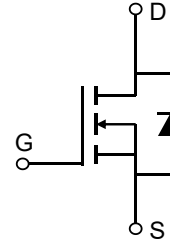


### Description

#### Features

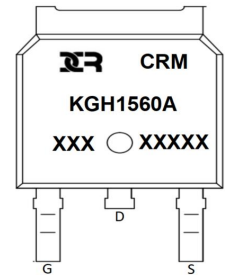
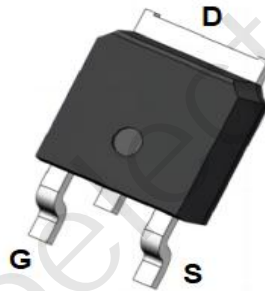
- 150V, 15A  
 $R_{DS(ON)}$  Typ = 64mΩ @  $V_{GS} = 10V$
- Advanced Split Gate Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- 100% UIS TESTED!
- 100%  $\Delta V_{ds}$  TESTED!



Schematic Diagram

#### Application

- Load Switch
- PWM Application
- Power Management



Marking and Pin Assignment

#### Package Marking and Ordering Information

Device	Marking	Package	Outline	Reel Size	Reel (pcs)	Per Carton (pcs)
CRMKGH1560A	CRMKGH1560A	TO-252-3L	TAPING	13"	2500	25000

#### Absolute Maximum Ratings (@ $T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Units
$V_{DS}$	Drain-to-Source Voltage	150	V
$V_{GS}$	Gate-to-Source Voltage	±20	V
$I_D$	Continuous Drain Current	$T_C = 25^\circ\text{C}$	15
		$T_C = 100^\circ\text{C}$	9
$I_{DM}$	Pulsed Drain Current <sup>(1)</sup>	60	A
$E_{AS}$	Single Pulsed Avalanche Energy <sup>(2)</sup>	28	mJ
$P_D$	Power Dissipation	$T_C = 25^\circ\text{C}$	41.5
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3	°C/W
$T_J, T_{STG}$	Junction & Storage Temperature Range	-55 to 150	°C

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	I <sub>D</sub> = 250μA, V <sub>GS</sub> = 0V	150	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 150V, V <sub>GS</sub> = 0V	-	-	1.0	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
On Characteristics						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2.4	3.3	3.6	V
R <sub>DS(ON)</sub>	Static Drain-Source ON-Resistance <sup>(3)</sup>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 10A	-	64	83	mΩ
Dynamic Characteristics						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 75V, f = 1MHz	-	368	-	pF
C <sub>oss</sub>	Output Capacitance		-	50	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	4	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> = 0 to 10V V <sub>DS</sub> = 75V, I <sub>D</sub> = 2A	-	5.5	-	nC
Q <sub>gs</sub>	Gate Source Charge		-	1.2	-	nC
Q <sub>gd</sub>	Gate Drain("Miller") Charge		-	2	-	nC
Switching Characteristics						
t <sub>d(on)</sub>	Turn-On DelayTime	V <sub>GS</sub> = 10V, V <sub>DD</sub> = 75V I <sub>D</sub> = 2A, R <sub>GEN</sub> = 6Ω	-	4.6	-	ns
t <sub>r</sub>	Turn-On Rise Time		-	3.3	-	ns
t <sub>d(off)</sub>	Turn-Off DelayTime		-	7.5	-	ns
t <sub>f</sub>	Turn-Off Fall Time		-	3.6	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	15	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	60	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>S</sub> = 10A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I <sub>F</sub> = 4A, di/dt = 100A/us	-	70	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	80	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2.  $E_{AS}$  condition: Starting  $T_J = 25^\circ\text{C}$ ,  $V_{DD} = 50\text{V}$ ,  $V_G = 10\text{V}$ ,  $R_G = 25\Omega$ ,  $L = 0.5\text{mH}$ ,  $I_{AS} = 10.5\text{A}$
3. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 0.5\%$ .

