

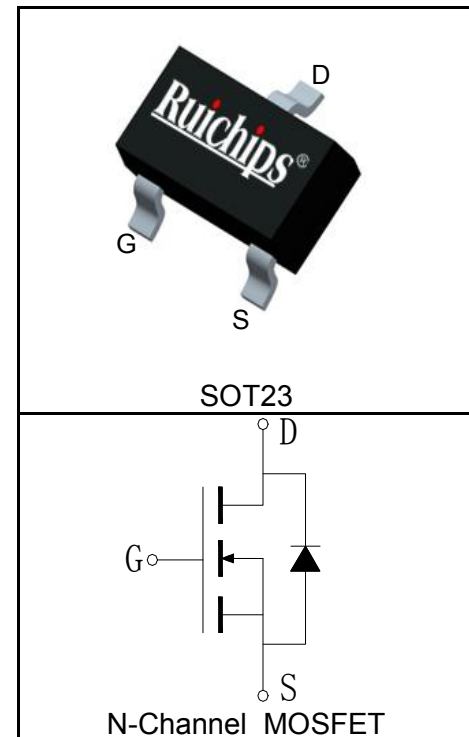
Features

- 30V/6A,
 $R_{DS(ON)} = 26m\Omega(Typ.)@V_{GS}=10V$
 $R_{DS(ON)} = 30m\Omega(Typ.)@V_{GS}=4.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

Applications

- DC/DC Converter
- Battery Switch

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit	
Common Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)				
V_{DSS}	Drain-Source Voltage	30	V	
V_{GSS}	Gate-Source Voltage	± 16		
T_J	Maximum Junction Temperature	150	$^\circ C$	
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$	
I_S	Diode Continuous Forward Current	$T_A=25^\circ C$	1	A
Mounted on Large Heat Sink				
$I_{DP}^{①}$	300 μs Pulse Drain Current Tested	$T_A=25^\circ C$	24	A
$I_D^{②}$	Continuous Drain Current($V_{GS}=10V$)	$T_A=25^\circ C$	6	A
		$T_A=70^\circ C$	4.9	
P_D	Maximum Power Dissipation	$T_A=25^\circ C$	1.3	W
		$T_A=70^\circ C$	0.8	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	-	-	$^\circ C/W$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	-	125	$^\circ C/W$
Drain-Source Avalanche Ratings				
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	TBD	TBD	mJ

