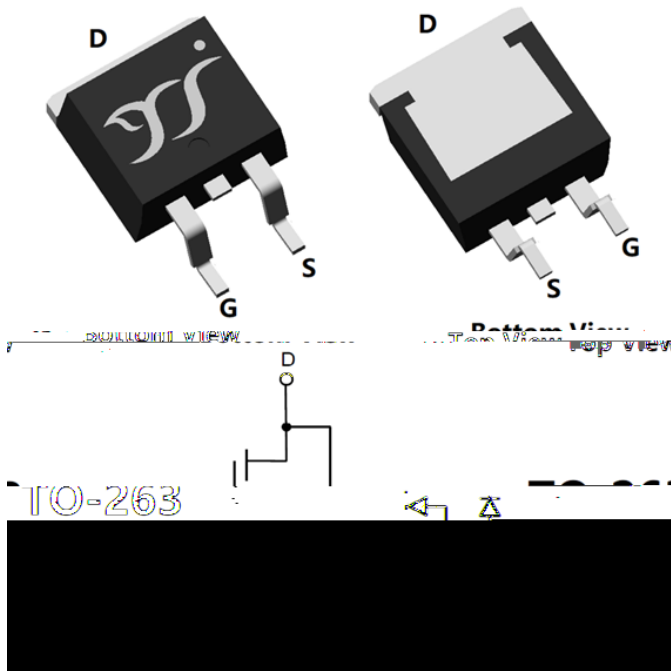




YJB90G12A

N-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	120V
I_D	90A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	9m
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	11m
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
 Halogen Free

Applications

Power switching application
 Uninterruptible power supply
 DC-DC convertor

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	120	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_A=25^\circ C$	I_D	10	A
	$T_A=100^\circ C$		6	
	$T_C=25^\circ C$		90	
	$T_C=100^\circ C$		56	
Pulsed Drain Current ^A		I_{DM}	300	A
Avalanche energy ^B		EAS	400	mJ
Total Power Dissipation ^C	$T_A=25^\circ C$	P_D	2.7	W
	$T_A=100^\circ C$		1.1	
	$T_C=25^\circ C$		166	
	$T_C=100^\circ C$		66	
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	Steady-State	R_{JA}	35	45	$^\circ C/W$
Thermal Resistance Junction-to-Case	Steady-State	R_{JC}	0.6	0.75	

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJB90G12A	F2	YJB90G12A	800	/	8000	13" reel



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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						

Drain-



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Typical Electrical and Thermal Characteristics Diagrams