## Typical Performance Characteristics

Figure 1: Output Characteristics

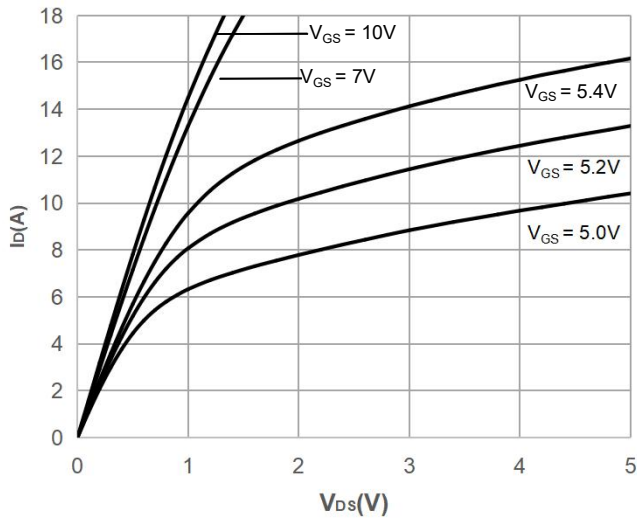


Figure 2: Typical Transfer Characteristics

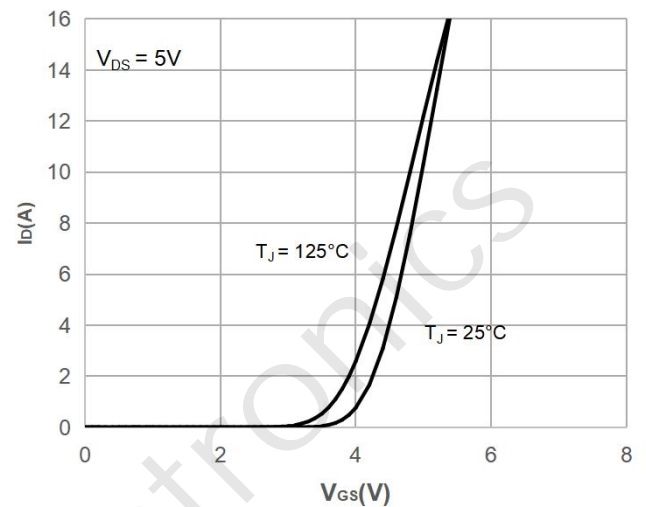


Figure 3: On-resistance vs. Drain Current