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

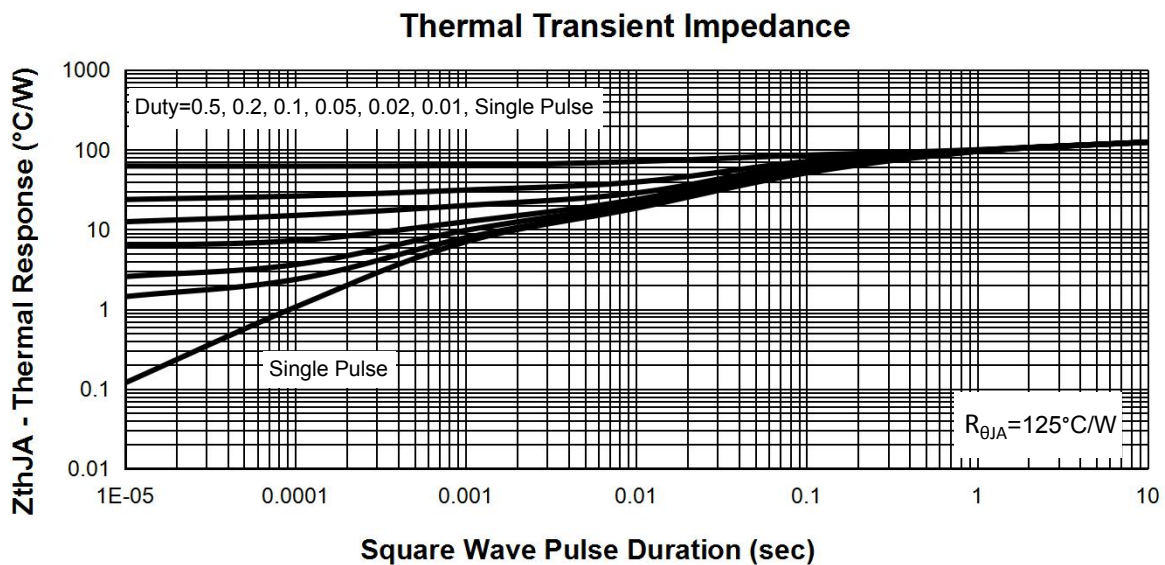
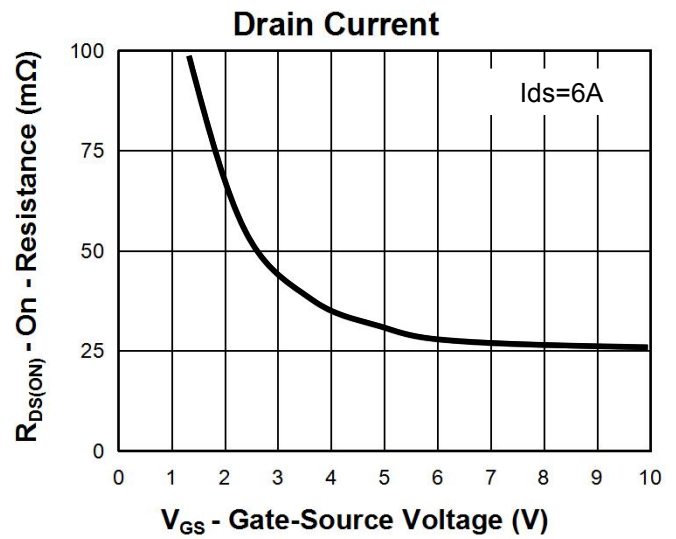
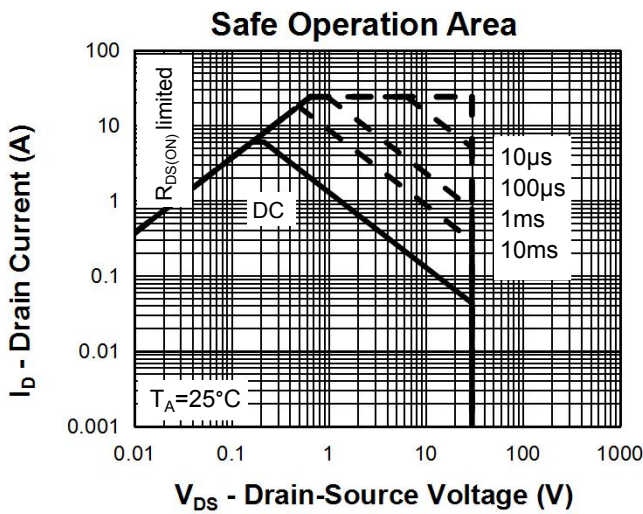
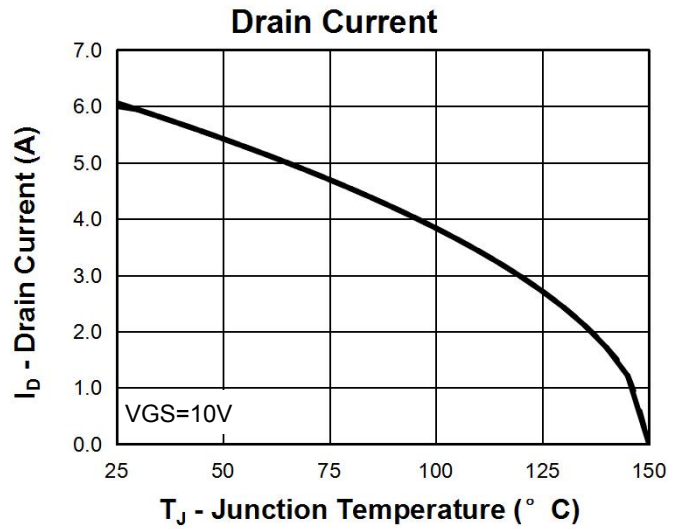
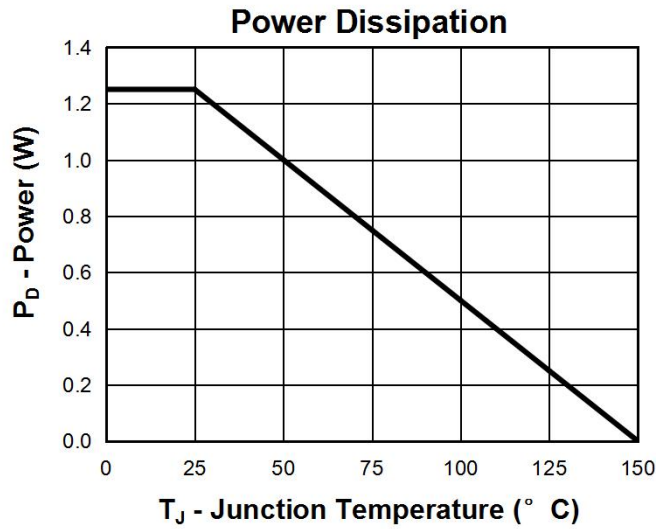
Symbol	Parameter	Test Condition	RU3400B			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$			1	μA
		$T_J=125^{\circ}\text{C}$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5		1.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 16V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_{DS}=5A$		30	35	$m\Omega$
		$V_{GS}=10V, I_{DS}=6A$		26	32	$m\Omega$
Diode Characteristics						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=1A, V_{GS}=0V$			1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=6A, di_{SD}/dt=100A/\mu s$		23		ns
Q_{rr}	Reverse Recovery Charge			17		nC
Dynamic Characteristics⁽⁶⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		1.5		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=15V,$ Frequency=1.0MHz		610		pF
C_{oss}	Output Capacitance			65		
C_{rss}	Reverse Transfer Capacitance			45		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=15V, I_{DS}=6A,$ $V_{GEN}=10V, R_G=1\Omega$		3		ns
t_r	Turn-on Rise Time			7		
$t_{d(OFF)}$	Turn-off Delay Time			17		
t_f	Turn-off Fall Time			8		
Gate Charge Characteristics⁽⁶⁾						
Q_g	Total Gate Charge	$V_{DS}=24V, V_{GS}=10V,$ $I_{DS}=6A$		6.5		nC
Q_{gs}	Gate-Source Charge			1.3		
Q_{gd}	Gate-Drain Charge			2.3		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ When mounted on 1 inch square copper board, $t \leq 10\text{sec}$. The value in any given application depends on the user's specific board design.
 - ④ Limited by T_{Jmax} . Starting $T_J = 25^{\circ}\text{C}$.
 - ⑤ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑥ Guaranteed by design, not subject to production testing.