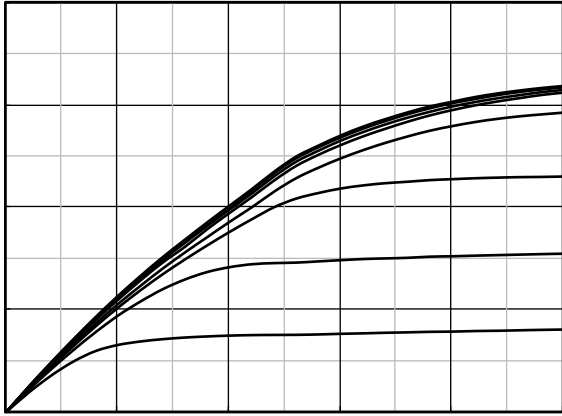


Figure 1. Output Characteristics

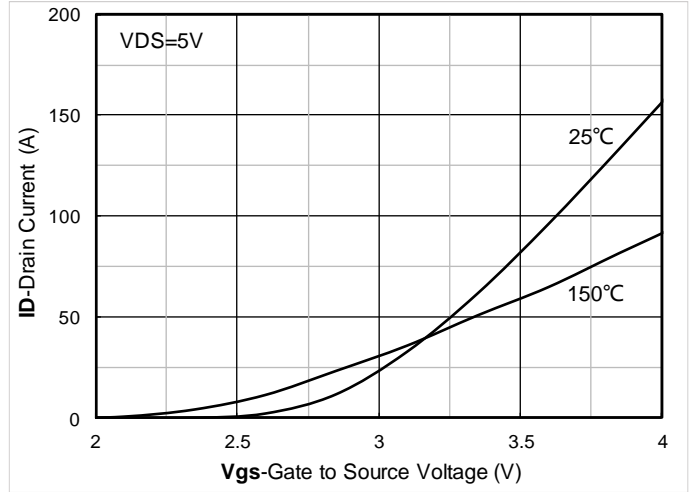


Figure 2. Transfer Characteristics

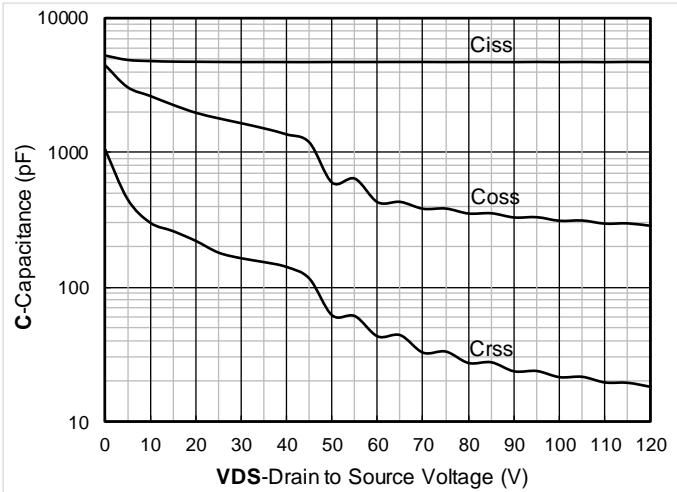


Figure 3. Capacitance Characteristics

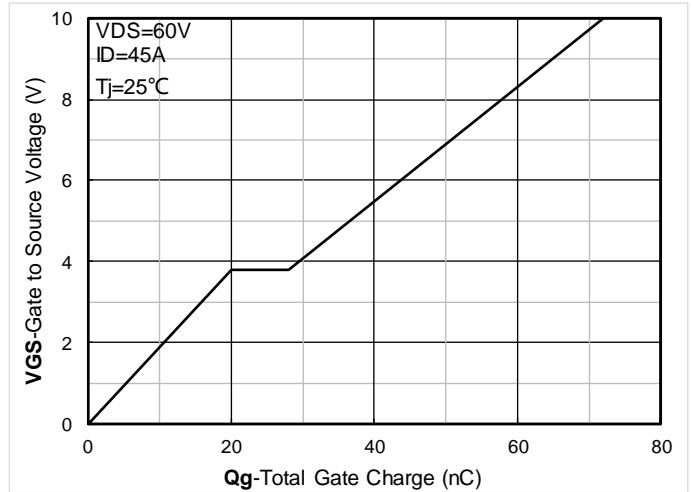