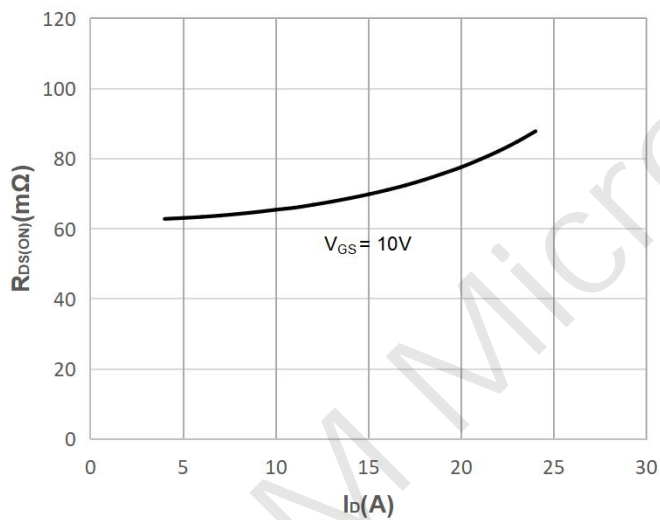


Figure 4: Body Diode Characteristics

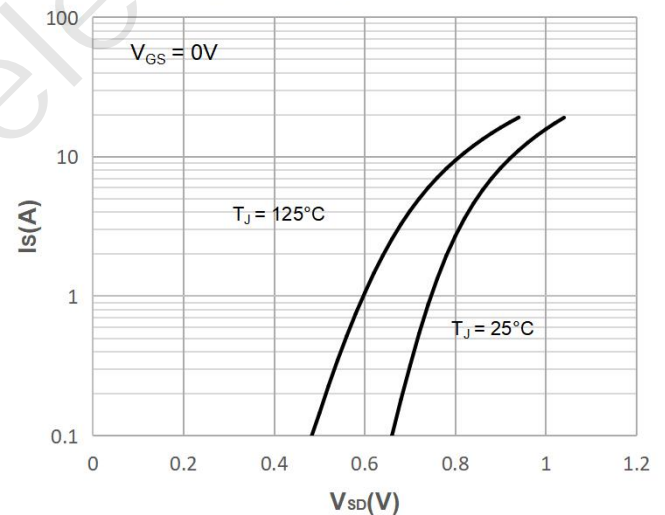


Figure 5: Gate Charge Characteristics

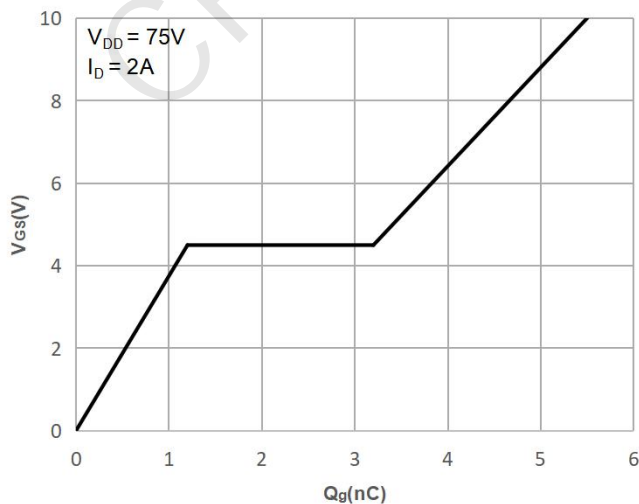
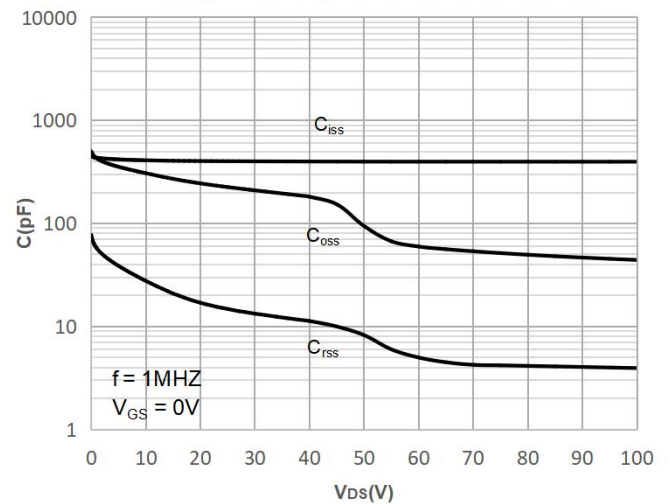


