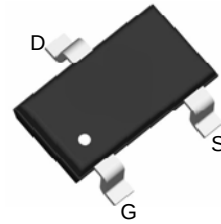


Features

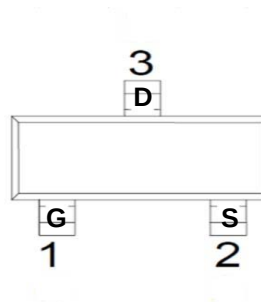
- -30V, -4A
- $R_{DS(ON)}$ Typ = 50m Ω @ V_{GS} = -10V
- $R_{DS(ON)}$ Typ = 62m Ω @ V_{GS} = -4.5V
- $R_{DS(ON)}$ Typ = 88m Ω @ V_{GS} = -2.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free



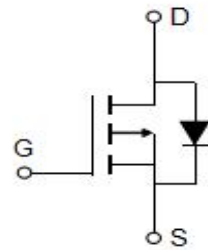
SOT-23 Top View

Application

- Load Switch
- PWM Application
- Power Management



Pin Assignment



Schematic Diagram

Absolute Maximum Ratings (@ T_J = 25°C unless otherwise specified)

Symbol	Parameter	Value	Units	
V _{DS}	Drain-to-Source Voltage	-30	V	
V _{GS}	Gate-to-Source Voltage	±16	V	
I _D	Continuous Drain Current	T _A = 25°C	-4	A
		T _A = 100°C	-2.4	A
I _{DM}	Pulsed Drain Current ⁽¹⁾	-16	A	
P _D	Power Dissipation	T _A = 25°C	2	W
R _{θJA}	Thermal Resistance, Junction to Ambient ⁽²⁾	62.5	°C/W	
T _J , T _{STG}	Junction & Storage Temperature Range	-55 to 150	°C	

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
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Off Characteristics

V _{(BR)DSS}	Drain-Source Breakdown Voltage	I _D = -250μA, V _{GS} = 0V	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} = 0V	-	-	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{DS} = 0V, V _{GS} = ±16V	-	-	±100	nA

On Characteristics

V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.95	-1.8	V
R _{DS(ON)}	Static Drain-Source ON-Resistance ⁽³⁾	V _{GS} = -10V, I _D = -3.8A	-	50	68	mΩ
		V _{GS} = -4.5V, I _D = -3A	-	62	82	mΩ
		V _{GS} = -2.5V, I _D = -2.5A	-	88	129	mΩ

Dynamic Characteristics

C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz	-	365	-	pF
C _{oss}	Output Capacitance		-	38	-	pF
C _{rss}	Reverse Transfer Capacitance		-	31	-	pF
Q _g	Total Gate Charge	V _{GS} = 0 to -10V V _{DS} = -15V, I _D = -3A	-	6.5	-	nC
Q _{gs}	Gate Source Charge		-	1.4	-	nC
Q _{gd}	Gate Drain ("Miller") Charge		-	1.7	-	nC

Switching Characteristics

t _{d(on)}	Turn-On Delay Time	V _{GS} = -4.5V, V _{DD} = -15V I _D = -3A, R _{GEN} = 3Ω	-	10	-	ns
t _r	Turn-On Rise Time		-	86	-	ns
t _{d(off)}	Turn-Off Delay Time		-	150	-	ns
t _f	Turn-Off Fall Time		-	357	-	ns

Drain-Source Diode Characteristics and Max Ratings

I _S	Maximum Continuous Drain to Source Diode Forward Current	V _{GS} = 0V, I _S = -4A	-	-	-4	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-16	A
V _{SD}	Drain to Source Diode Forward Voltage		-	-	-1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F = -3A, di/dt = 100A/us	-	36	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	5	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. R_{θJA} is measured with the device mounted on a 1inch² pad of 2oz copper FR4 PCB
 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.

