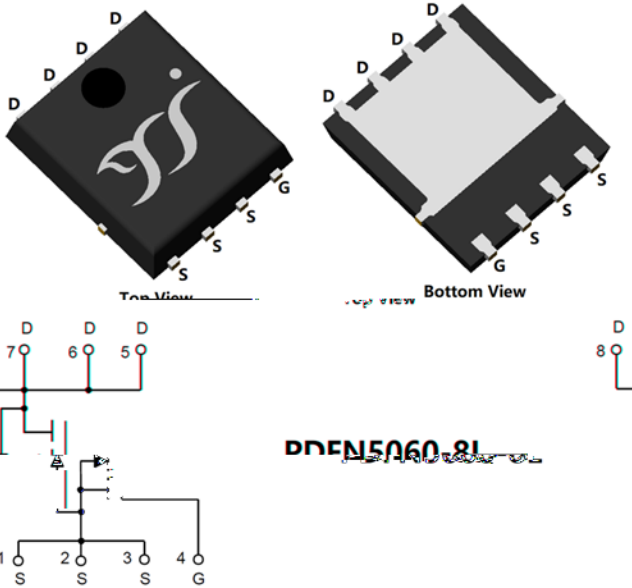




# N-Channel Enhancement Mode Field Effect Transistor



## Product Summary

$V_{DS}$	100V
$I_D$	55A
$R_{DS(ON)}$ ( at $V_{GS}=10V$ )	12m
$R_{DS(ON)}$ ( at $V_{GS}=4.5V$ )	16m
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	$V_{GS}$	$\pm 20$	V	
Drain Current	$I_D$	$T_A=25^\circ C$	11	A
		$T_A=100^\circ C$	7	
		$T_C=25^\circ C$	55	
		$T_C=100^\circ C$	34	
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	170	A	
Avalanche energy <sup>B</sup>	EAS	144	mJ	
Total Power Dissipation <sup>C</sup>	$P_D$	$T_A=25^\circ C$	2.5	W
		$T_A=100^\circ C$	1	
		$T_C=25^\circ C$	89	
		$T_C=100^\circ C$	35	
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 <sup>D</sup>	$R_{JA}$	40	50	$^\circ C/W$
Thermal Resistance Junction-to-Case	$R_{JC}$	1.1	1.4	

## Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJG55G10A	F1	YJG55G10A	5000	10000	100000	13" reel

