

N-Channel Enhancement Mode Field Effect Transistor

Product Summary

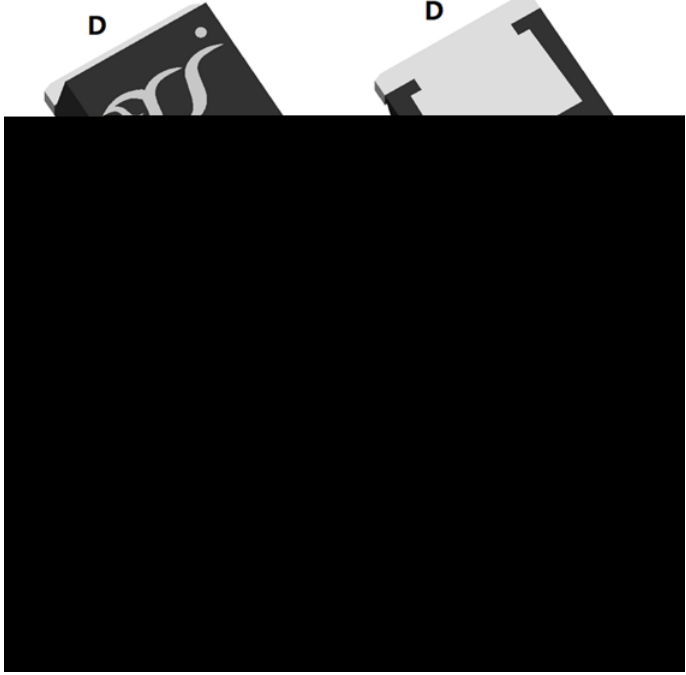
V_{DS}	60V
I_D	200A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	<2.9 mohm
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	<3.9 mohm
100% EAS Tested	
100% ∇V_{DS} Tested	

General Description

Split Gate Trench MOSFET technology
 Excellent package for heat dissipation
 High density cell design for low $R_{DS(ON)}$
 Green Product
 OF 3. P-0 Flammability Rating
 Balogen Free

Applications

Isolated DC-DC Converters
 Motor control
 Invertors



Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	60	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current ^A	I_D	$T_C=25^\circ C$	200
		$T_C=100^\circ C$	125
Pulsed Drain Current ^B	I_{DM}	600	A
Avalanche energy ^C	EAS	506	mJ
Total Power Dissipation ^D	P_D	260	W
Thermal Resistance Junction-to-Case	R_{JC}	0.48	$^\circ C/W$
Thermal Resistance Junction-to-Ambient ^E	R_{JA}	28	
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJB200G06C	F2	YJB200G06C	800	/	8000	13 reel



YJB200G06C

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250$;	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	;
Gate-Body Leakage Current	I_{GSS}	$V_{GS}= \pm 20V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}= V_{GS}, I_D=250$;	1.2	1.6	2.2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}= 10V, I_D=20A$		2.35	2.9	m
		$V_{GS}= 4.5V, I_D=15A$		2.9	3.9	
Diode Forward Voltage	V_{SD}	$I_S=20A, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				200	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=100KHZ$		5950		pF
Output Capacitance	C_{oss}			1250		
Reverse Transfer Capacitance	C_{rss}			85		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=50V, I_D=50A$		93		nC
Gate-Source Charge	Q_{gs}			17		
Gate-Drain Charge	Q_{gd}			14		
Reverse Recovery Charge	Q_{rr}	$I_f=25A, di/dt=100A/us$		73		ns
Reverse Recovery Time	t_{rr}			68		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=30V, I_D=25A$ $R_{GEN}=2$		22.5		ns
Turn-on Rise Time	t_r			6.7		
Turn-off Delay Time	$t_{d(off)}$			80.3		
Turn-off fall Time	t_f			26.9		

Note:

- The maximum current rating is package limited.
- Repetitive rating; pulse width limited by max. junction temperature.
- $T_J=25^\circ\text{C}$, $V_{DD}=80V$, $V_G=10V$, $R_G7, / \ \&F7$ (/ mH, $I_{AS}=45A$).
- P_D is based on max. junction temperature, using junction-case thermal resistance.
- The value of R_{JA} is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a=25^\circ\text{C}$.