Typical Performance Characteristics

Figure 1: Output Characteristics

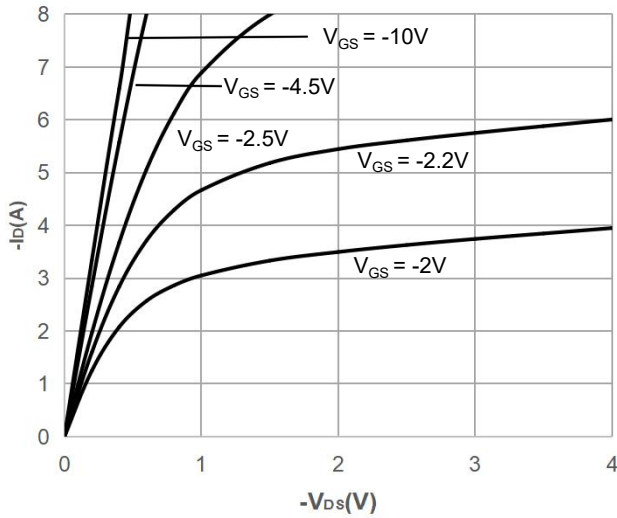


Figure 2: Typical Transfer Characteristics

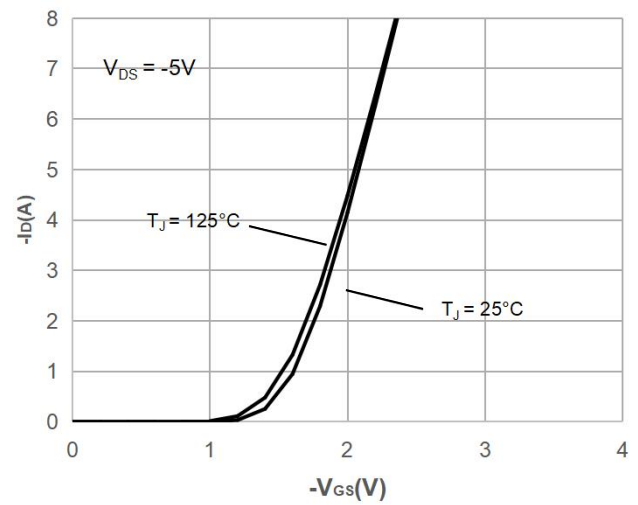


Figure 3: On-resistance vs. Drain Current

