



RU3400B

N-Channel Advanced Power MOSFET

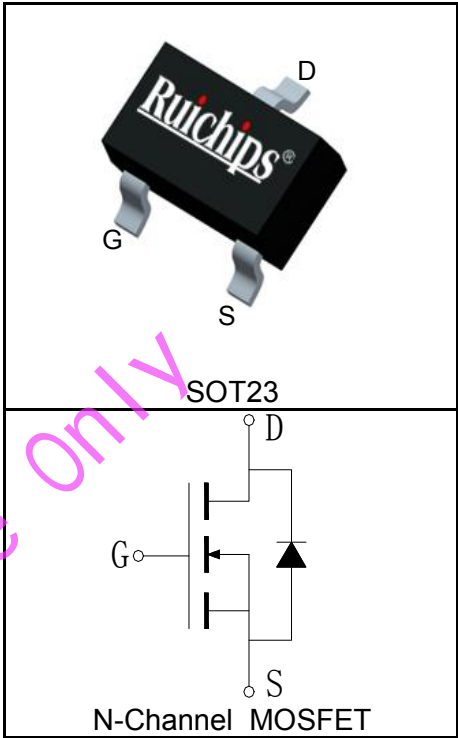
Features

- 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°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±16	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _A =25°C	1	A
Mounted on Large Heat Sink				
I _{DP} ^①	300μs Pulse Drain Current Tested	T _A =25°C	24	A
I _D ^②	Continuous Drain Current(V _{GS} =10V)	T _A =25°C	6	A
		T _A =70°C	4.9	
P _D	Maximum Power Dissipation	T _A =25°C	1.3	W
		T _A =70°C	0.8	
R _{θJC}	Thermal Resistance-Junction to Case		-	°C/W
R _{θJA} ^③	Thermal Resistance-Junction to Ambient		125	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^④	Avalanche Energy, Single Pulsed		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} =250μA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V			1	μA
		T _J =125°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5		1.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±16V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^⑤	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =5A		30	35	mΩ
		V _{GS} =10V, I _{DS} =6A		26	32	mΩ
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/μs		23		ns
Q _{rr}	Reverse Recovery Charge			17		nC
Dynamic Characteristics ^⑥						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		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 =1Ω		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.