■ Typical Performance Characteristics

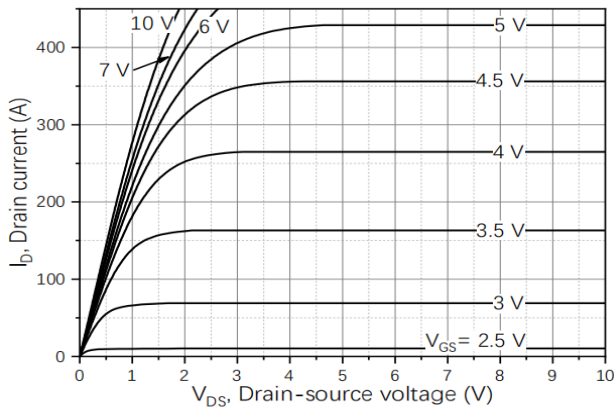


Figure1. Output Characteristics

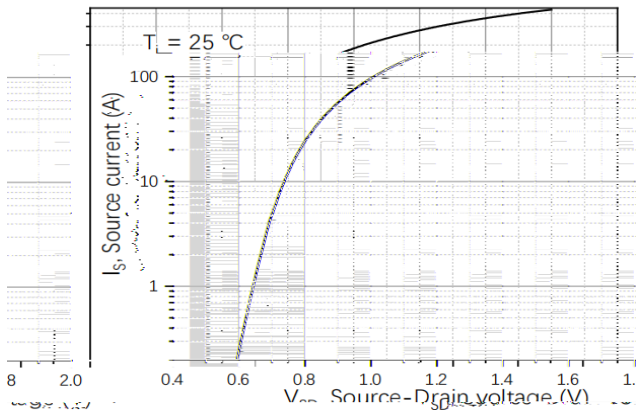


Figure2. Transfer Characteristics

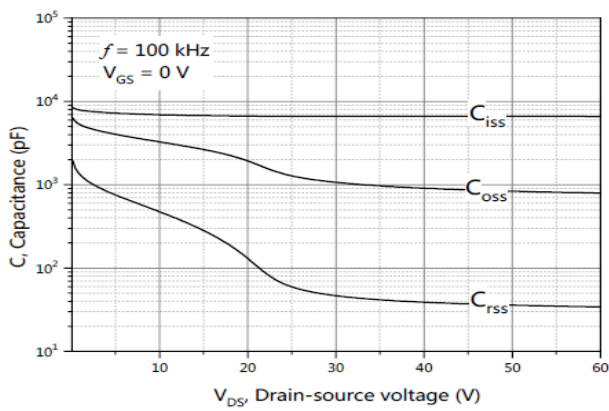


Figure3. Capacitance Characteristics

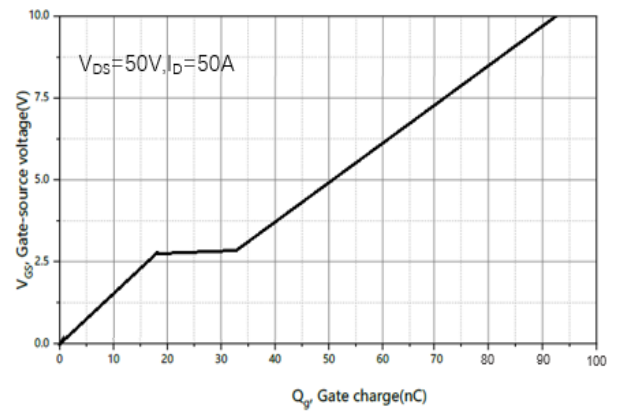