# YJG55G10A

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# YJG55G10A

## Typical Electrical and Thermal Characteristics Diagrams

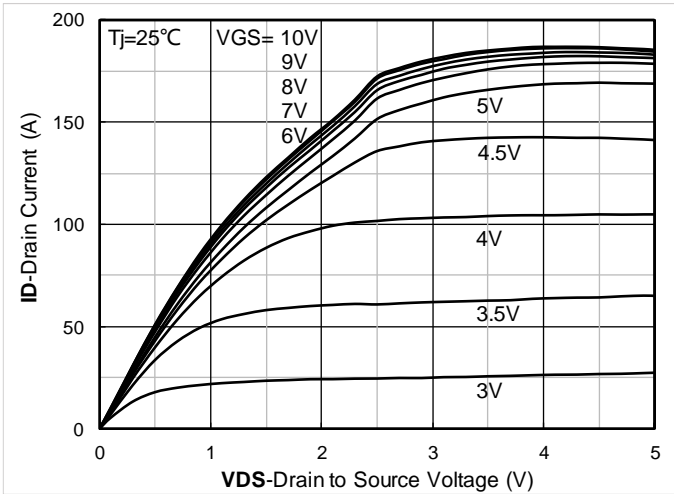


Figure 1. Output Characteristics

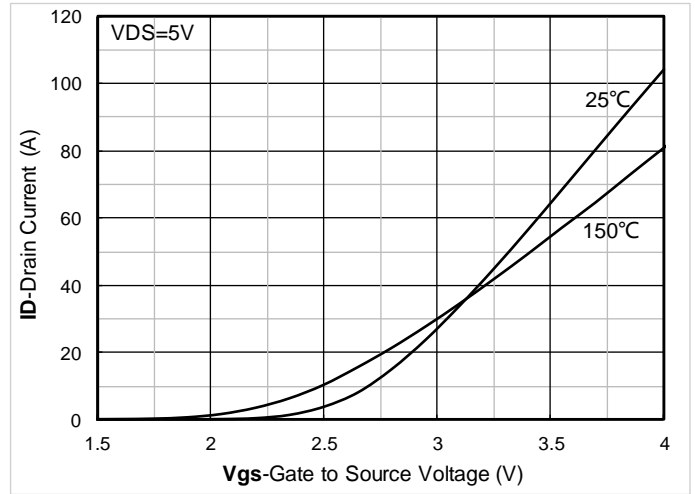


Figure 2. Transfer Characteristics

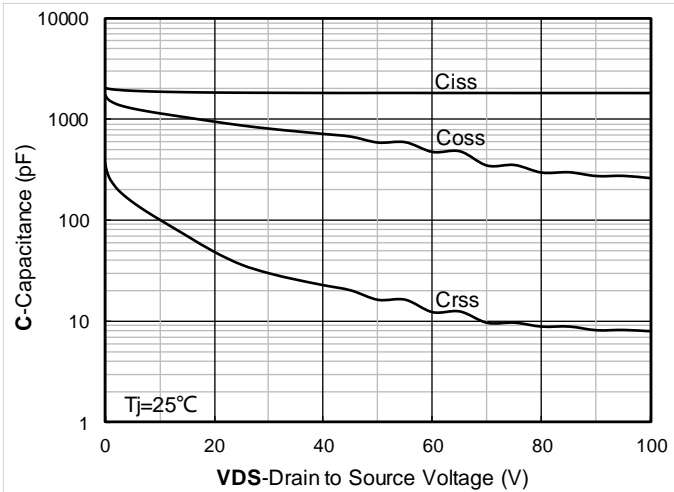