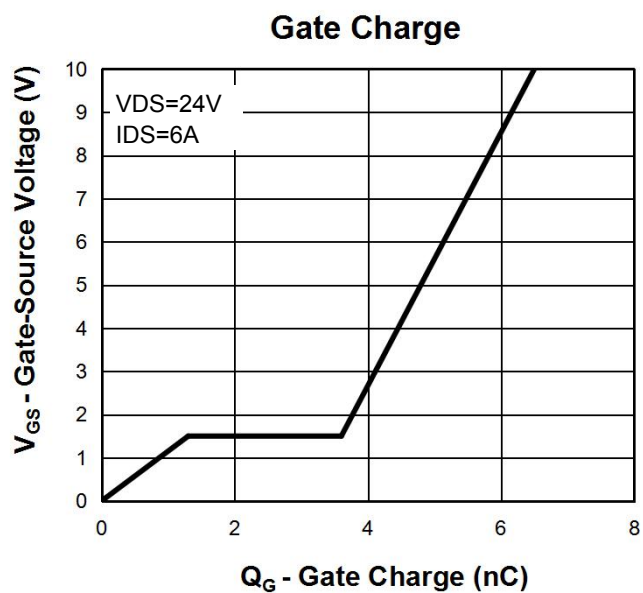
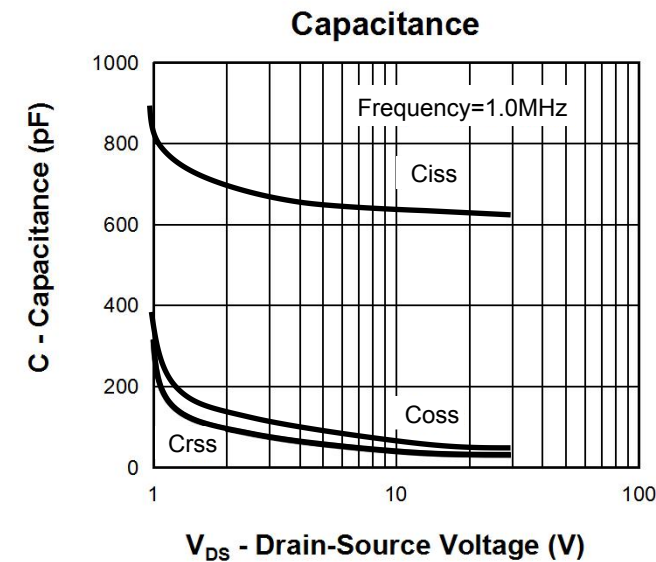
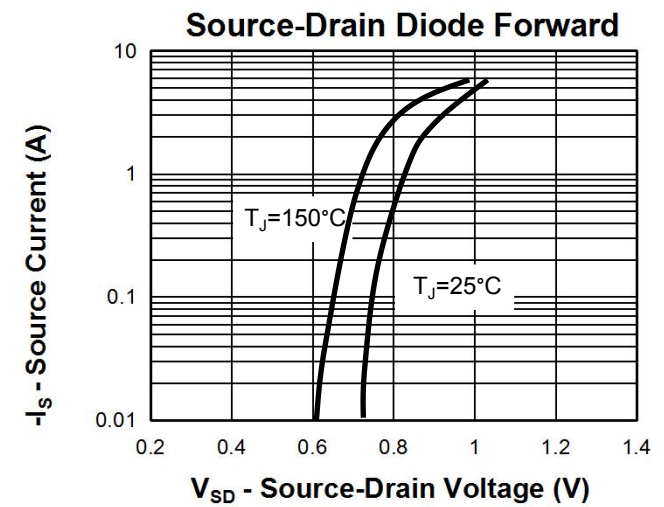
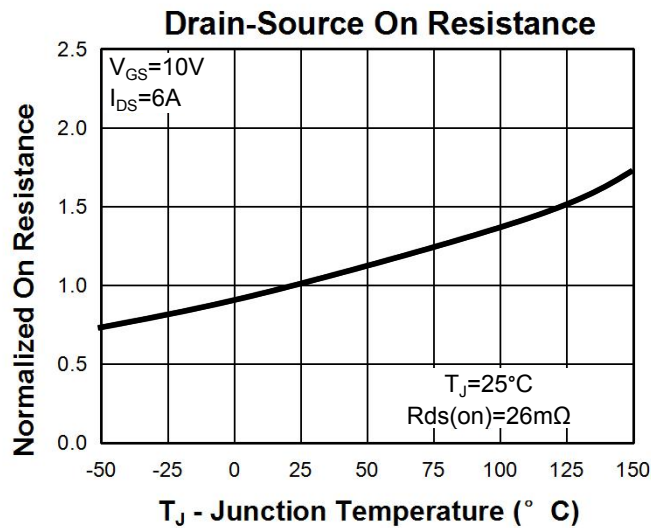
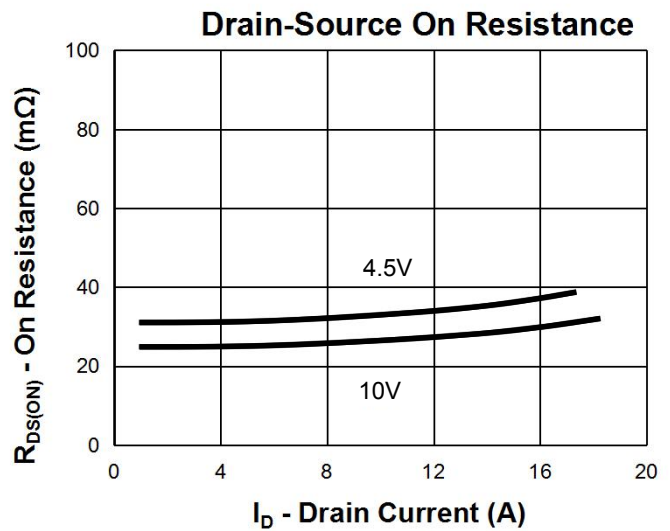
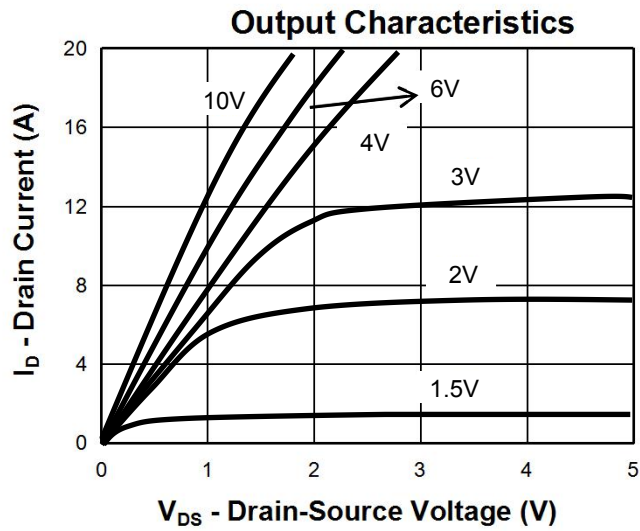
Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU3400B	RU3400	SOT23	Tape&Reel	3000	7"	8mm