Figure 4. Gate Charge

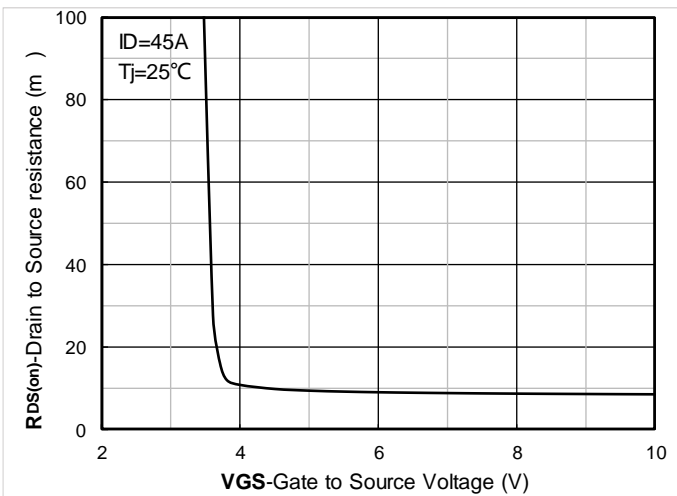


Figure 5. On-Resistance vs Gate to Source Voltage

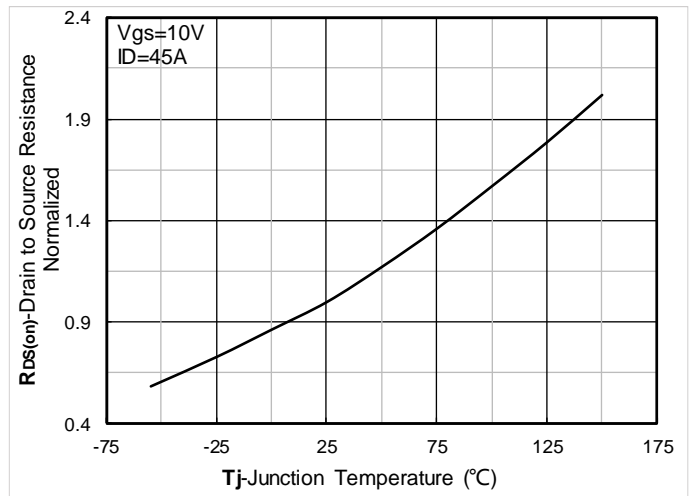


Figure 6. Normalized On-Resistance



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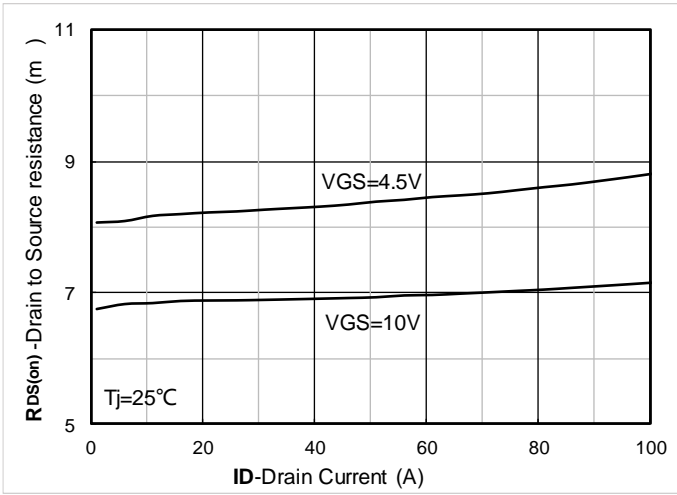