Figure 3. Capacitance Characteristics

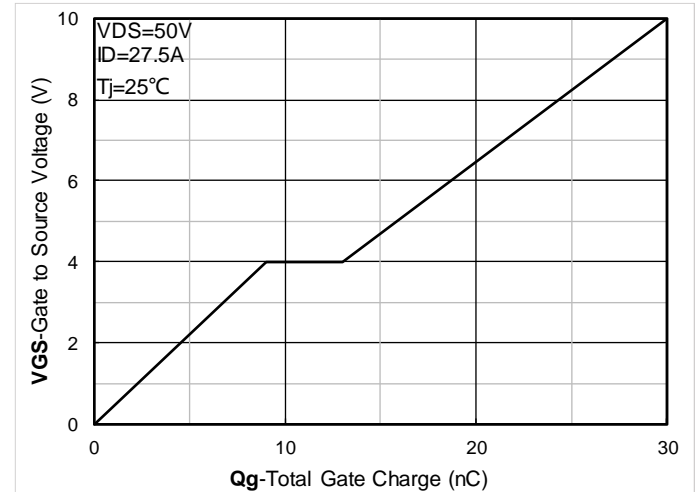


Figure 4. Gate Charge

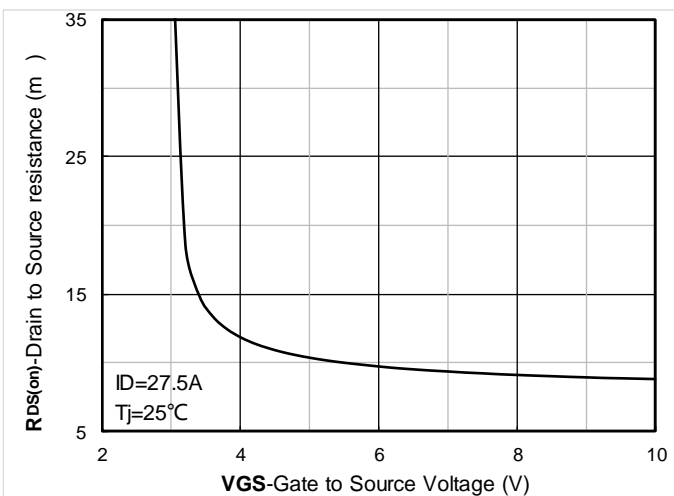


Figure 5. On-Resistance vs Gate to Source Voltage

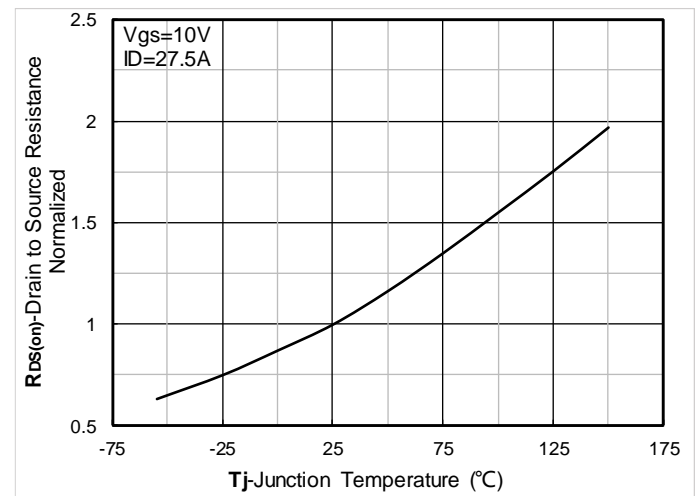


Figure 6. Normalized On-Resistance



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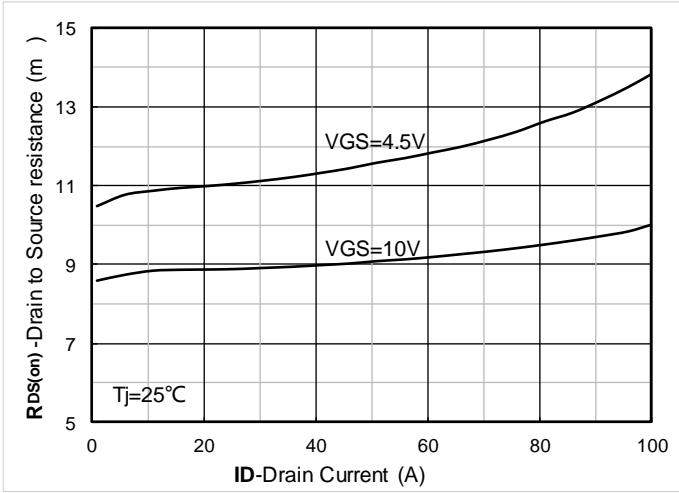


