





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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D \text{ g}$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	
		$V_{DS}=100V, V_{GS}=0V, T_J=150^\circ C$	-	-	100	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}= \pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}= V_{GS}, I_D \text{ g}$	1	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=65A$	-	4	5.5	F
		$V_{GS}=10V, I_D=20A$	-	4	5.5	
		$V_{GS}=4.5V, I_D=20A$	-	5	6.5	
Diode Forward Voltage	V_{SD}	$I_S=65A, V_{GS}=0V$	-	0.9	1.2	V
Gate resistance	R_G	$f=1MHz, \text{Open drain}$	-	0.8	-	
Maximum Body-Diode Continuous Current	I_S		-	-	130	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$	-	4450	-	pF
Output Capacitance	C_{oss}		-	1500	-	
Reverse Transfer Capacitance	C_{rss}		-	90	-	
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=50V, I_D=65A$	-	68	-	nC
Gate-Source Charge	Q_{gs}		-	11	-	
Gate-Drain Charge	Q_{gd}		-	16	-	
Reverse Recovery Charge	Q_{rr}	$I_F=65A, di/dt=600A/us$	-	160	-	nC
Reverse Recovery Time	t_{rr}		-	35	-	ns
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=50V, I_D=65A$ $R_{GEN}=2.2$	-	18	-	ns
Turn-on Rise Time	t_r		-	79	-	
Turn-off Delay Time	$t_{D(off)}$		-	33	-	
Turn-off fall Time	t_f		-	7	-	

- A. Repetitive rating; pulse width limited by max. junction temperature.
- B. $T_J=25^\circ C, V_{DD}=50V, V_G=10V, R_G \text{ g } \% \text{ mH}, I_{AS}=37A$.
- C. P_g is based on max. junction temperature, using junction-case thermal resistance.
- D. The value of R is measured with the device mounted on the minimum recommend pad size, in the still air environment with $T_A =25^\circ C$. The maximum allowed junction temperature of $150^\circ C$. The value in any given application depends on the user's specific board design.