Figure4. Gate Charge

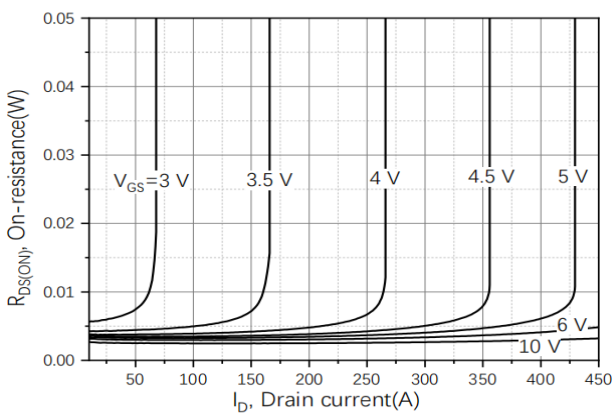


Figure5. Drain-Source on Resistance

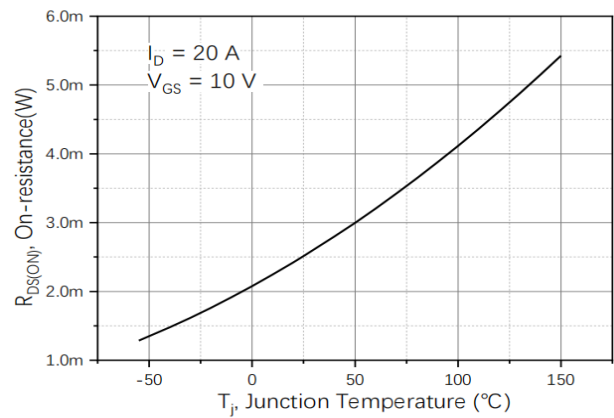


Figure6. Drain-Source on Resistance



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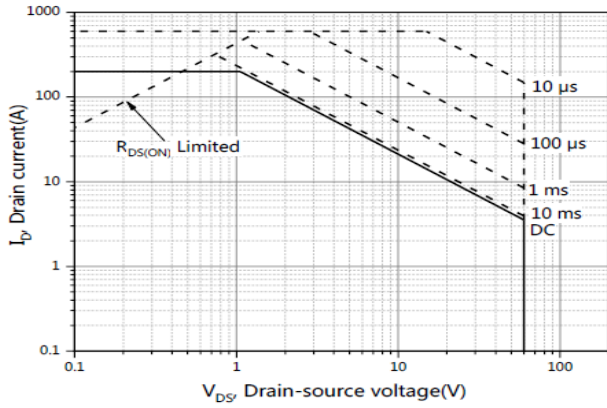