Figure 7. RDS(on) VS Drain Current

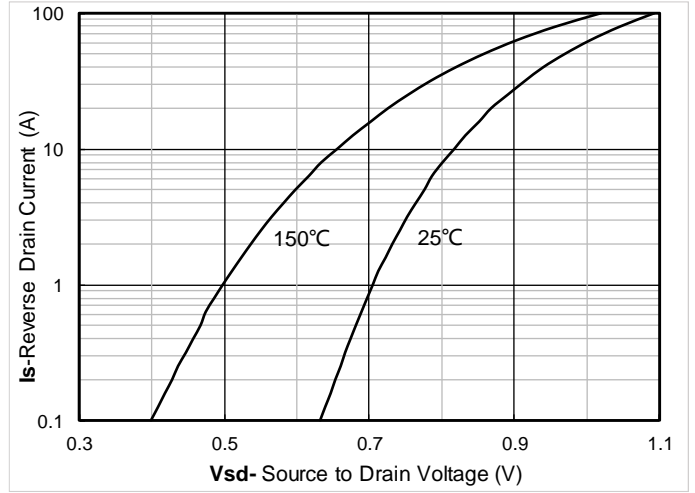


Figure 8. Forward characteristics of reverse diode

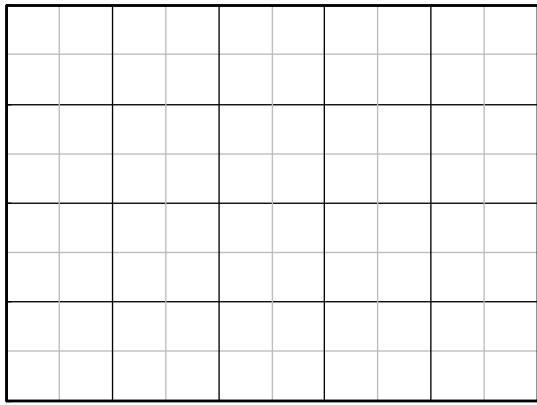


Figure 9. Normalized breakdown voltage

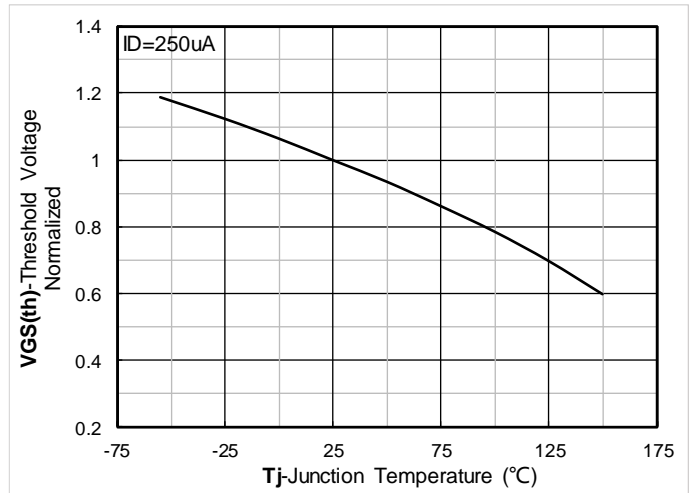


Figure 10. Normalized Threshold voltage

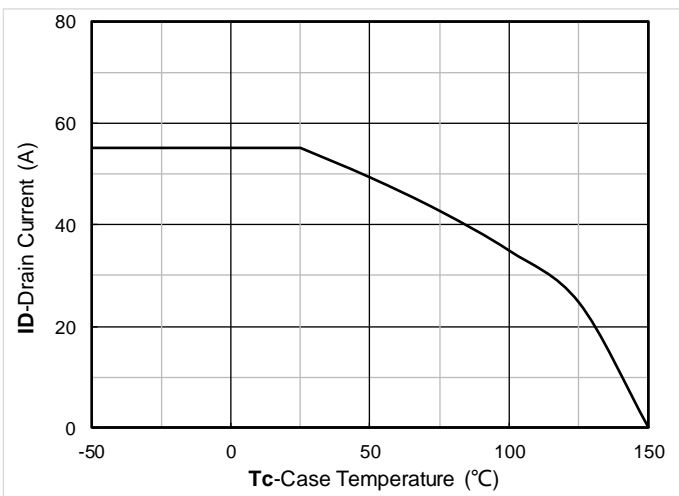


Figure 11. Current dissipation

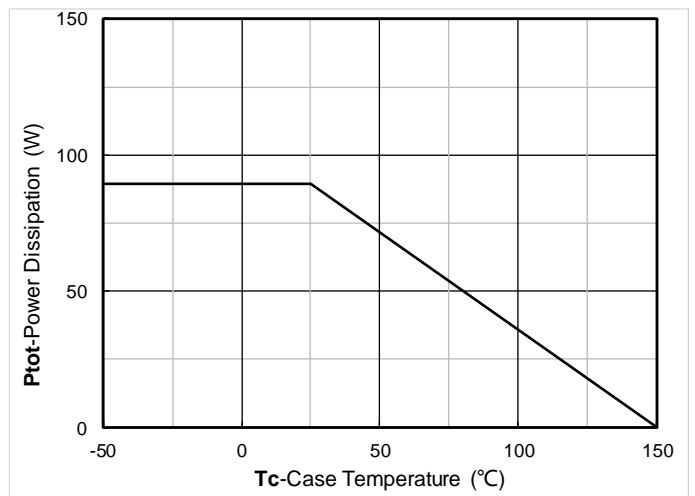


Figure 12. Power dissipation



# YJG55G10A

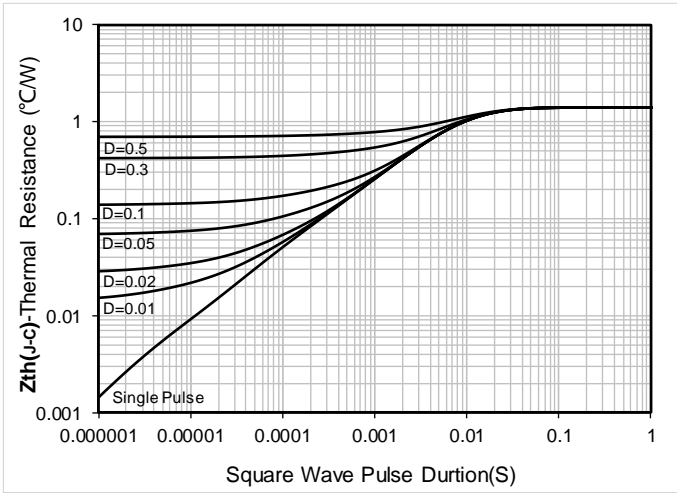


