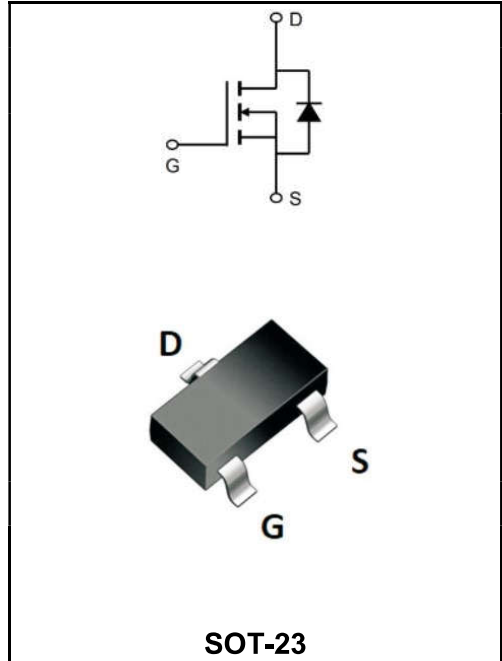


**30V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	7.0A
<b>V<sub>DSS</sub></b>	30V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 28mΩ ( <b>Type:24 mΩ</b> )



**Application**

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW3404A	SOT-23	3404	3000PCS/Tape

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	30	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Drain current-continuous <sup>a</sup> @T <sub>J</sub> =125°C -pulse d <sup>b</sup>	<b>I<sub>D</sub></b>	7.0	<b>A</b>
	<b>I<sub>DM</sub></b>	20	<b>A</b>
Drain-source Diode forward current	<b>I<sub>S</sub></b>	5	<b>A</b>
Maximum power dissipation	<b>P<sub>D</sub></b>	1.4	<b>W</b>
Operating junction Temperature range	<b>T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance junction-to ambient	<b>R<sub>th JA</sub></b>	100	<b>°C/W</b>

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	30	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	$I_{DSS}$	-	-	1	$\mu A$
Gate to Body Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	$\pm 100$	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.8	1.4	2.2	V
Drain-Source on-Resistance	$V_{GS}=10V, I_D=5A$	$R_{DS(ON)}$	-	24	28	m $\Omega$
	$V_{GS}=4.5V, I_D=4A$		-	26	32	
Forward transconductance	$V_{GS}=5V, I_D=5A$	$g_{fs}$	-	33	-	S
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	$C_{iss}$	-	255	-	pF
Output Capacitance		$C_{oss}$	-	45	-	
Reverse Transfer Capacitance		$C_{rss}$	-	35	-	
Turn-on delay time	$V_{DS}=15V, V_{GS}=10V$ $R_L=2.6\ ohm$ $R_{GEN}=3ohm$	$t_{d(on)}$	-	4.5	-	ns
Rise Time		$T_r$	-	2.5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	14.5	-	
Fall Time		$t_f$	-	3.5	-	
Total Gate Charge	$V_{DS}=15V$ $V_{GS}=10V$ $I_D=5.8A$	$Q_g$	-	5.2	-	nC
Gate-Source Charge		$Q_{gs}$	-	0.85	-	
Gate-Drain Charge		$Q_{gd}$	-	1.3	-	
Diode Forward Voltage	$V_{GS}=0V, I_S=1A$	$V_{SD}$	-	0.76	1.16	V

**Notes:**

- 1、 surface mounted on FR4 board,  $t \leq 10sec$
- 2、 pulse test: pulse width  $\leq 300\mu s$ , duty  $\leq 2\%$
- 3、 guaranteed by design, not subject to production testing