Figure 6: Capacitance Characteristics



## Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

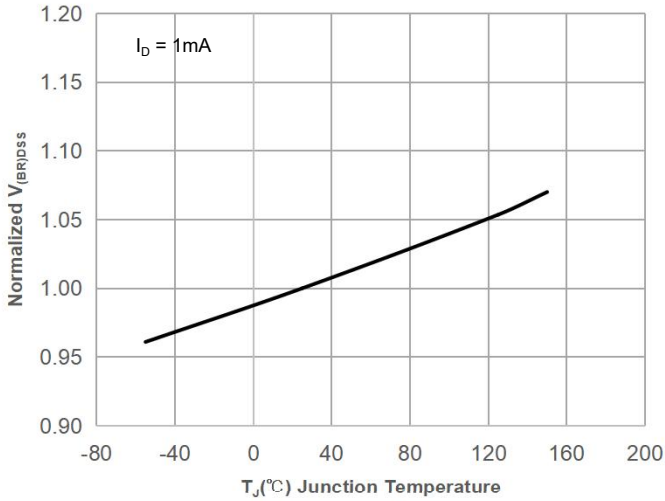


Figure 8: Normalized on Resistance vs. Junction Temperature

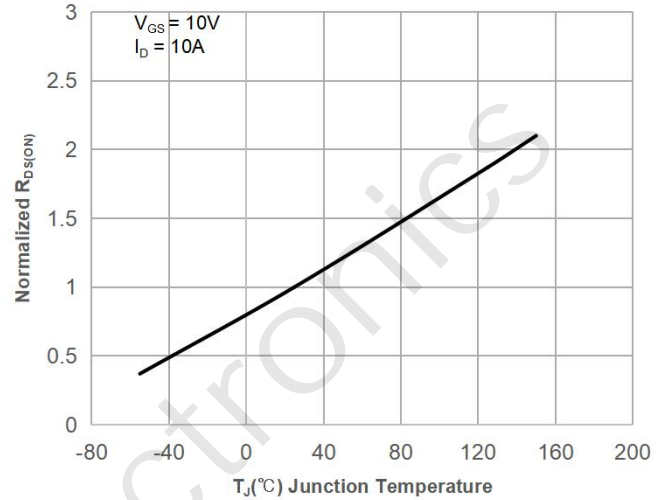


Figure 9: Maximum Safe Operating Area