Typical Electrical and Thermal Characteristics Diagrams

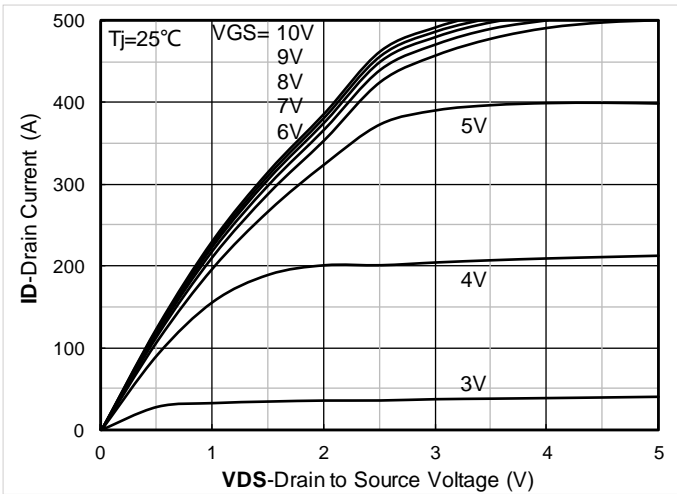


Figure 1. Output Characteristics

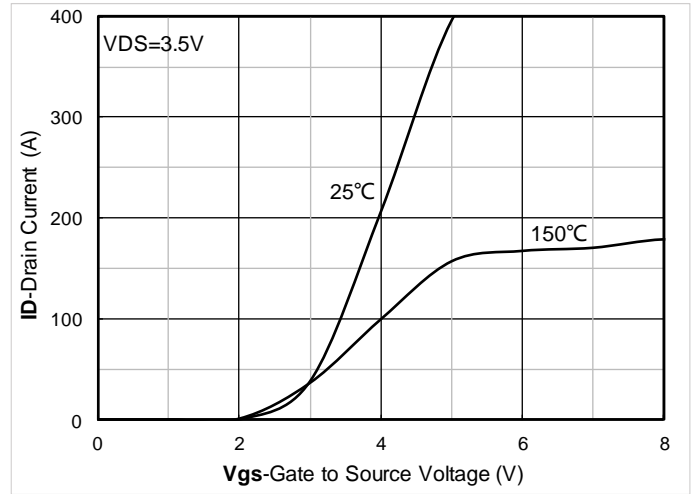


Figure 2. Transfer Characteristics

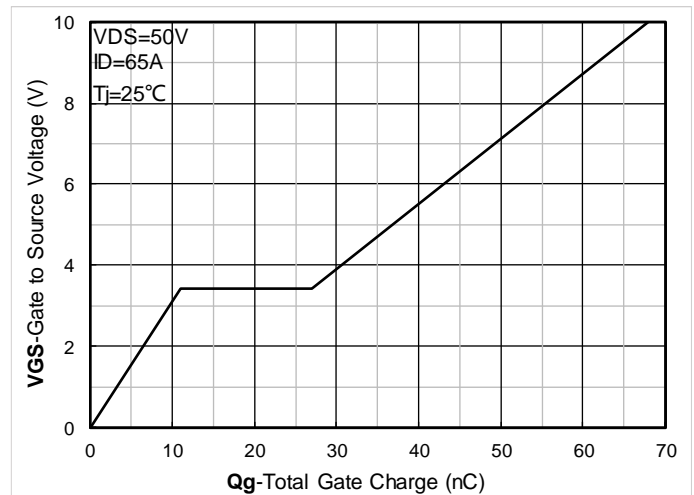


Figure 3. Capacitance Characteristics

Figure 4. Gate Charge