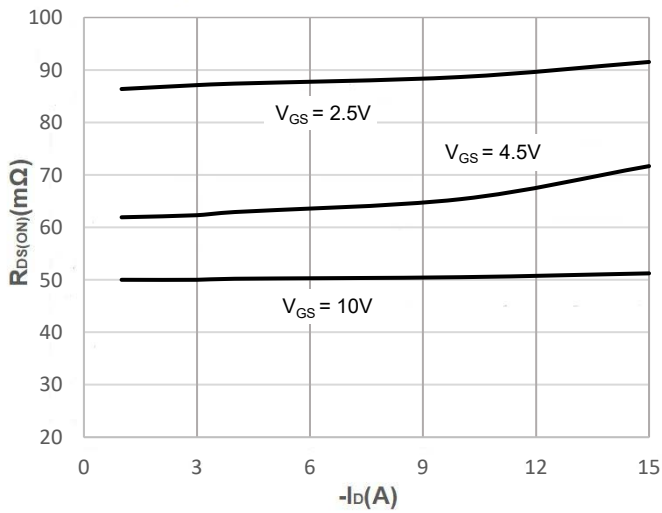


Figure 4: Body Diode Characteristics

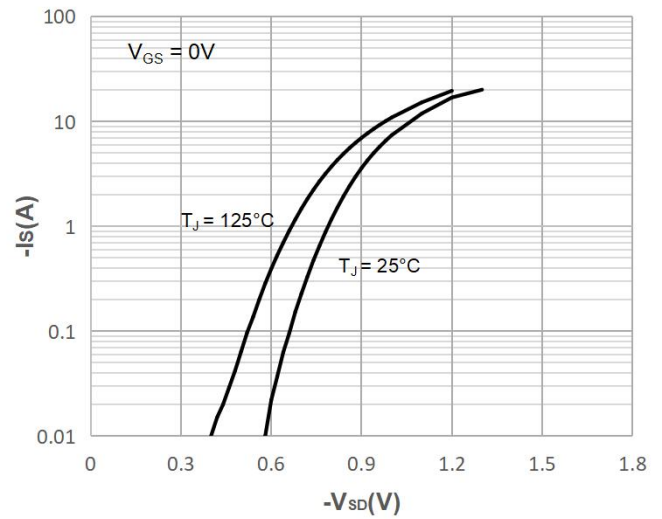


Figure 5: Gate Charge Characteristics

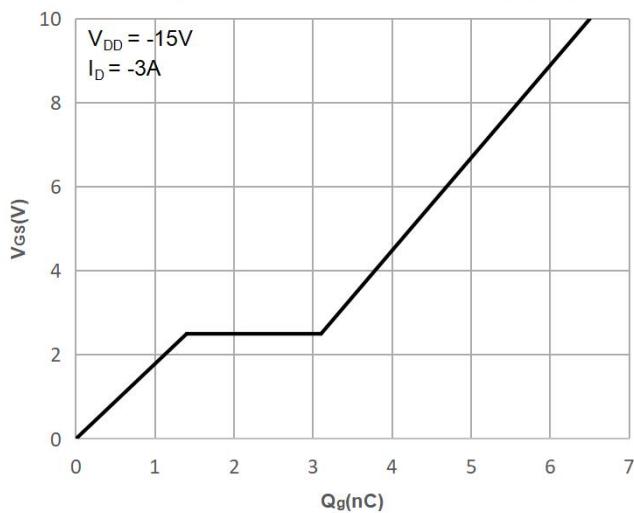
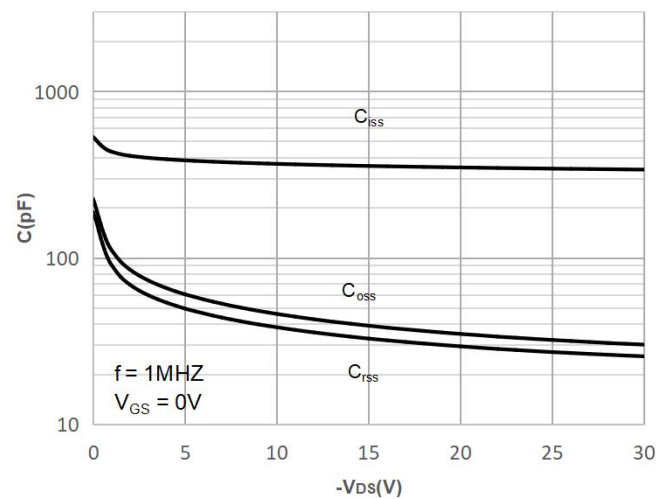