Figure7. Safe Operation Area

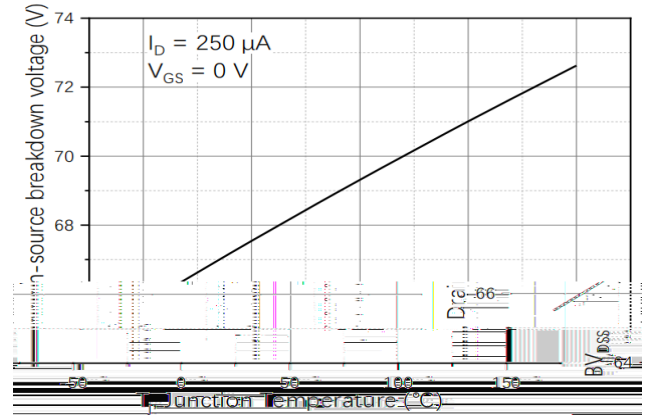


Figure8. Drain-source breakdown voltage

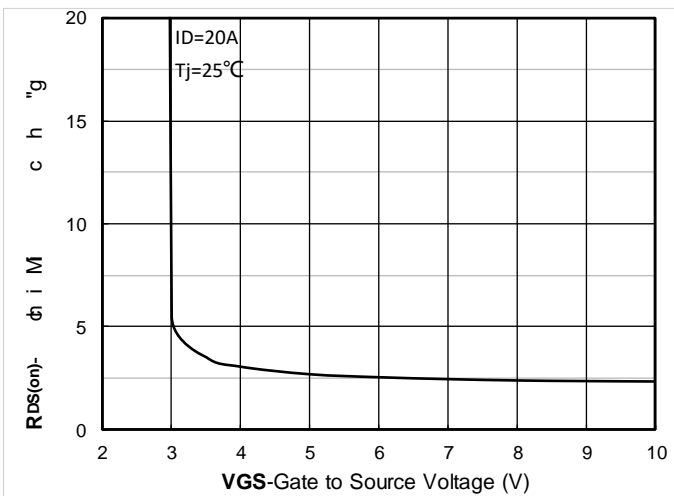


Figure9. On-Resistance vs Gate to Source Voltage

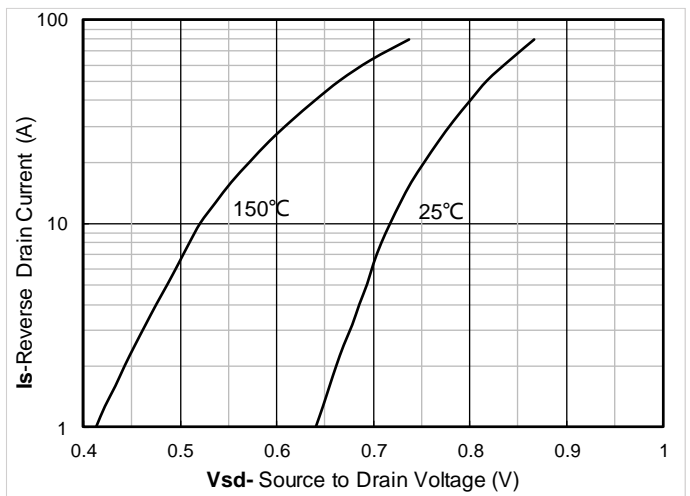


Figure10. Forward characteristics of reverse diode

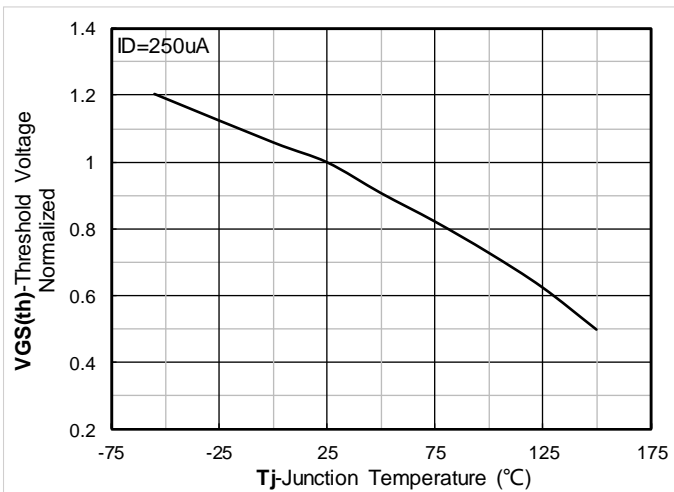