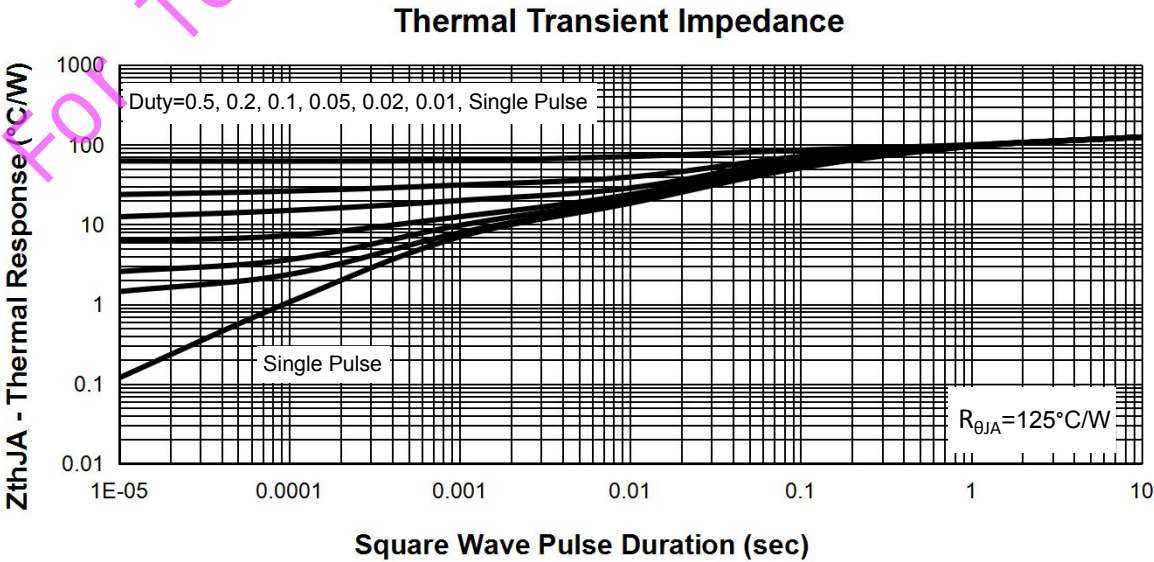
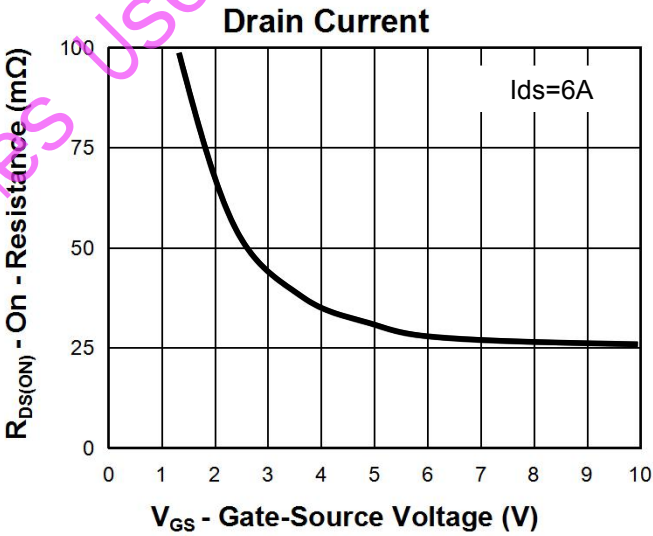
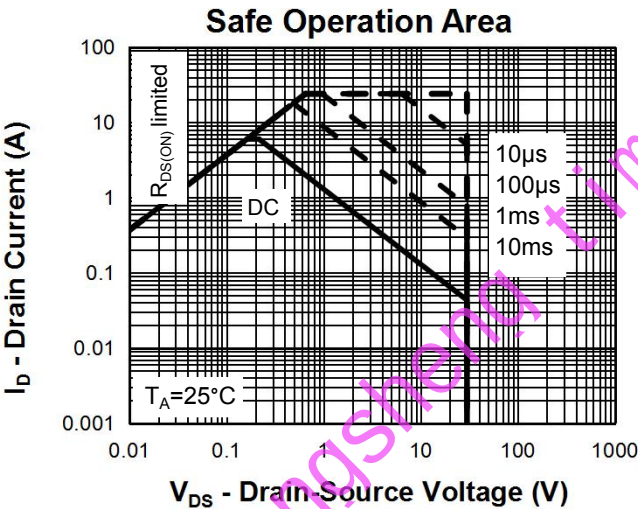
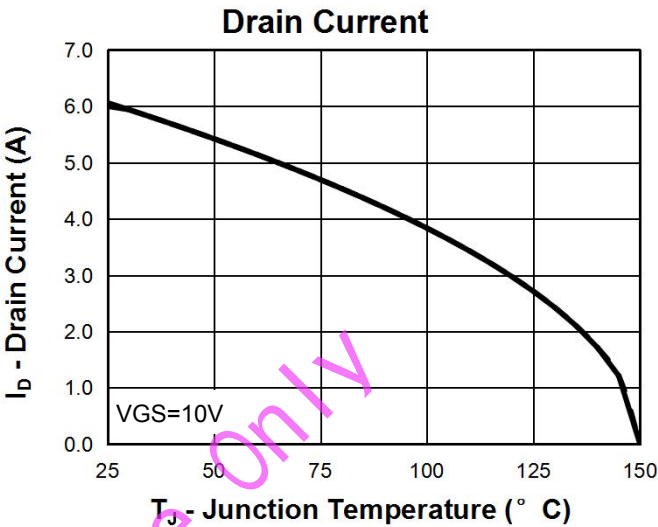
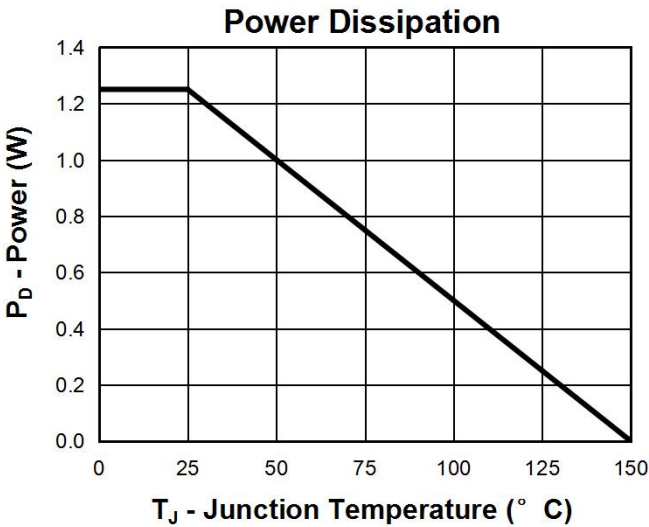