Figure 7. $R_{DS(on)}$ VS Drain Current

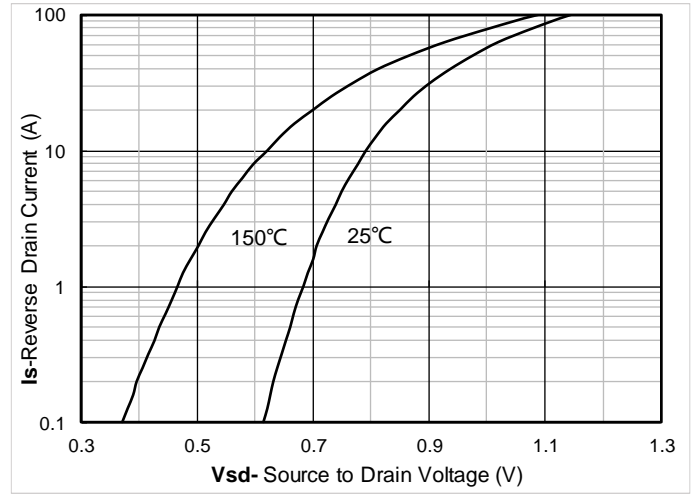


Figure 8. Forward characteristics of reverse diode

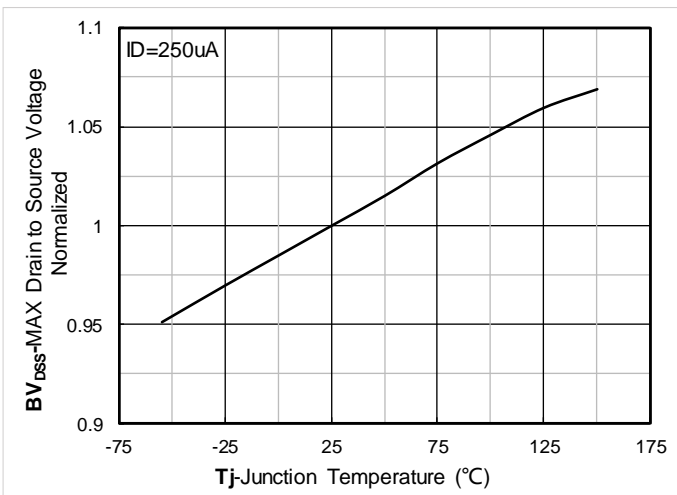


Figure 9. Normalized breakdown voltage

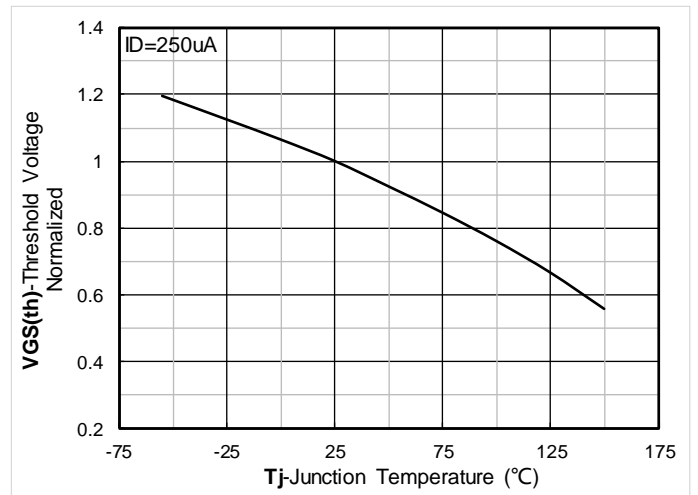


Figure 10. Normalized Threshold voltage

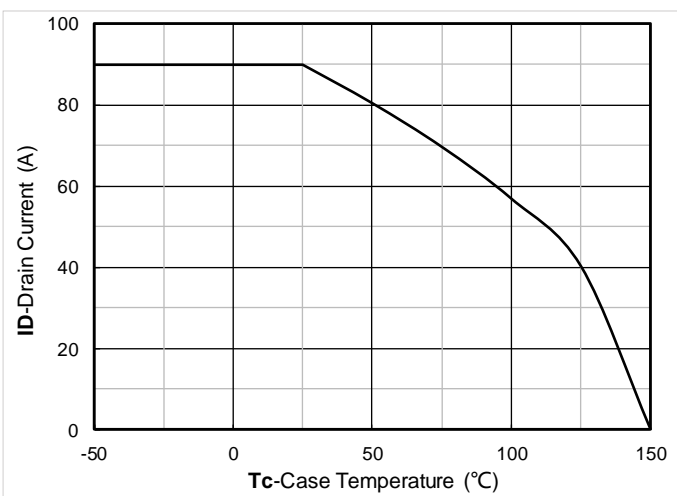


Figure 11. Current dissipation

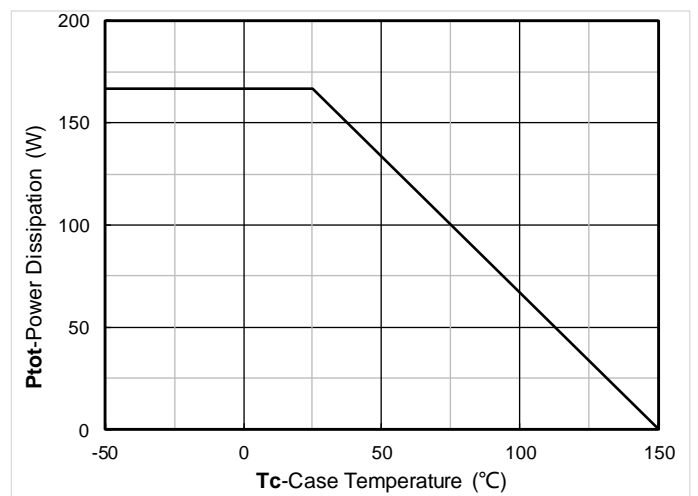


Figure 12. Power dissipation



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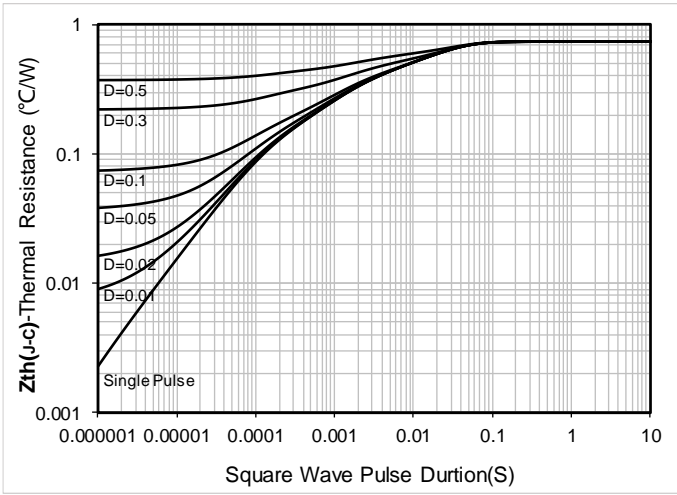