Ratings and Characteristic Curves

Typical Performance Characteristics

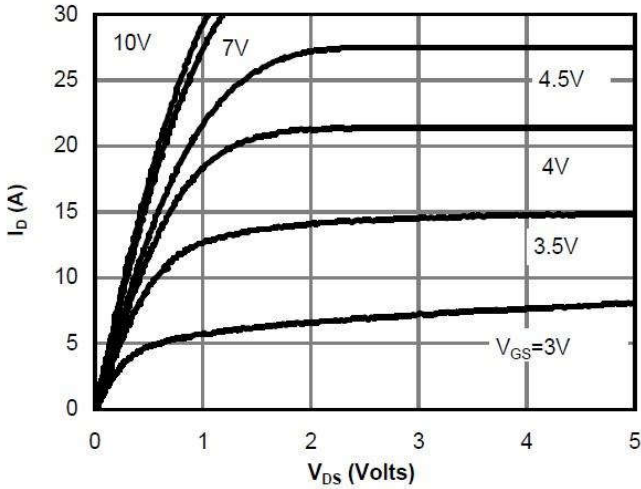


Fig 1: On-Region Characteristics

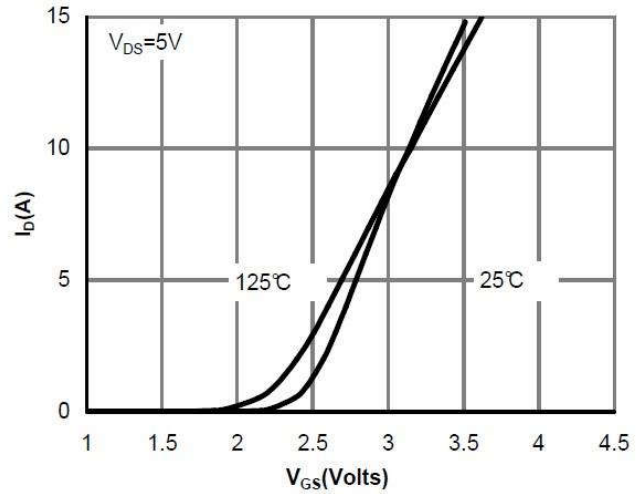


Figure 2: Transfer Characteristics

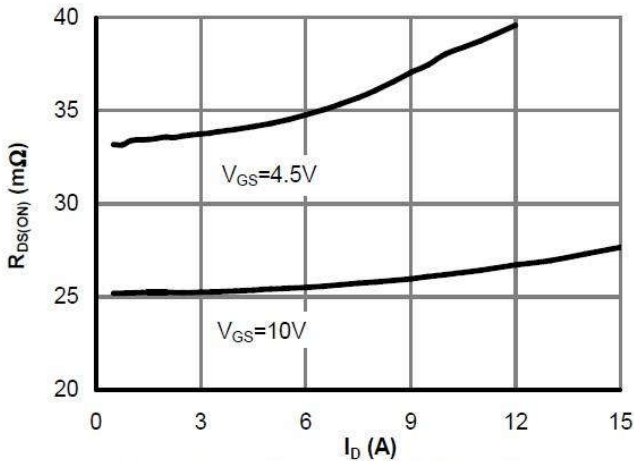


