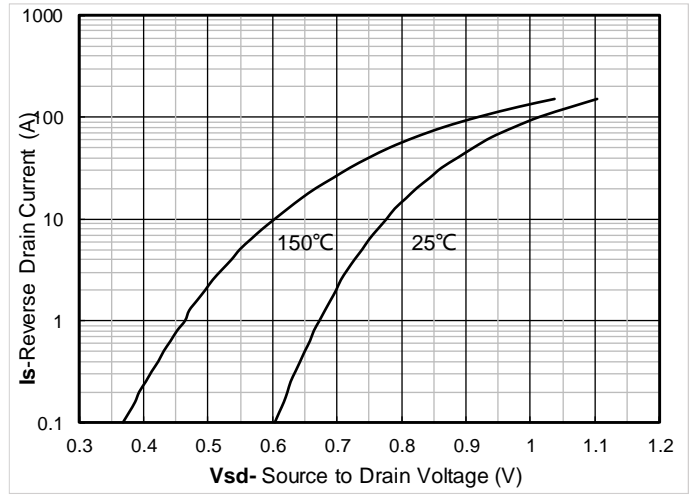


Figure 8. Forward characteristics of reverse diode

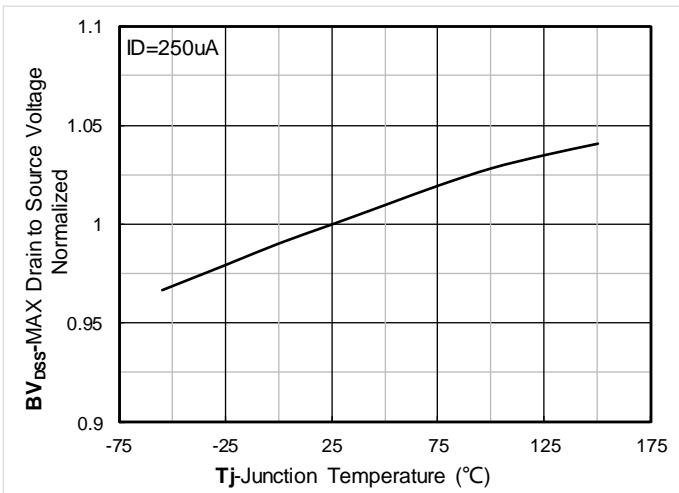


Figure 9. Normalized breakdown voltage

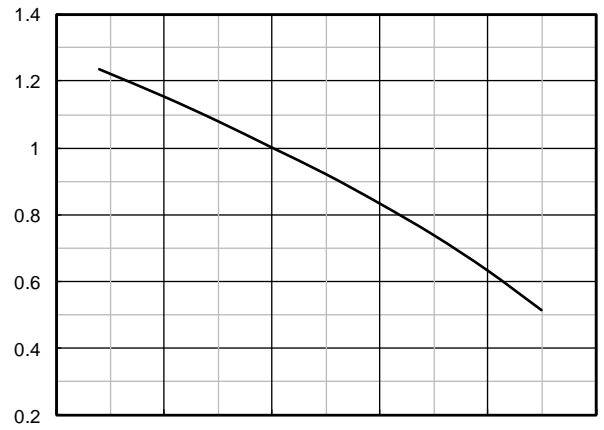


Figure 10. Normalized Threshold voltage

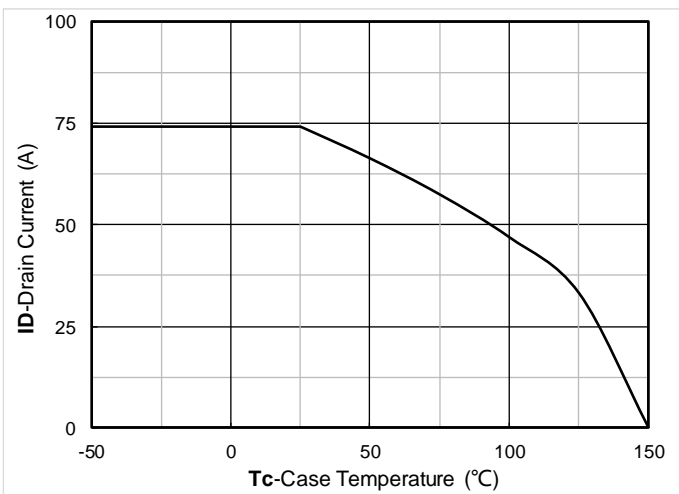


Figure 11. Current dissipation

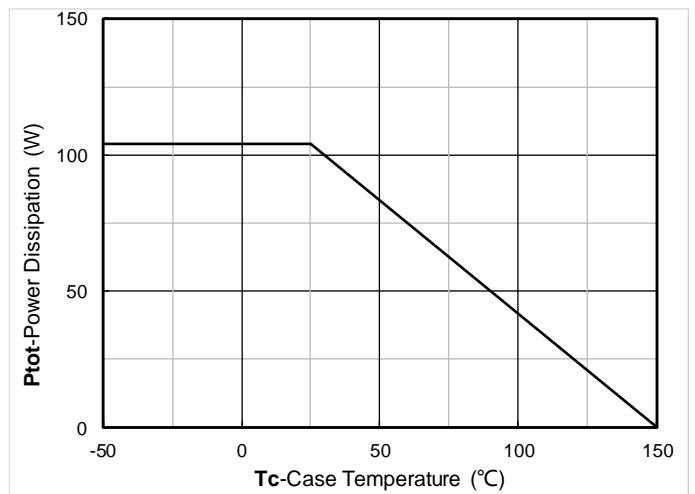


Figure 12. Power dissipation

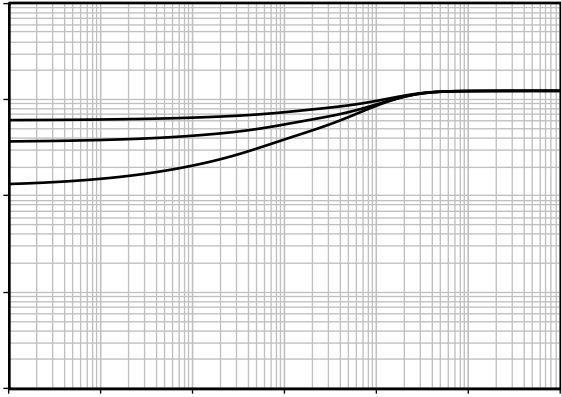