Figure 13. Maximum Transient Thermal Impedance

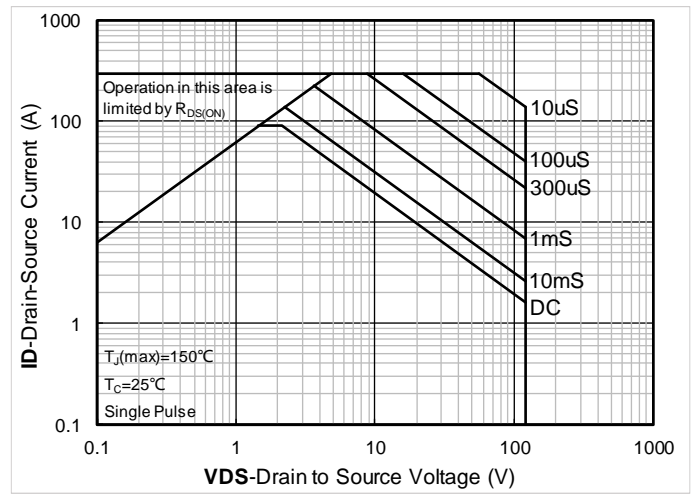


Figure 14. Safe Operation Area

Test Circuits & Waveforms

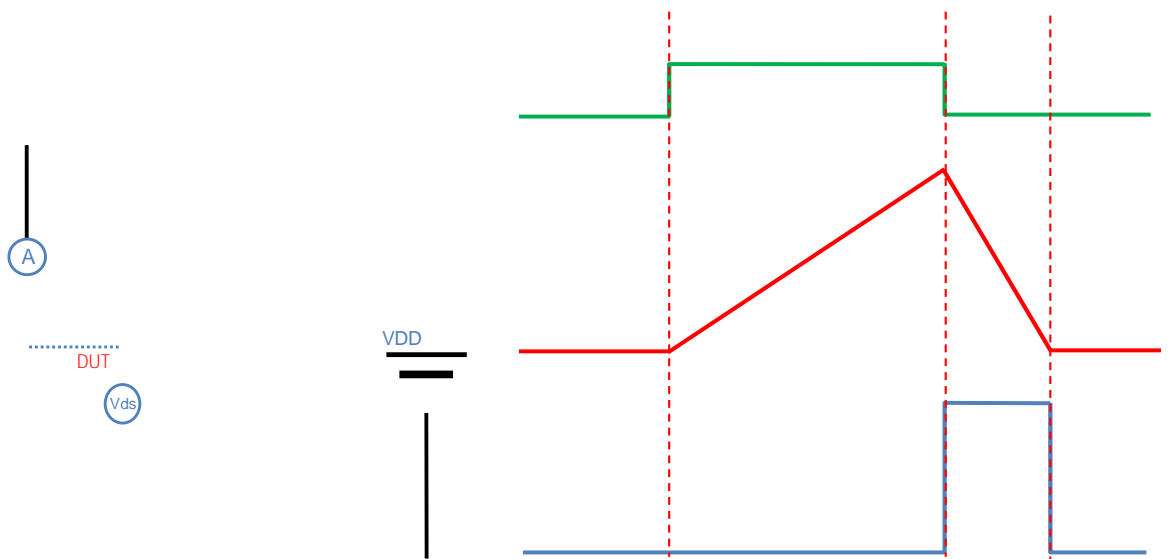


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

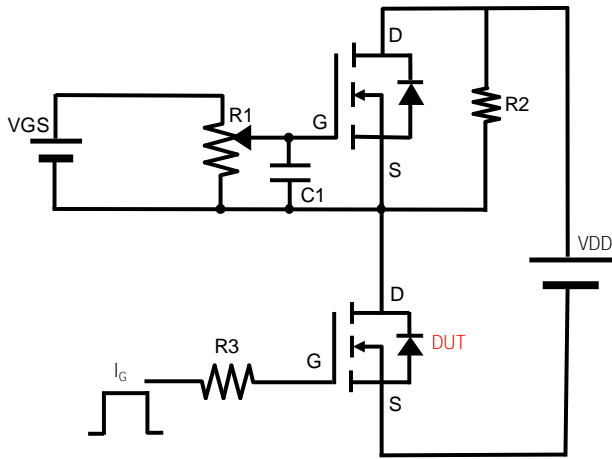


Figure B. Gate Charge Test Circuit & Waveform

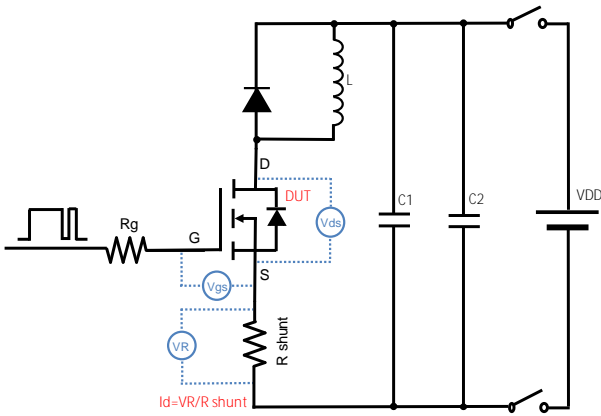


Figure C. Resistive Switching Test Circuit & Waveform