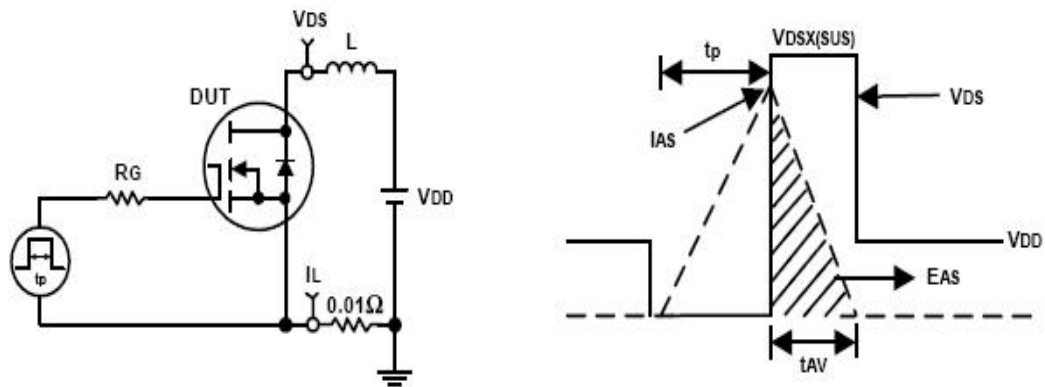
Typical Characteristics



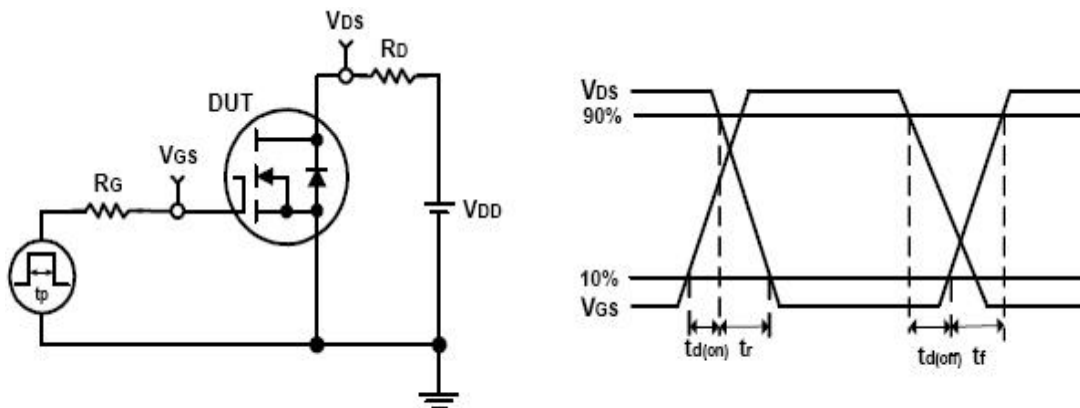
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Avalanche Test Circuit and Waveforms