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

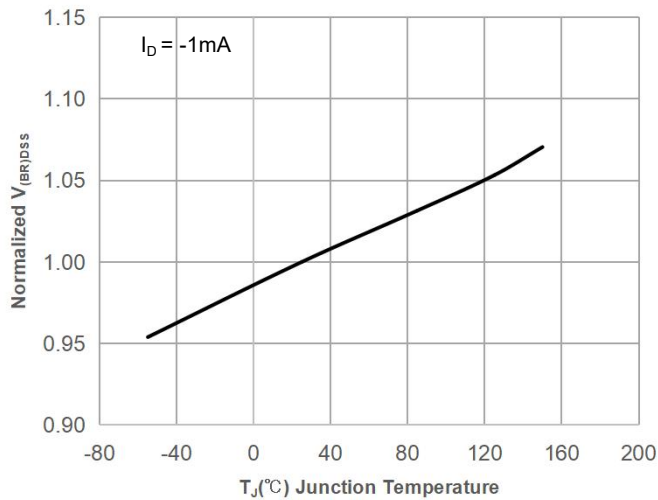


Figure 8: Normalized on Resistance vs. Junction Temperature

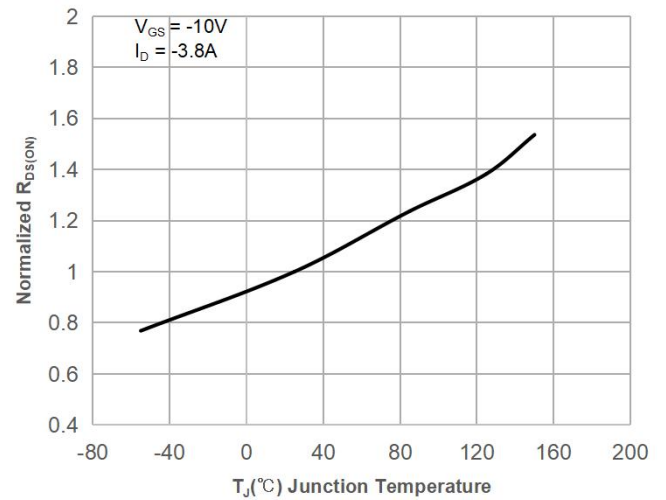


Figure 9: Maximum Safe Operating Area