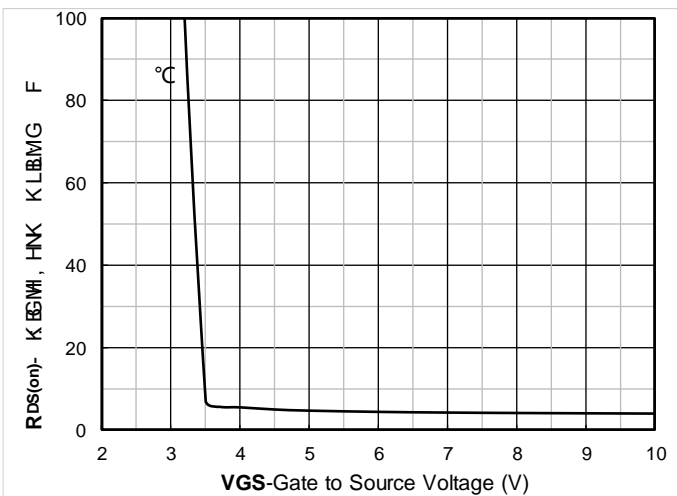


Figure 5. On-Resistance vs Gate to Source Voltage

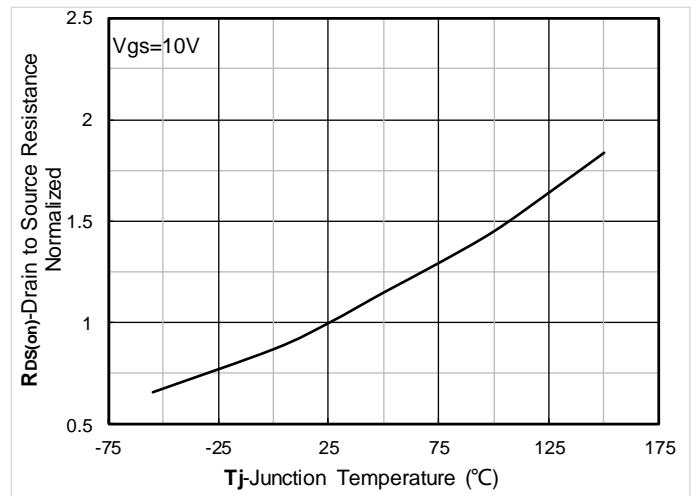


Figure 6. Normalized On-Resistance

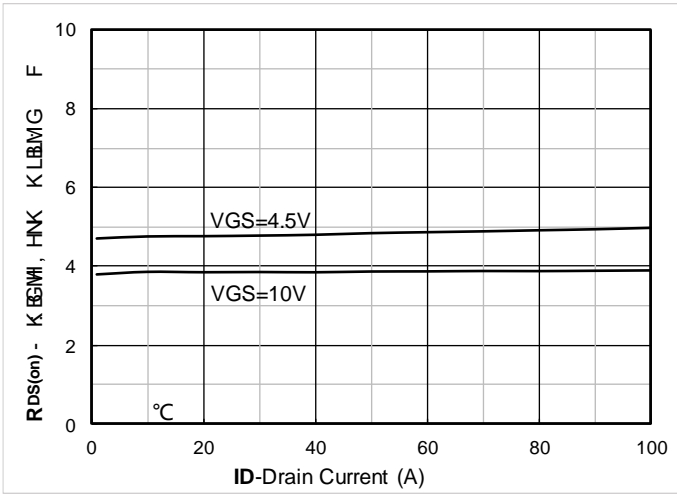


Figure 7. RDS(on) VS Drain Current

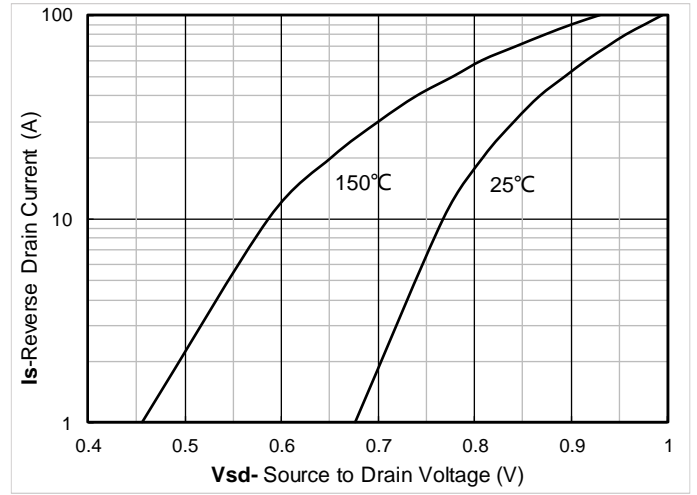


Figure 8. Forward characteristics of reverse diode