Figure 13. Maximum Transient Thermal Impedance

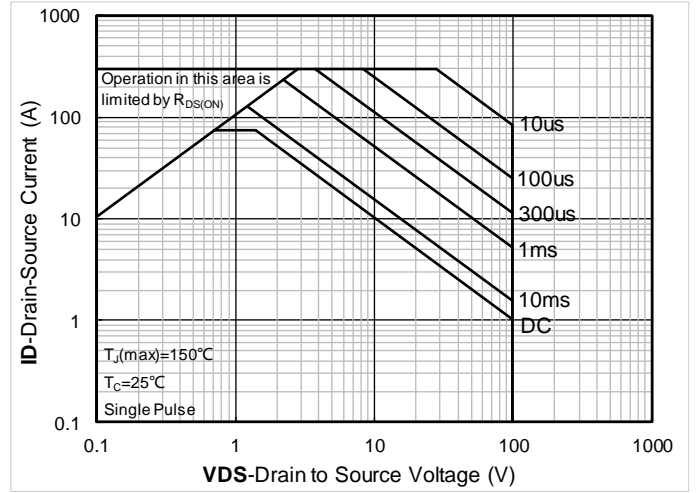


Figure 14. Safe Operation Area

Test Circuits & Waveforms

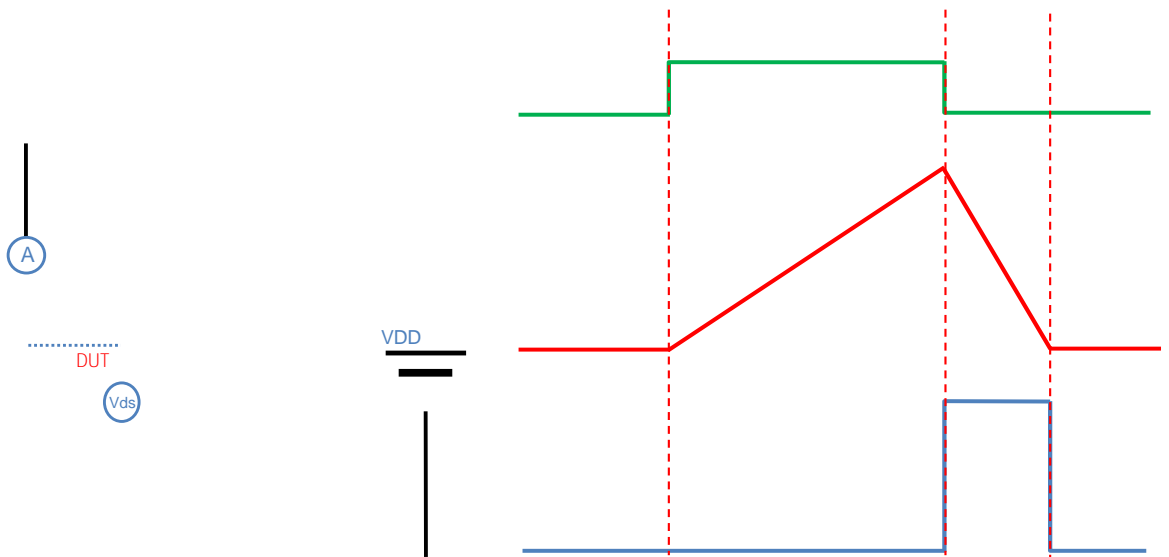


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

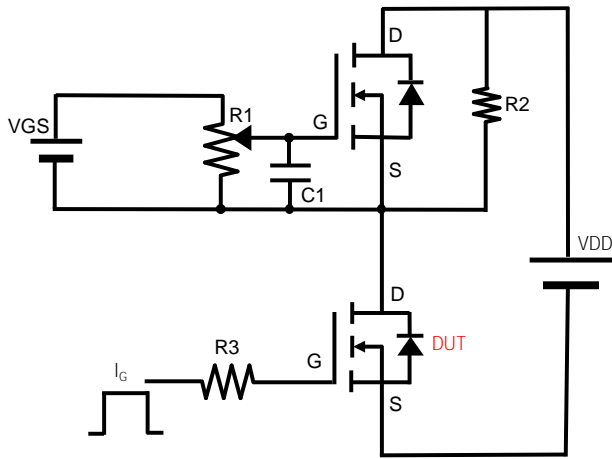


Figure B. Gate Charge Test Circuit & Waveform

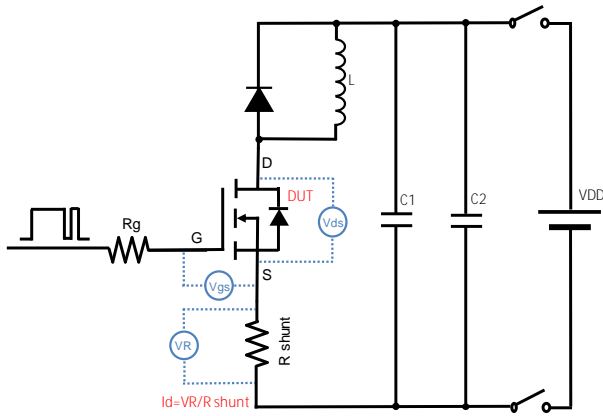


Figure C. Resistive Switching Test Circuit & Waveform