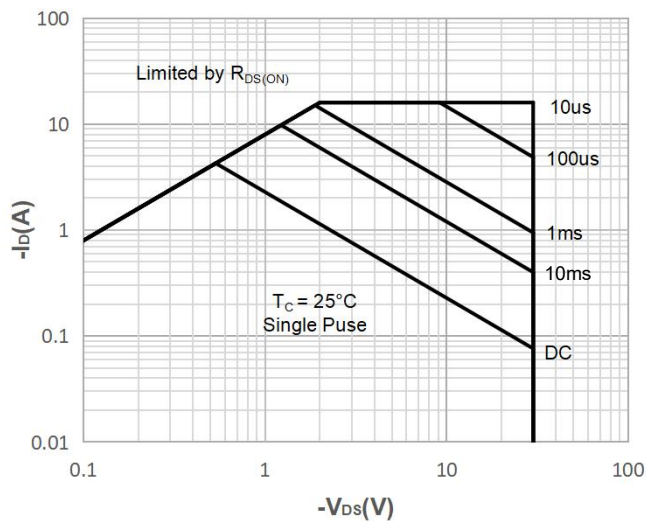


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

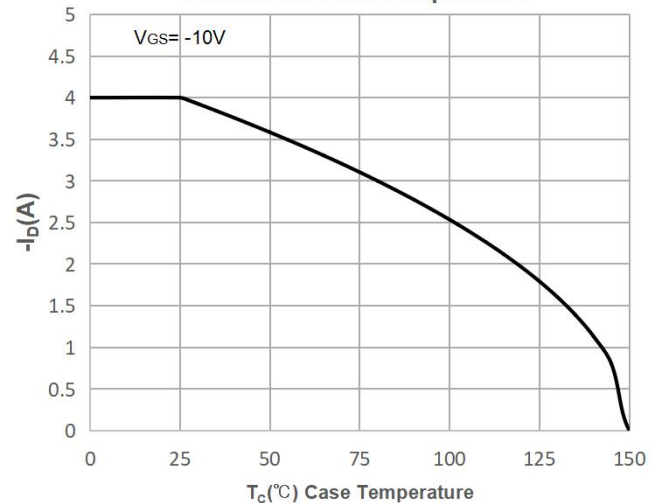


Figure 11: Normalized Maximum Transient Thermal Impedance

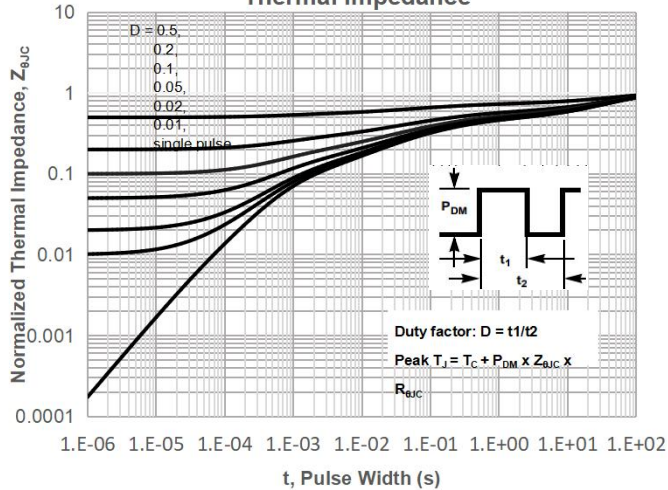
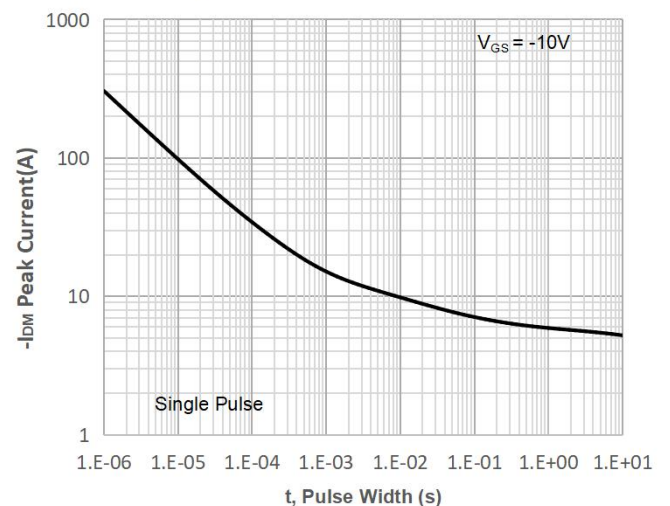