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

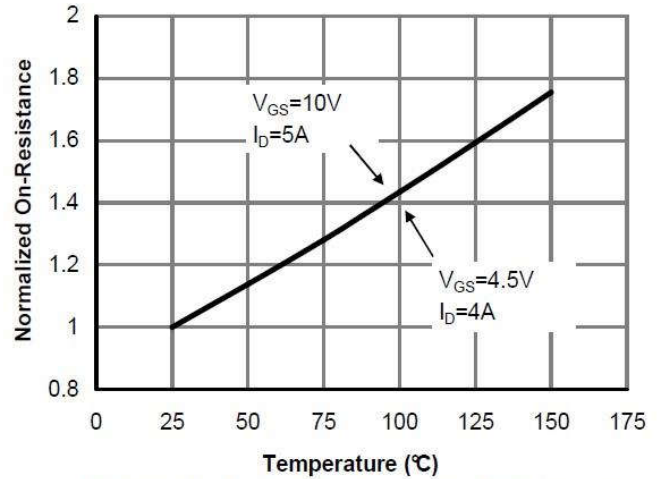


Figure 4: On-Resistance vs. Junction Temperature

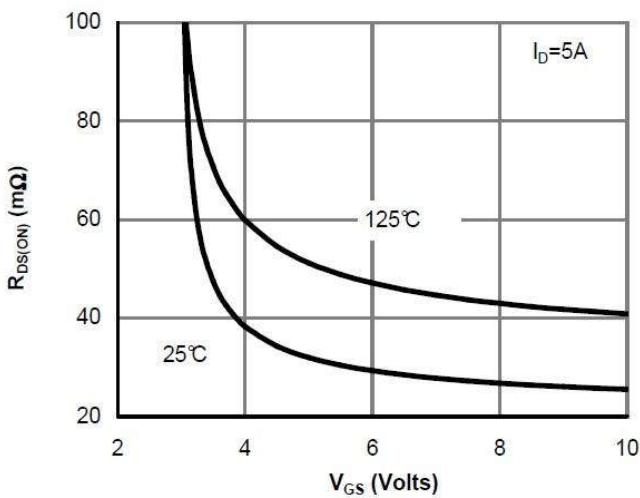


Figure 5: On-Resistance vs. Gate-Source Voltage

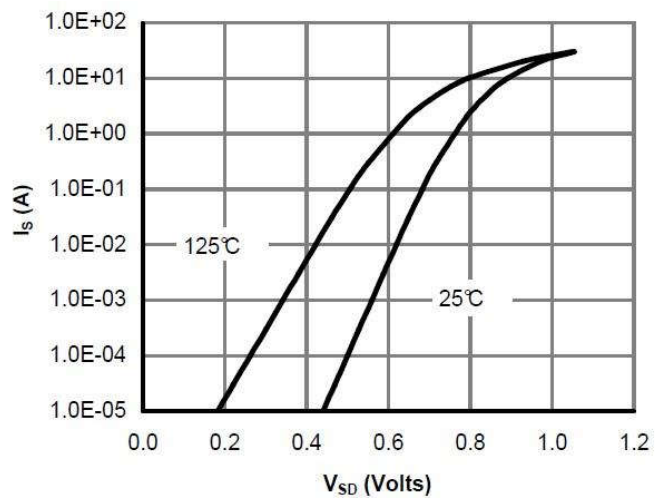