Figure11. Normalized Threshold voltage

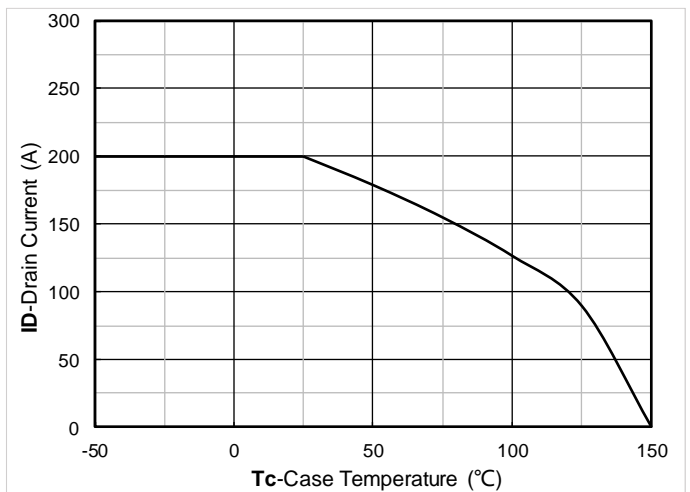


Figure12. Current dissipation

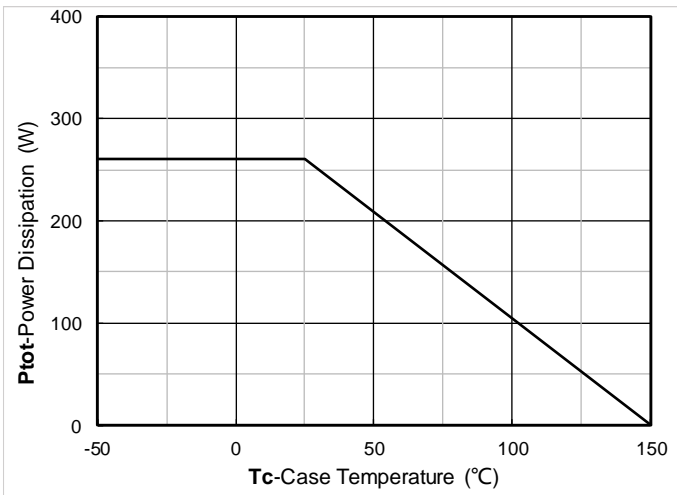


Figure13. Power dissipation

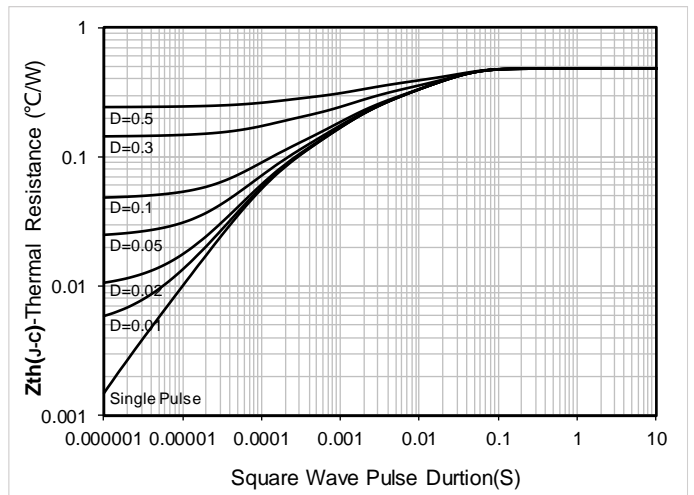


Figure14. Maximum Transient Thermal Impedance

■ Test circuits and waveforms