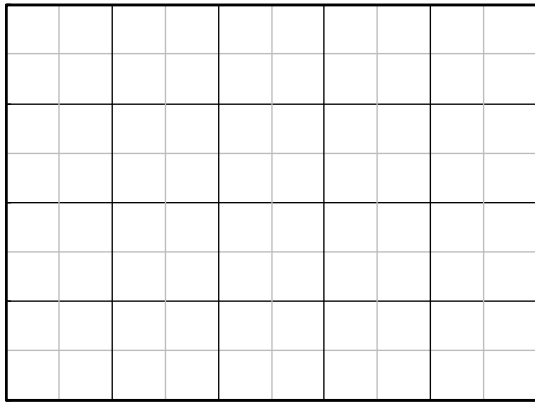


Figure 9. Normalized breakdown voltage

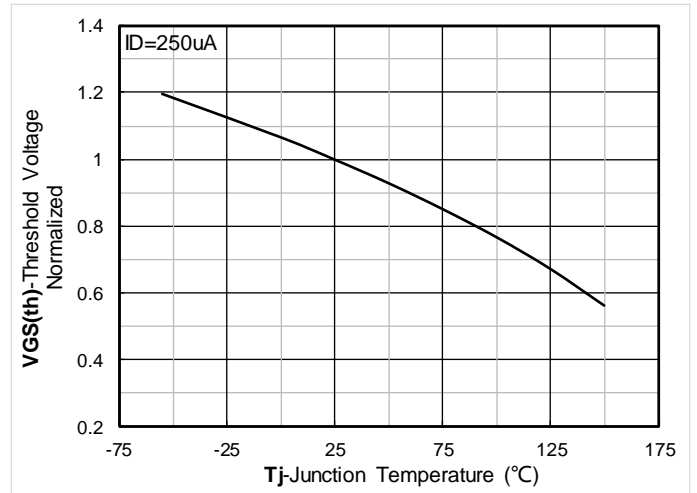


Figure 10. Normalized Threshold voltage

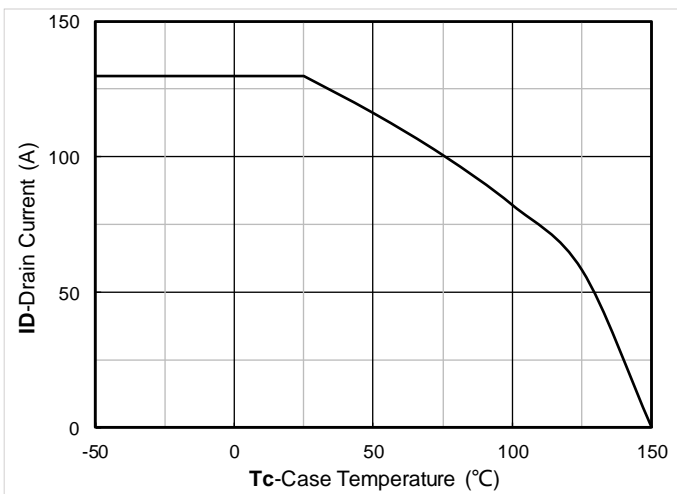


Figure 11. Current dissipation

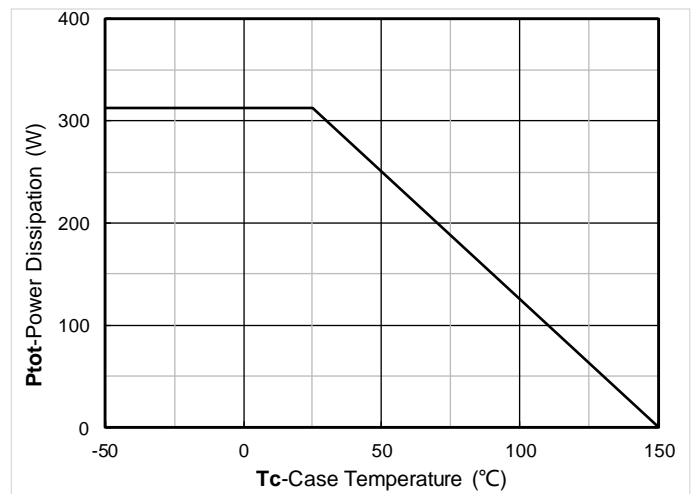


Figure 12. Power dissipation

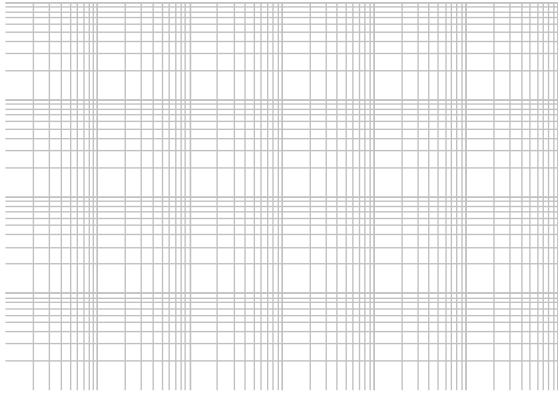