Figure 6: Body-Diode Characteristics

Ratings and Characteristic Curves

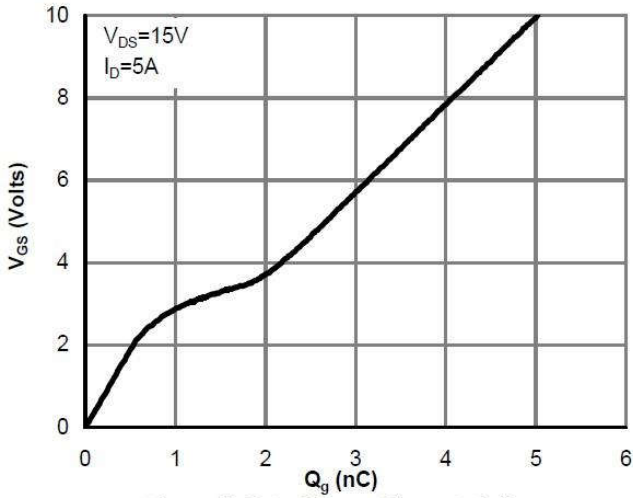


Figure 7: Gate-Charge Characteristics

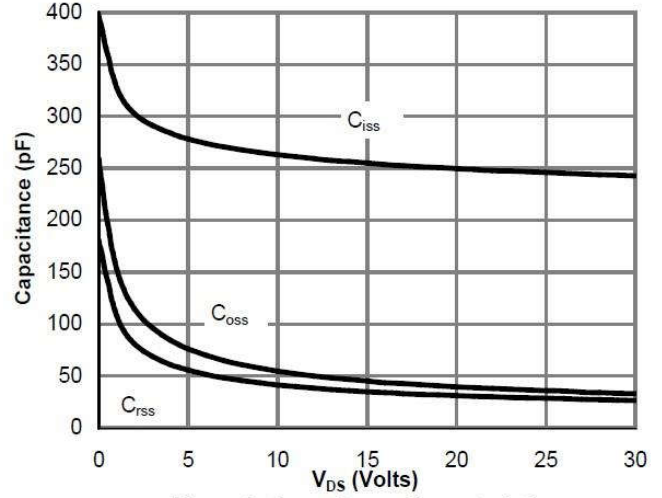


Figure 8: Capacitance Characteristics

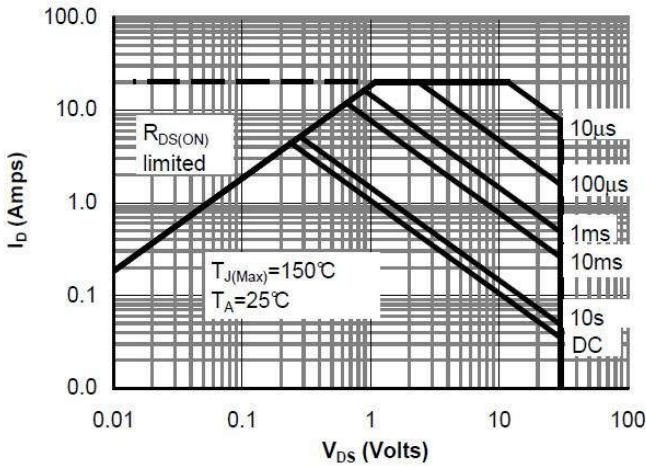