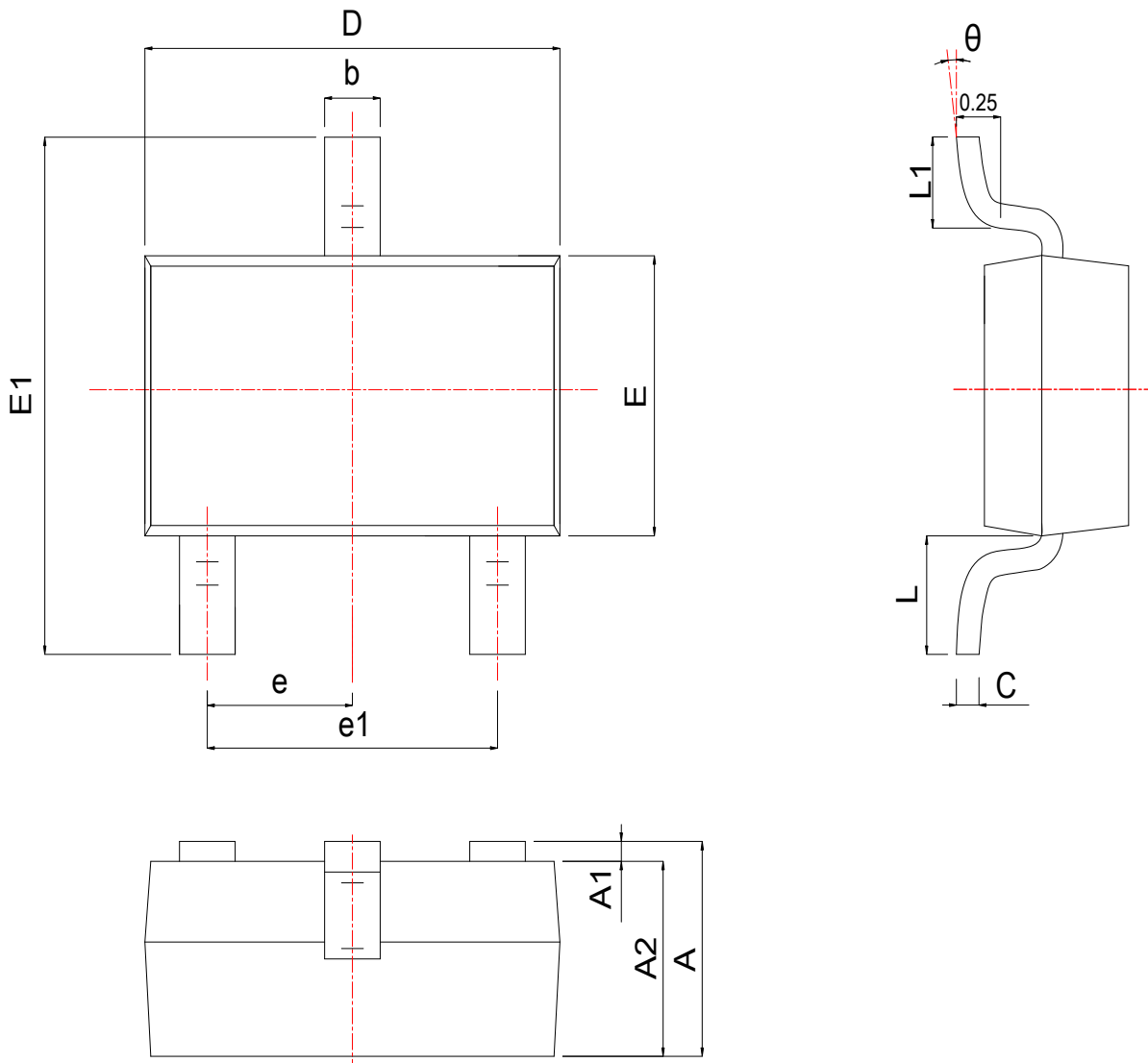


Switching Time Test Circuit and Waveforms



Package Information

SOT23



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	1.025	1.150	0.035	0.040	0.045
A1	0.050	0.075	0.100	0.002	0.003	0.004
A2	0.900	0.975	1.020	0.035	0.038	0.040
b	0.300	0.400	0.500	0.012	0.016	0.020
c	0.080	0.115	0.150	0.003	0.005	0.006
D	2.800	2.900	3.000	0.110	0.114	0.118
E	1.200	1.300	1.400	0.047	0.051	0.055
E1	2.250	2.400	2.550	0.089	0.094	0.100
e	0.950 TYP			0.037 TYP		
e1	1.800	1.900	2.000	0.071	0.075	0.079
L	0.540 REF			0.021 REF		
L1	0.400	0.500	0.600	0.016	0.018	0.020
θ	0°	*	8°	0°	*	8°

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