Figure 13. Maximum Transient Thermal Impedance

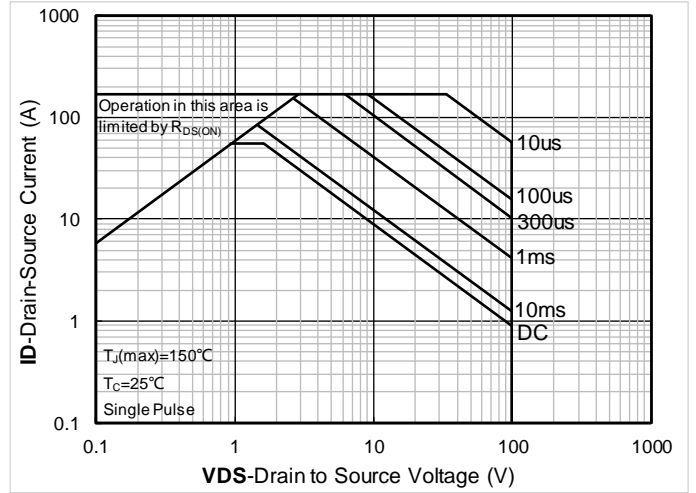


Figure 14. Safe Operation Area

## Test Circuits & Waveforms

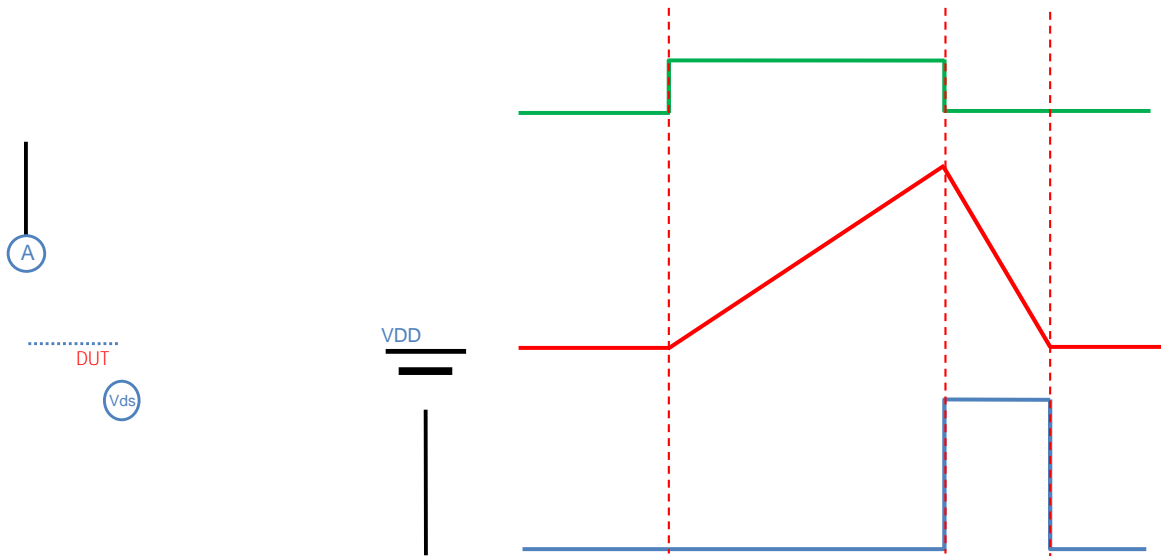


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

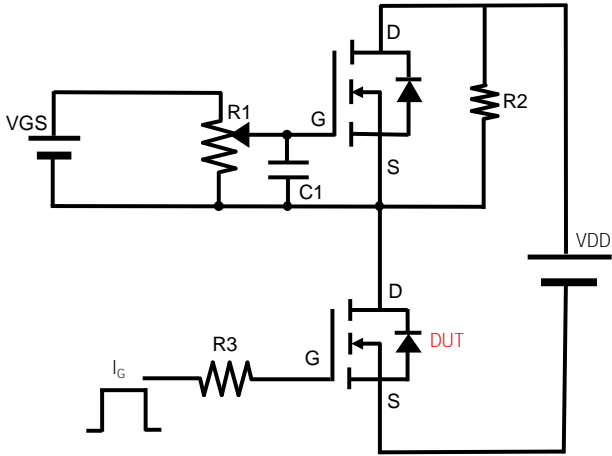


Figure B. Gate Charge Test Circuit & Waveform

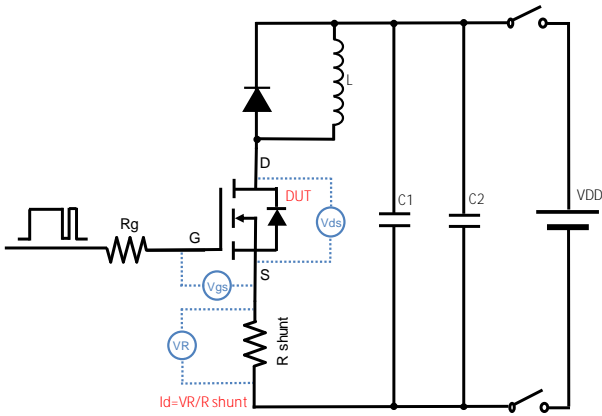


Figure C. Resistive Switching Test Circuit & Waveform

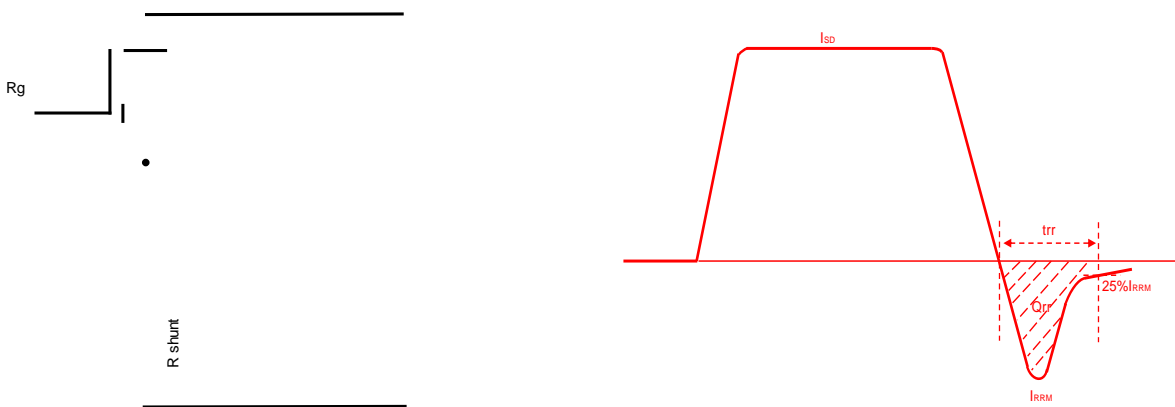