Figure 10: Maximum Forward Biased Safe Operating Area

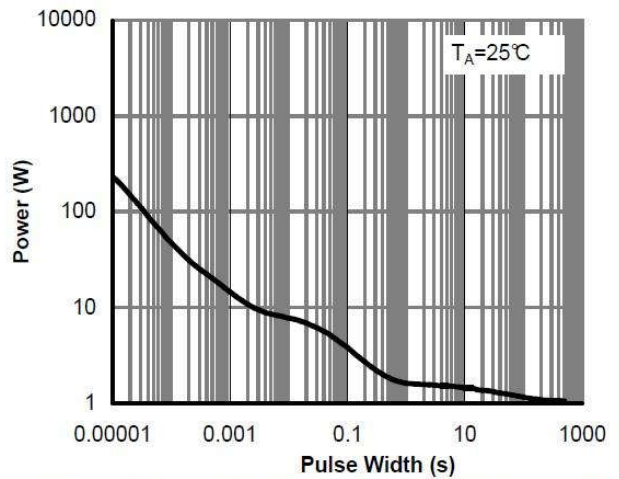


Figure 11: Single Pulse Power Rating Junction-to-Ambient

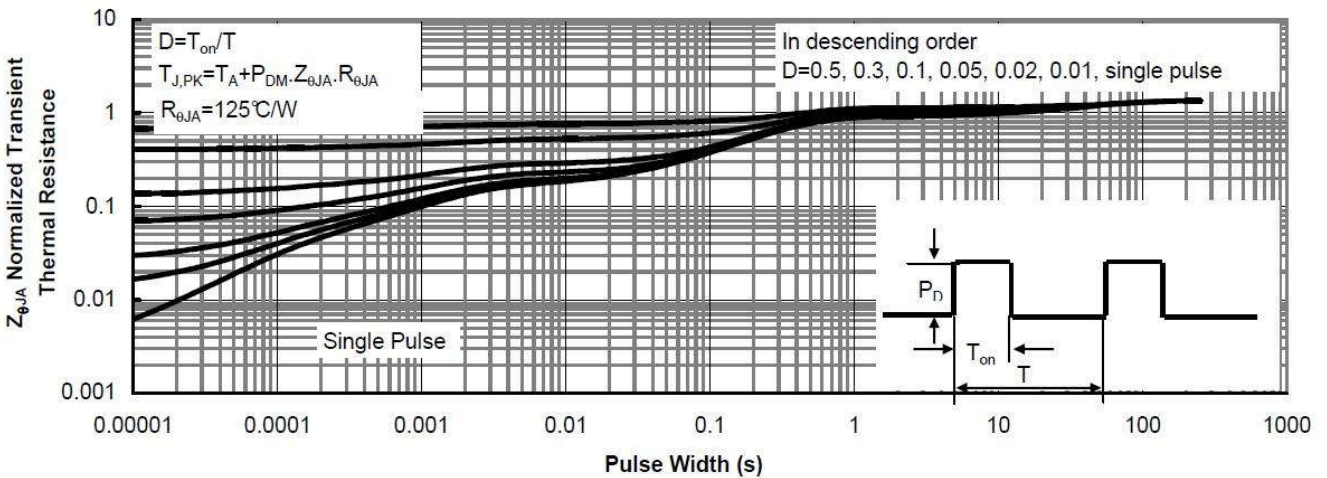
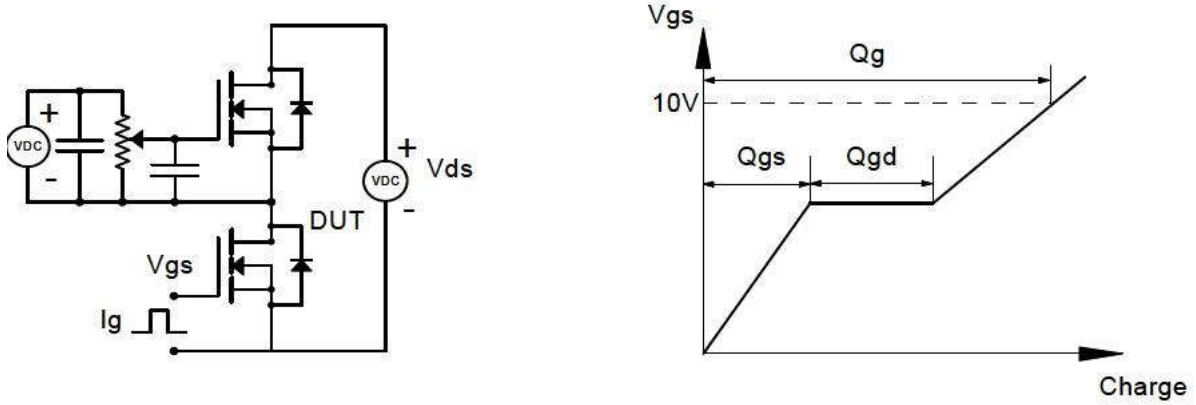
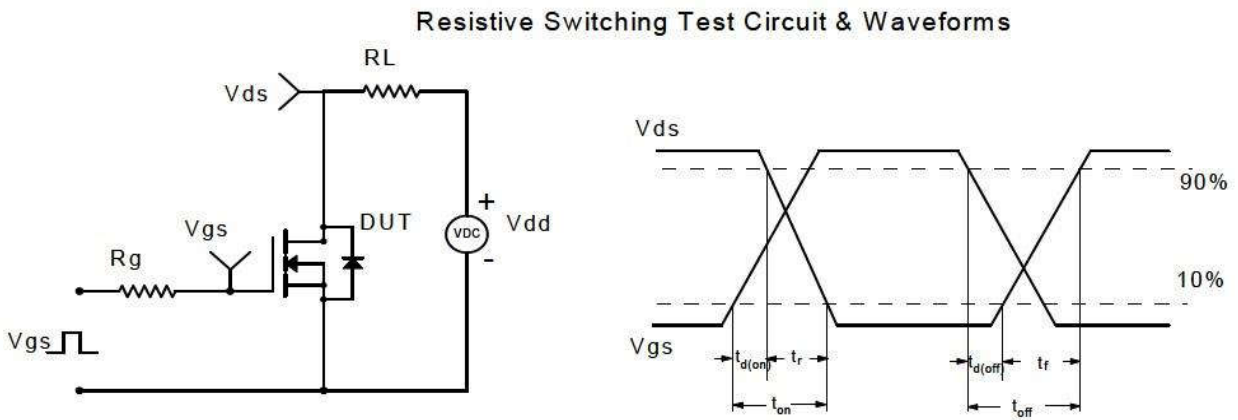