Figure 13. Maximum Transient Thermal Impedance

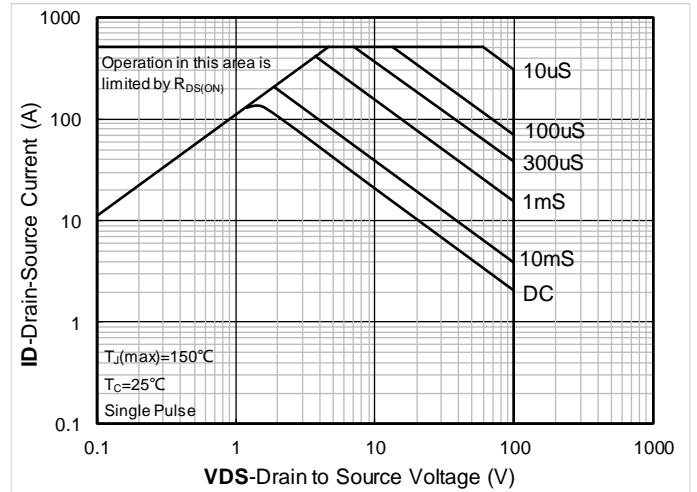


Figure 14. Safe Operation Area

Test Circuits & Waveforms

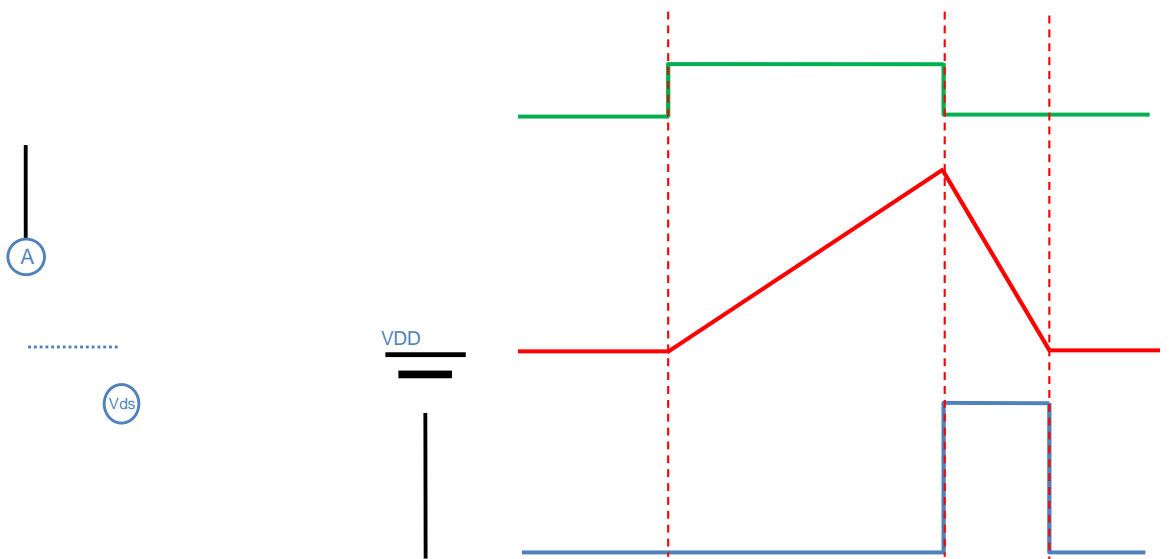


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

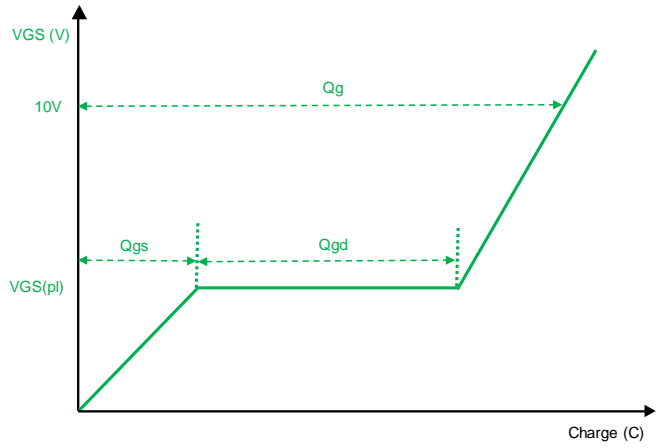
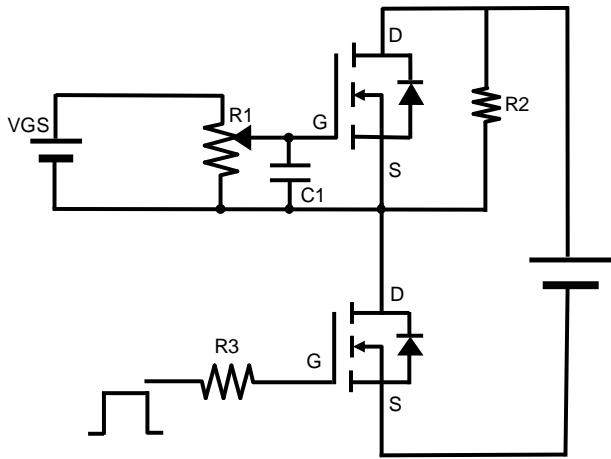