Ordering and Marking Information

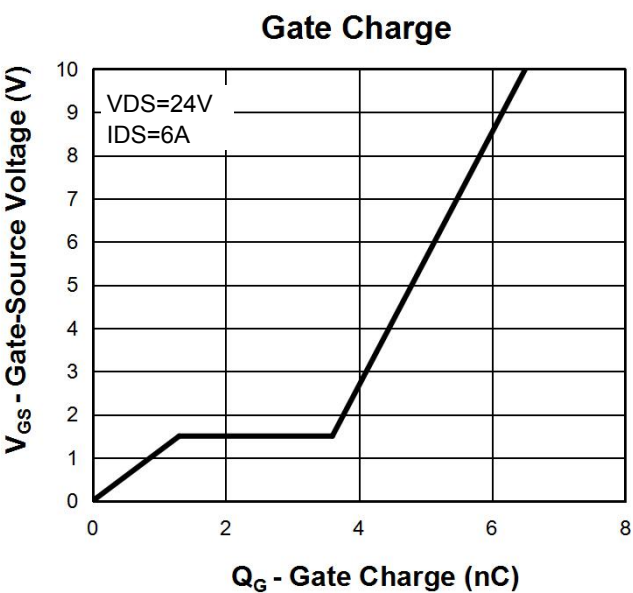
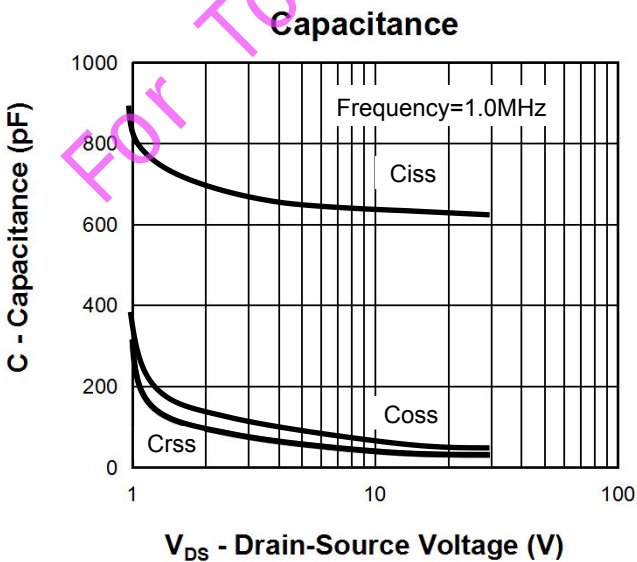
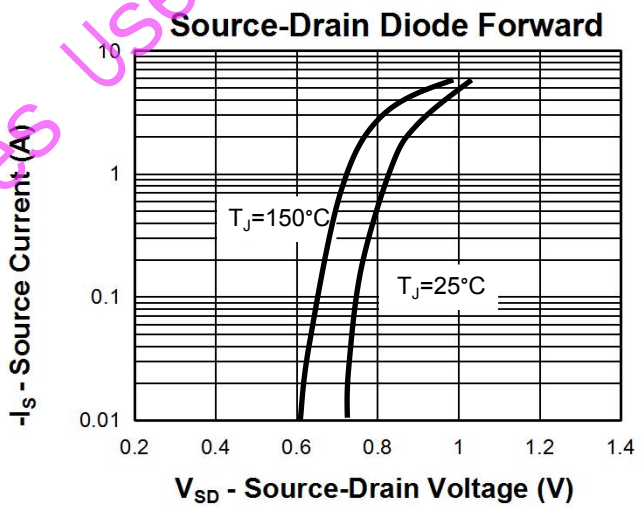
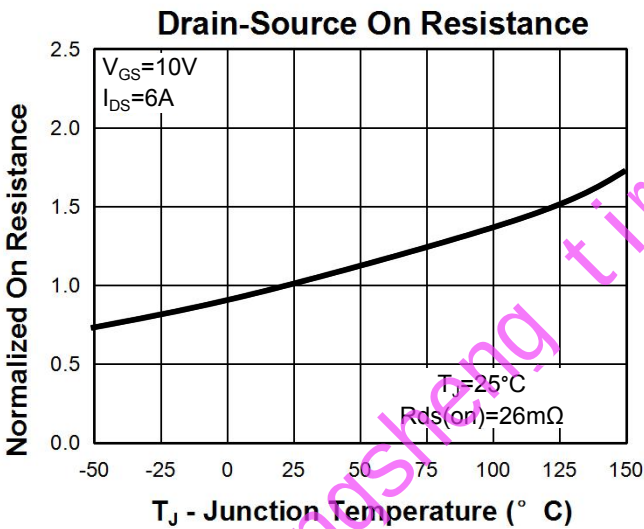
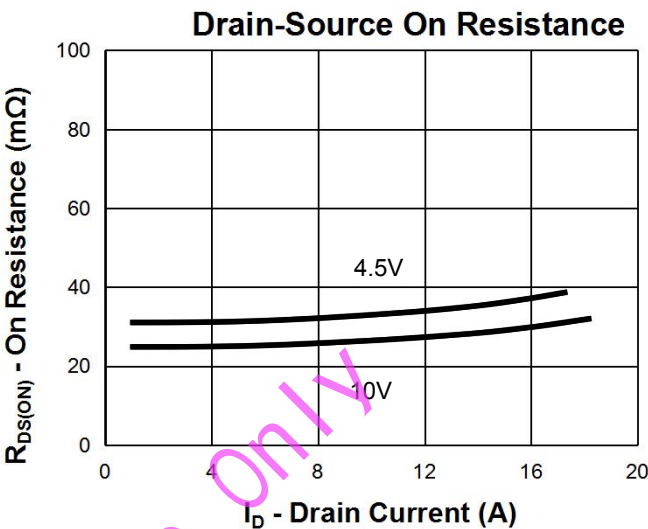
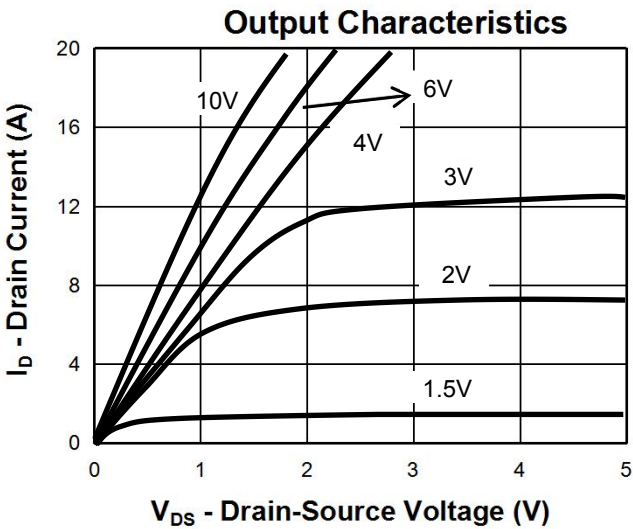
Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU3400B	RU3400	SOT23	Tape&Reel	3000	7"	8mm