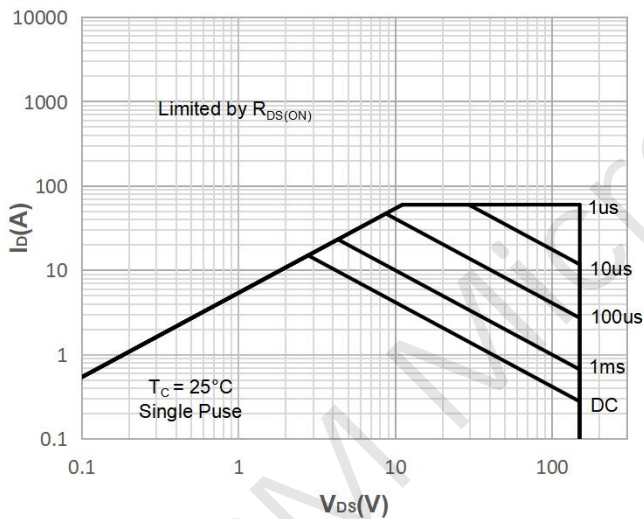


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

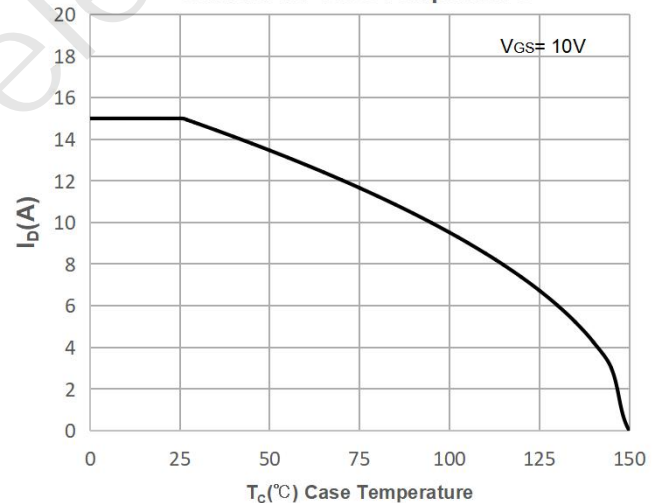


Figure 11: Normalized Maximum Transient Thermal Impedance

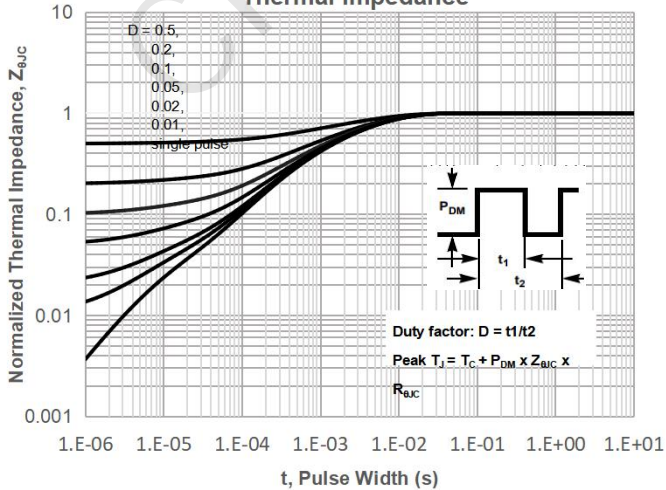
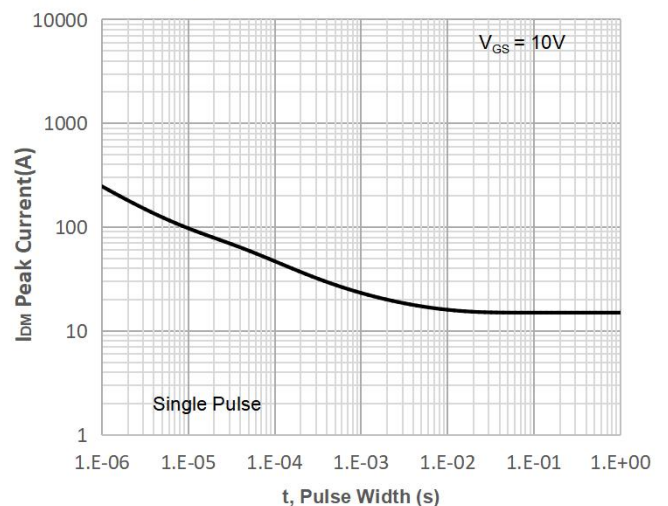