Figure A: Gate Charge Test Circuit & Waveforms

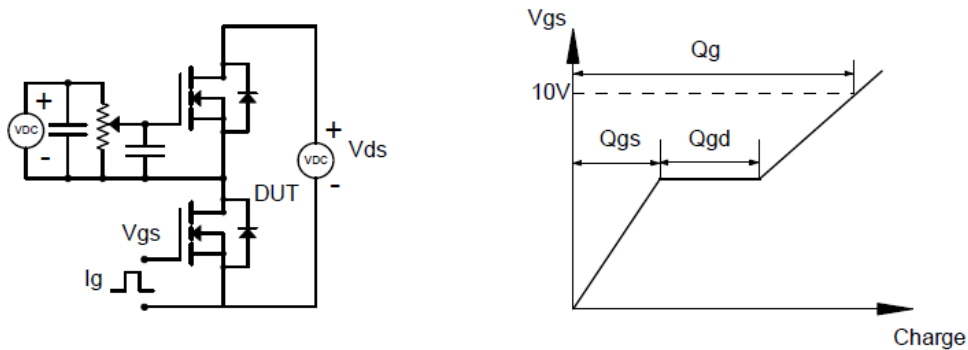


Figure B: Resistive Switching Test Circuit & Waveforms

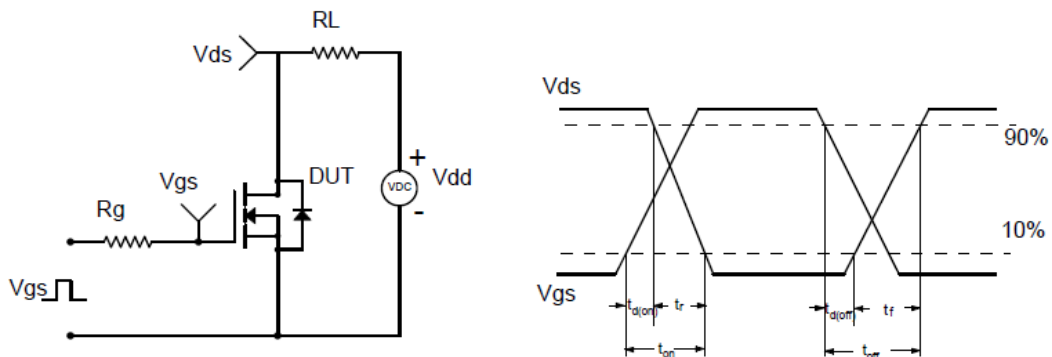


Figure C: Unclamped Inductive Switching (UIS) Test

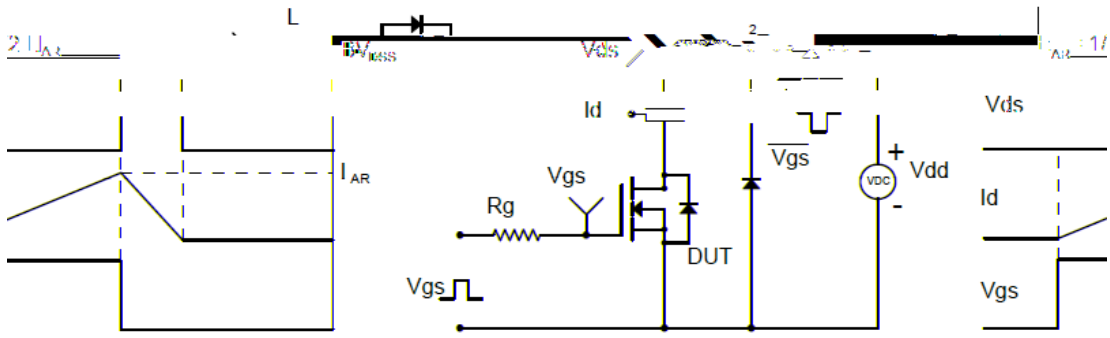
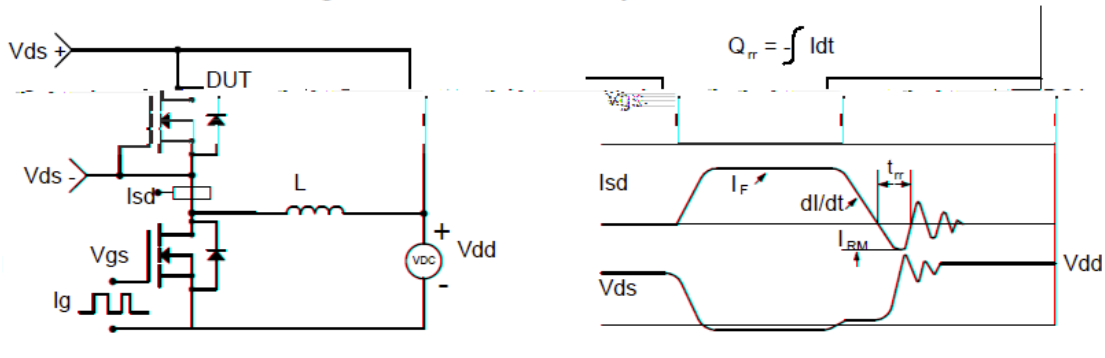