Figure 12: Normalized Maximum Transient Thermal Impedance

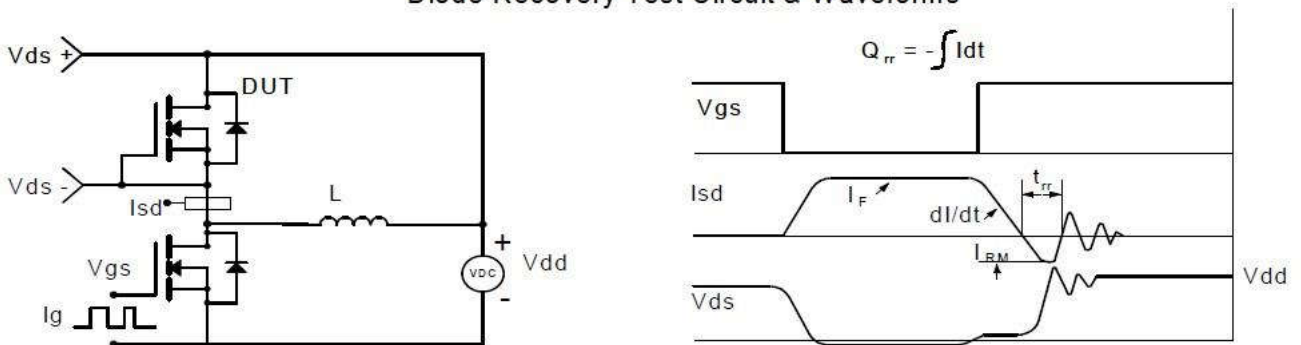
Gate Charge Test Circuit & Waveform



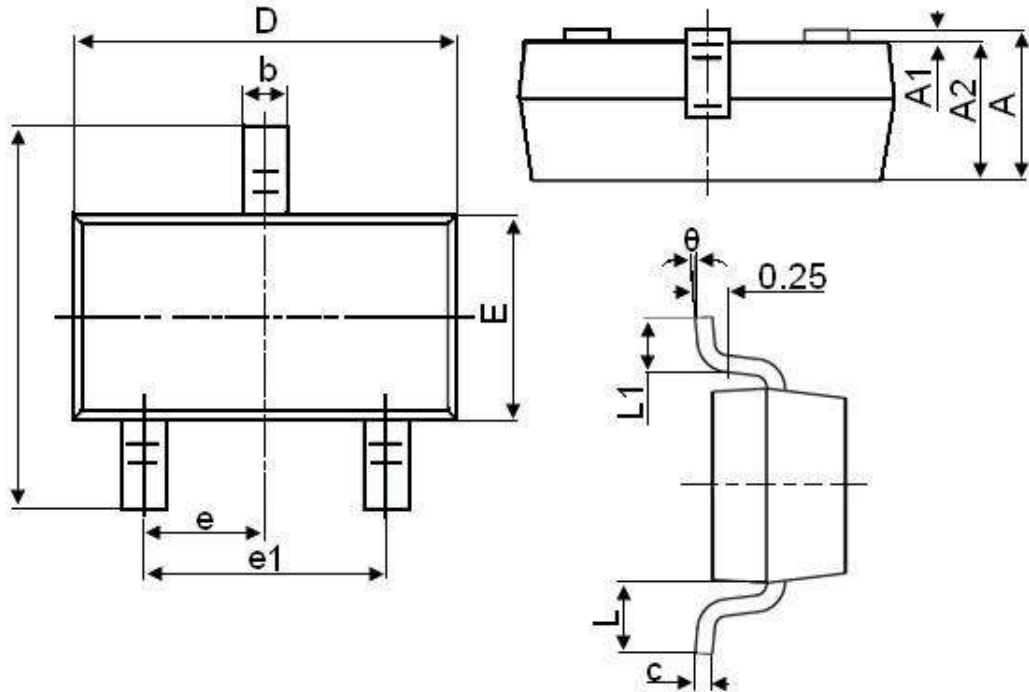
Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



**SOT-23**



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°