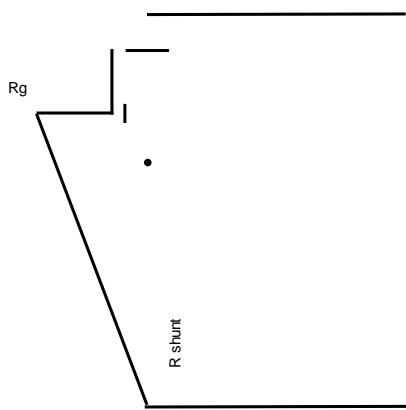
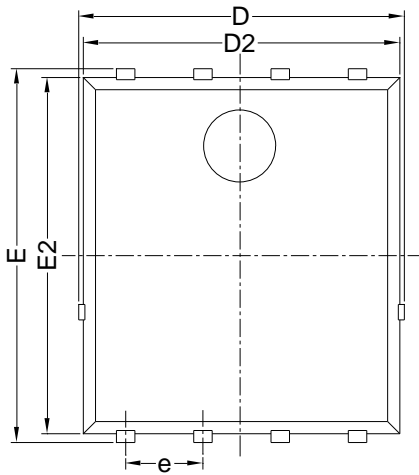


Figure D. Diode Recovery Test Circuit & Waveform

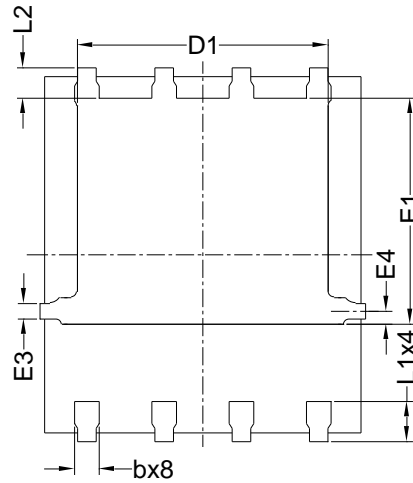


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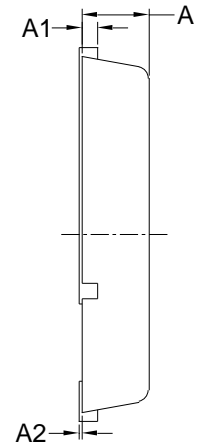
PDFN5060-8L-B-1.1MM Package information



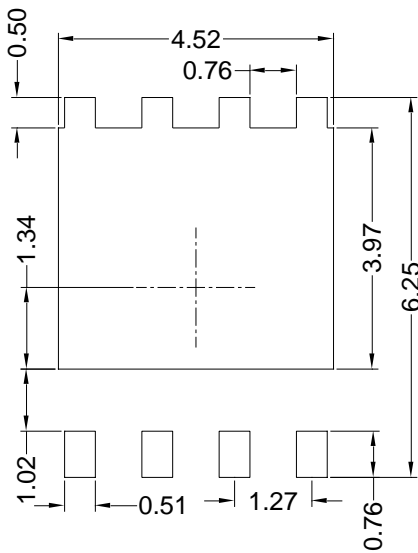
Top View



Bottom View



Side View



Suggested Solder Pad Layout
Top View

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	5.15	5.35	5.55
E	5.95	6.15	6.35
A	1.00	1.10	1.20
A1	0.254 BSC		
A2			0.10
D1	3.92	4.12	4.32
E1	3.52	3.72	3.92
D2	5.00	5.20	5.40
E2	5.66	5.86	6.06
E3	0.254 REF		
E4	0.21 REF		
L1	0.56	0.66	0.76
L2	0.50 BSC		
b	0.31	0.41	0.51
e	1.27 BSC		

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.10 mm.
3. The pad layout is for reference purposes only.



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