Figure B. Gate Charge Test Circuit & Waveform

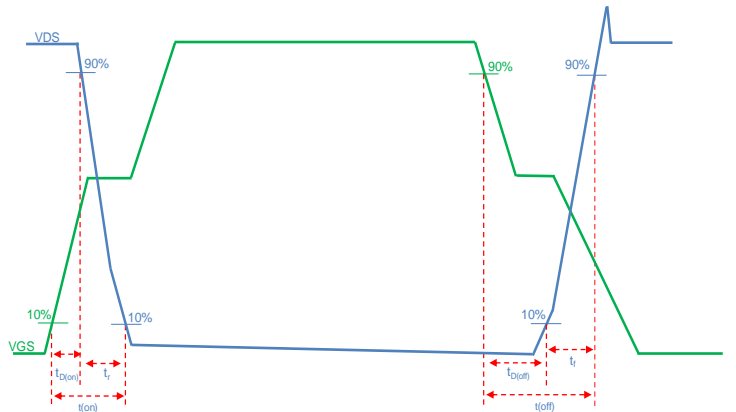
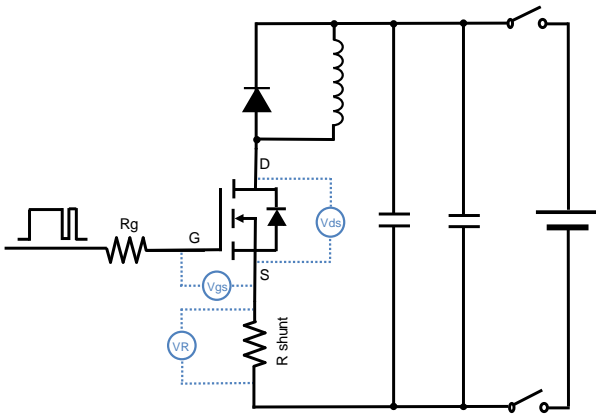