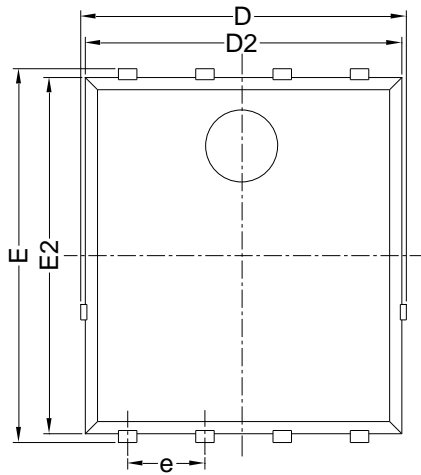


Figure D. Diode Recovery Test Circuit & Waveform

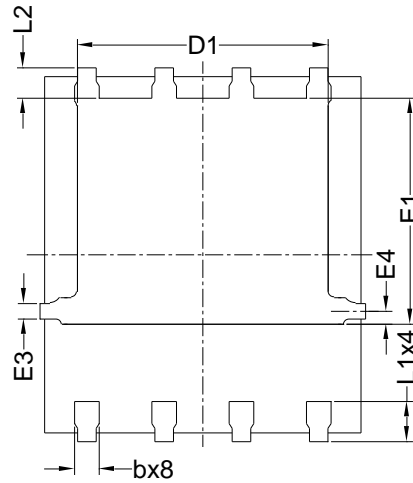


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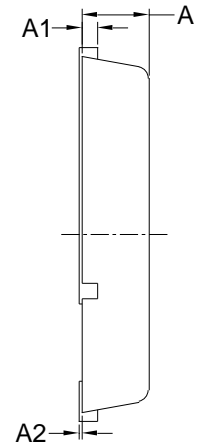
## PDFN5060-8L-B-1.1MM Package information



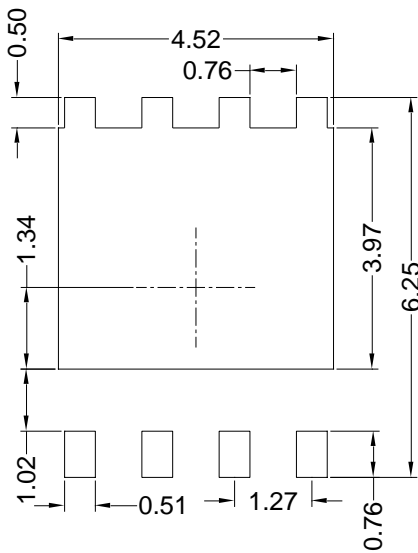
Top View



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:  $\pm 0.10$ mm.
3. The pad layout is for reference purposes only.



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