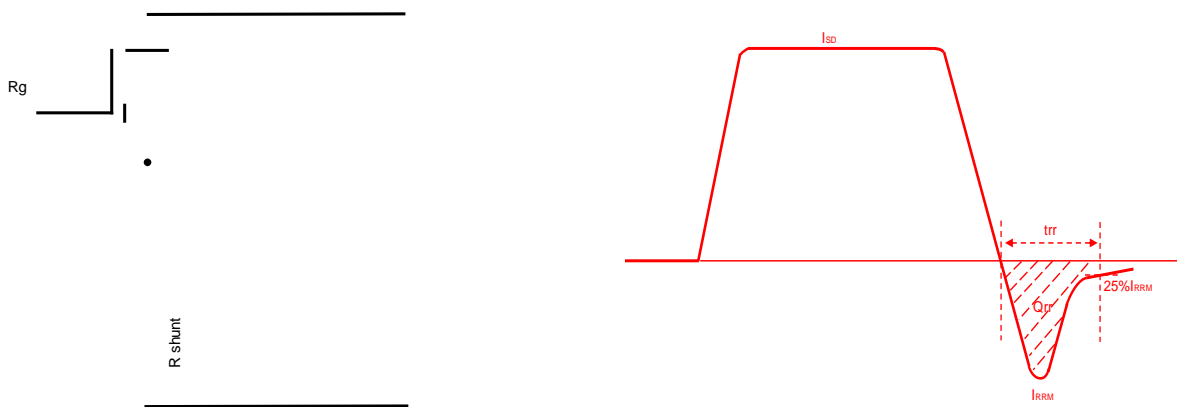
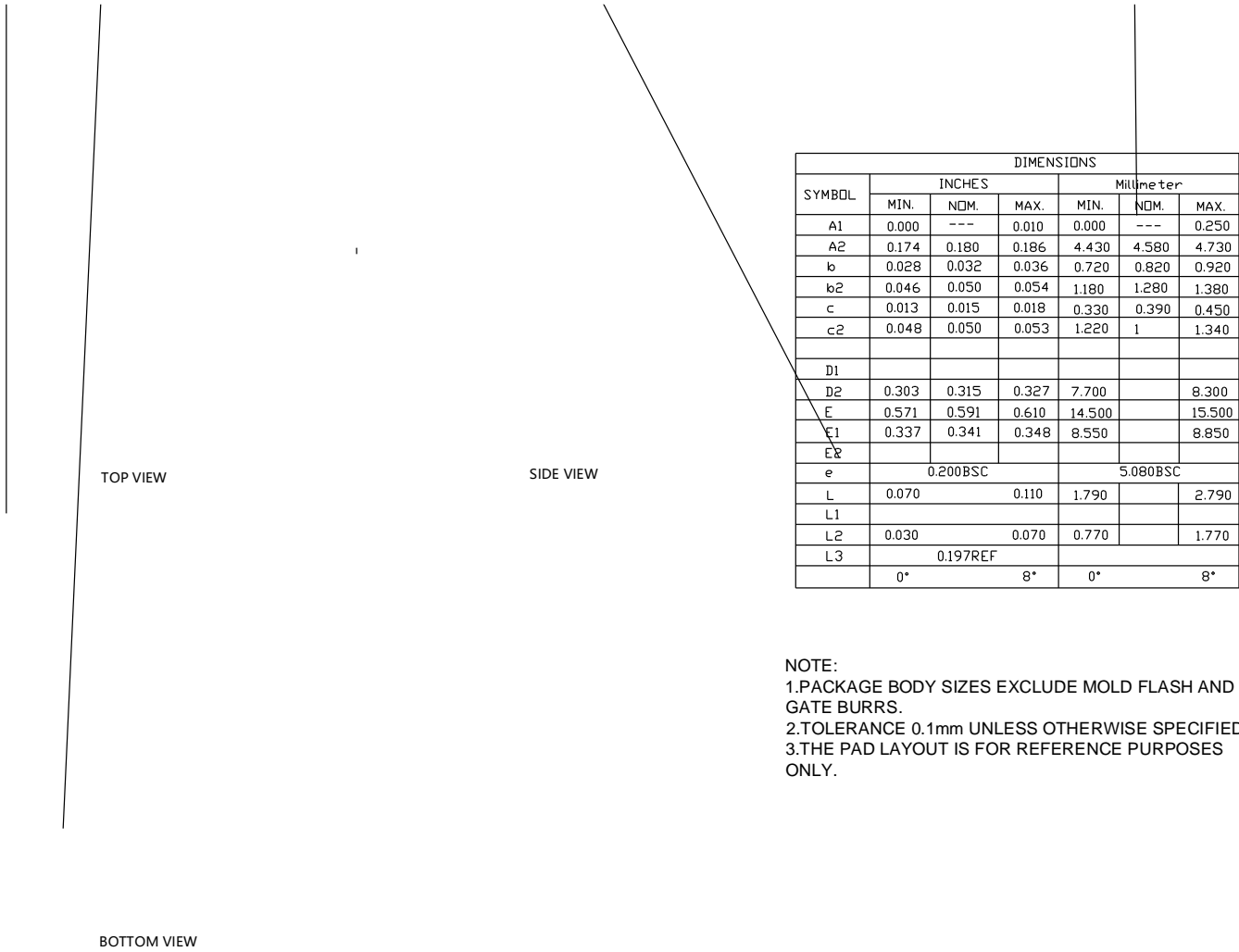


Figure D. Diode Recovery Test Circuit & Waveform



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TO-263-HY Package information



SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A1	0.000	---	0.010	0.000	---	0.250
A2	0.174	0.180	0.186	4.430	4.580	4.730
b	0.028	0.032	0.036	0.720	0.820	0.920
b2	0.046	0.050	0.054	1.180	1.280	1.380
c	0.013	0.015	0.018	0.330	0.390	0.450
c2	0.048	0.050	0.053	1.220	1	1.340
D1						
D2	0.303	0.315	0.327	7.700		8.300
E	0.571	0.591	0.610	14.500		15.500
E1	0.337	0.341	0.348	8.550		8.850
E2						
e	0.200BSC			5.080BSC		
L	0.070		0.110	1.790		2.790
L1						
L2	0.030		0.070	0.770		1.770
L3	0.197REF					
	0°		8°	0°		8°

NOTE:
 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



YJB90G12A

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