Figure C. Resistive Switching Test Circuit & Waveform

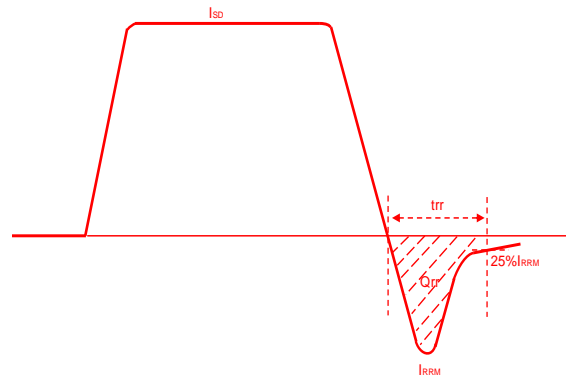
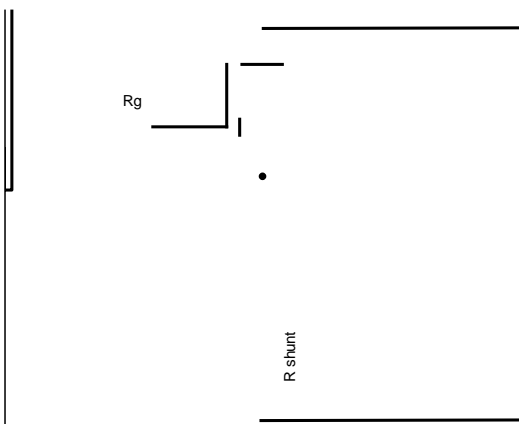
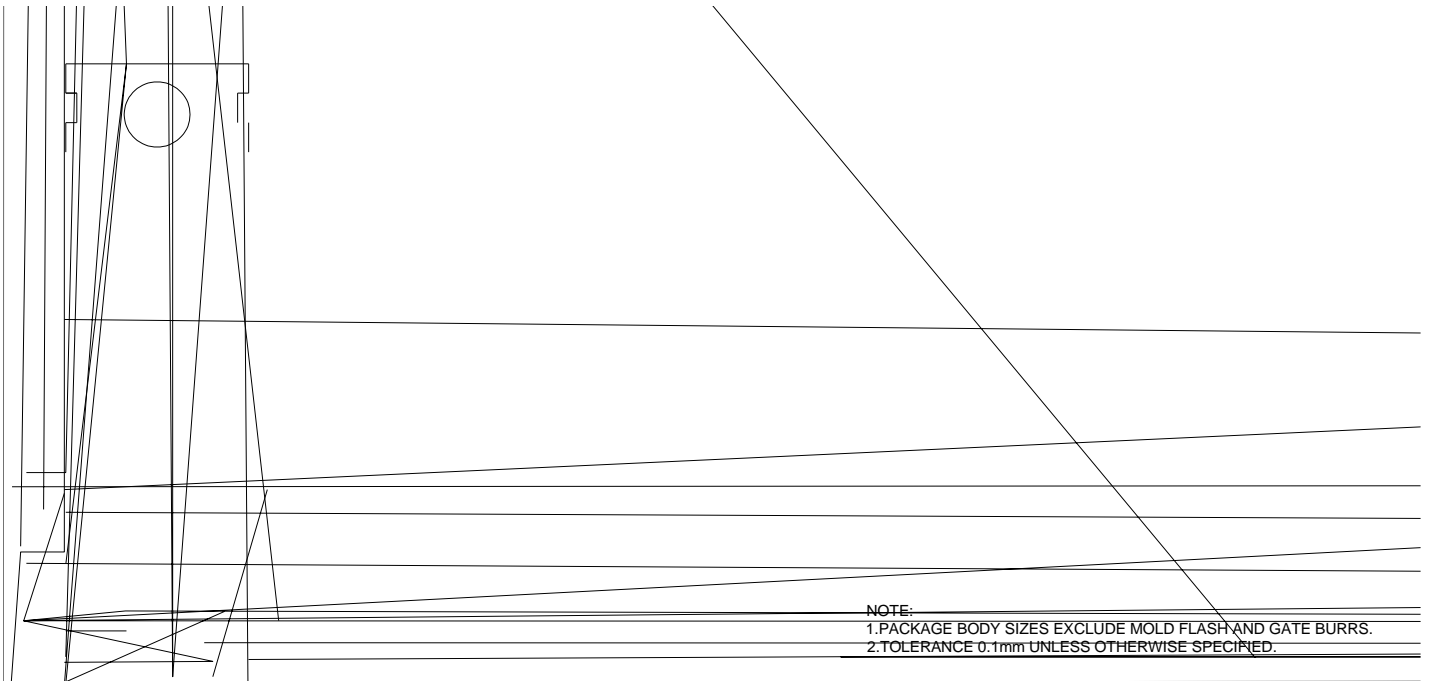


Figure D. Diode Recovery Test Circuit & Waveform



TO-220AB-D Package information





Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website <http://www.21yangjie.com> HK HGLNFRHNG : KLM2: G B L L: EL H B HK NKA K: LLBMG