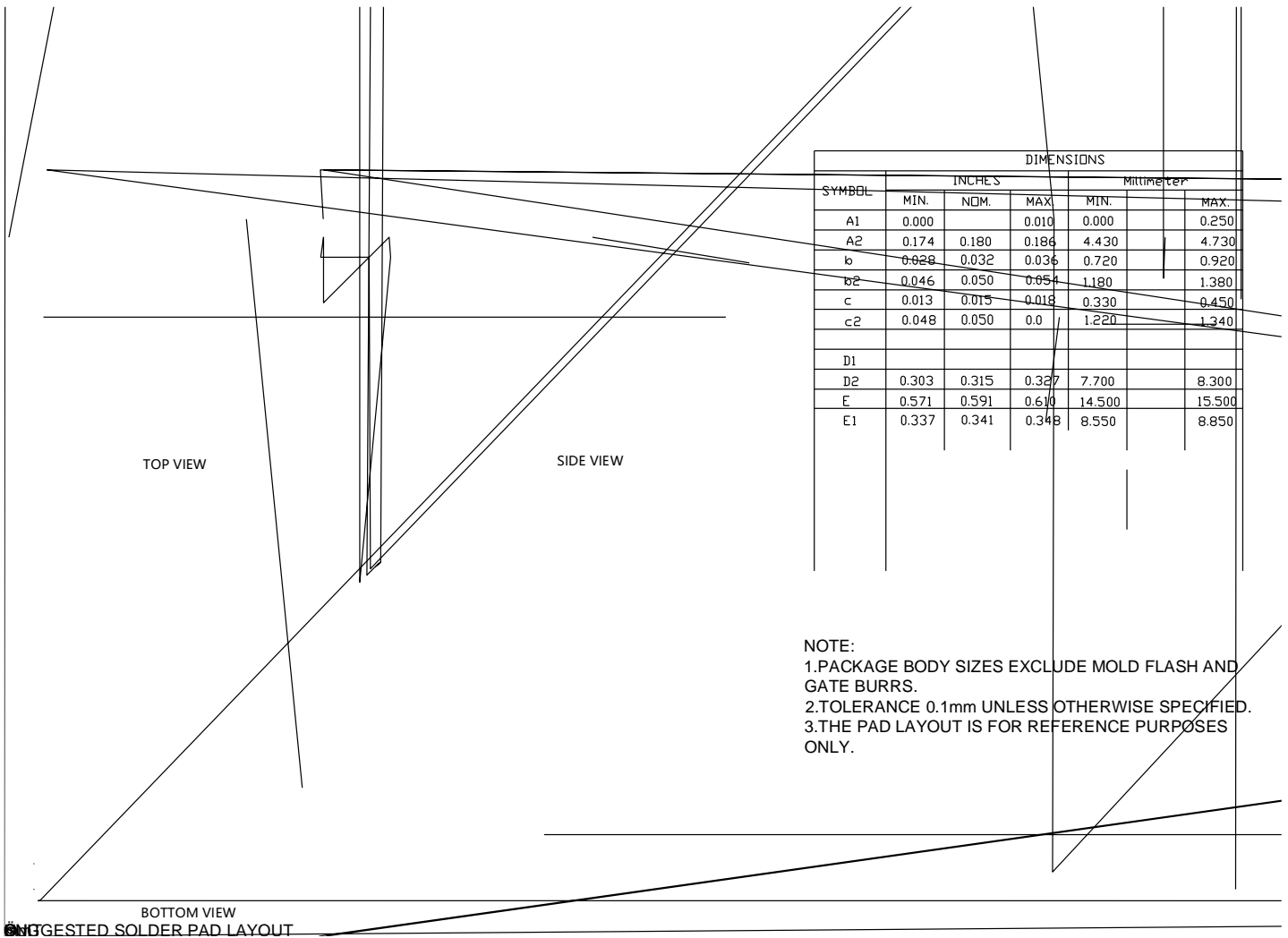
Figure D: Diode Recovery Test Circuit & Waveforms





YJB200G06C

TO-263-HY Package information





YJB200G06C

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