Figure 12: Peak Current Capacity



## Test Circuit

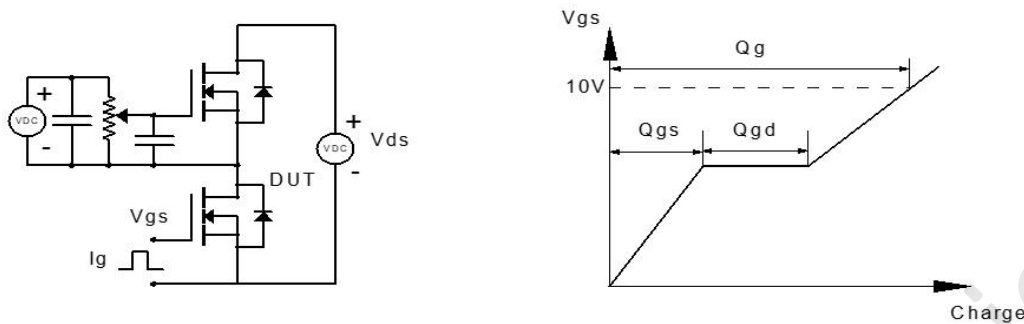


Figure 1: Gate Charge Test Circuit & Waveform

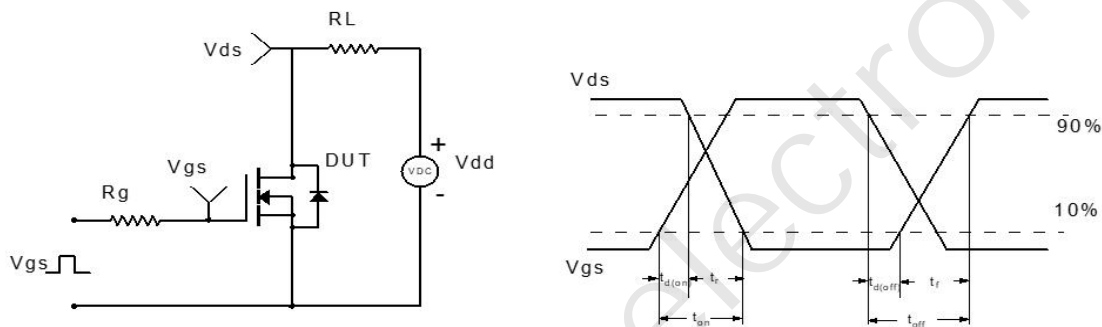


Figure 2: Resistive Switching Test Circuit & Waveform

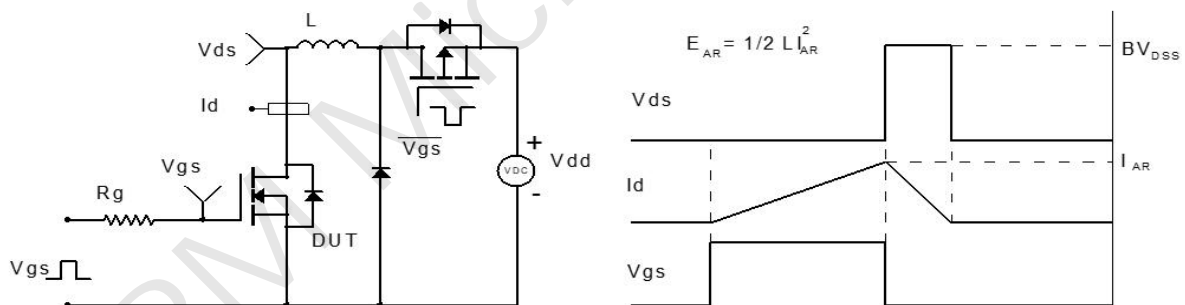


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

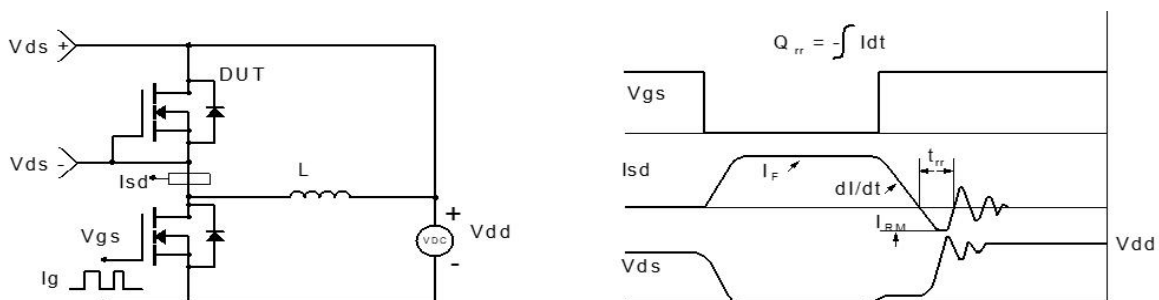
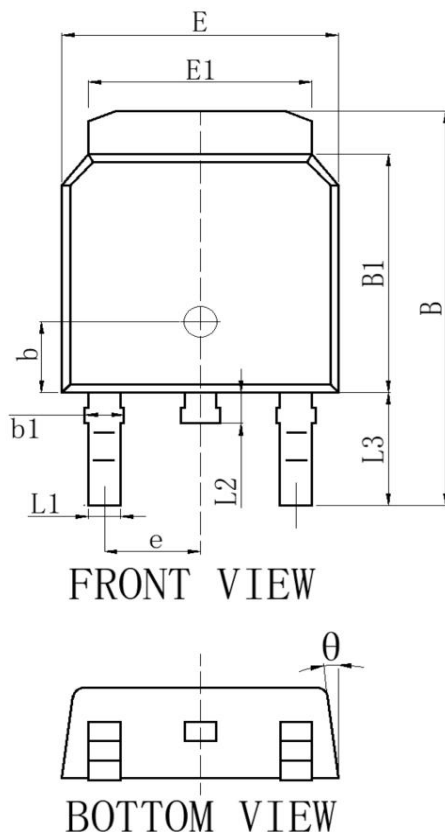


Figure 4: Diode Recovery Test Circuit & Waveform

### Package Mechanical Data(TO-252-3L)




SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.00	—	0.10
A2	0.95	1.00	1.05
C	0.508REF		
L	1.40	1.50	1.60
E	6.50	6.60	6.70
E1	5.20	5.30	5.40
B	9.90	10.10	10.30
B1	6.00	6.10	6.20
b	1.70	1.80	1.90
b1	1.00MAX		
L1	0.60	0.75	0.90
L2	0.70	0.90	
L3	2.95REF		
e	2.286BSC		
θ	7°		

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