Figure 12: Peak Current Capacity



Test Circuit

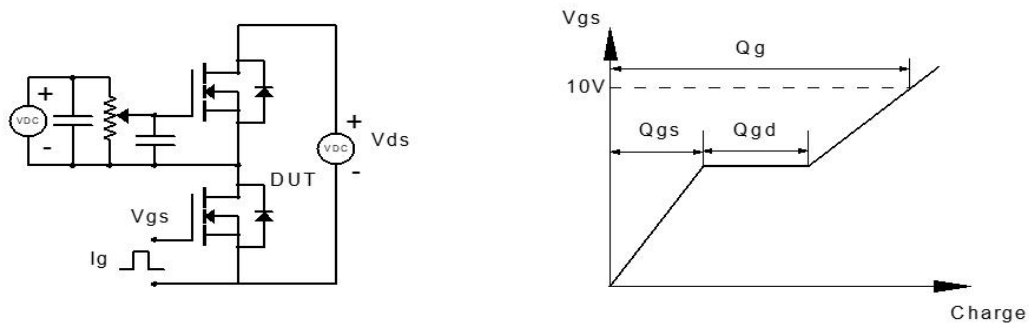


Figure 1: Gate Charge Test Circuit & Waveform

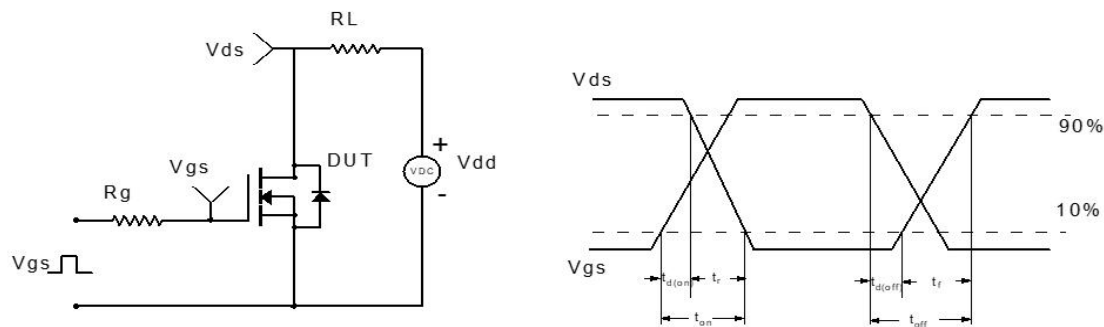


Figure 2: Resistive Switching Test Circuit & Waveform

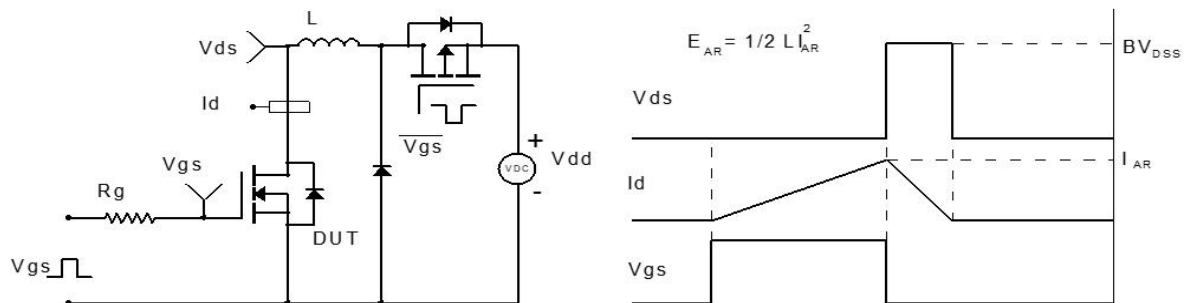


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

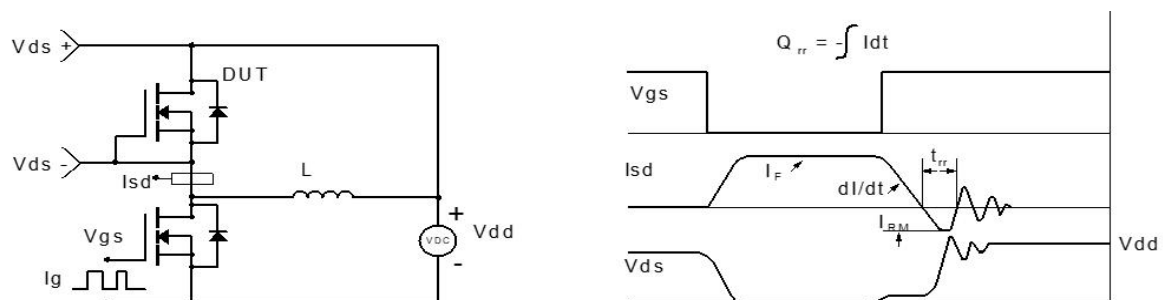
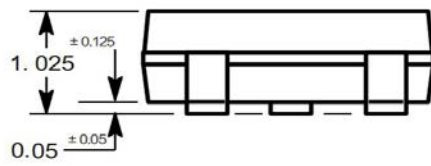
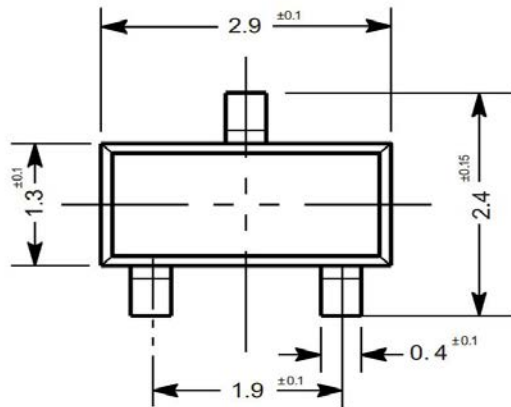
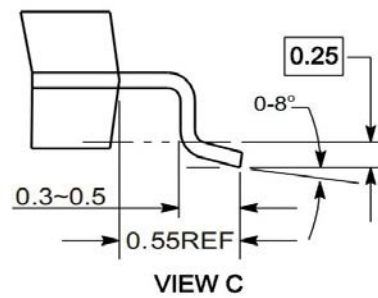
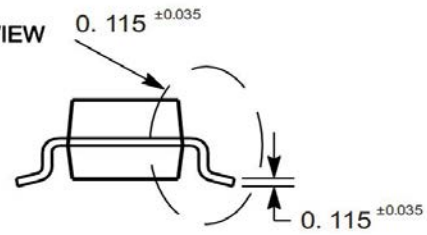


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(SOT-23)



SEE VIEW



VIEW C