For Tongsheng times Use Only

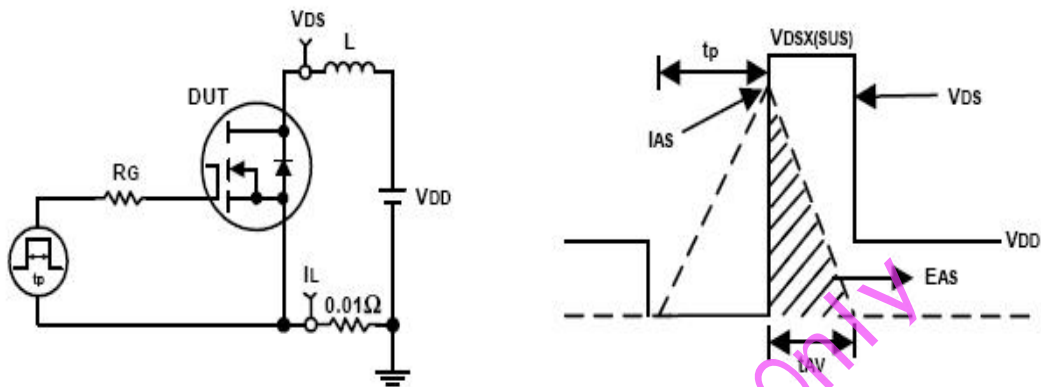
Typical Characteristics



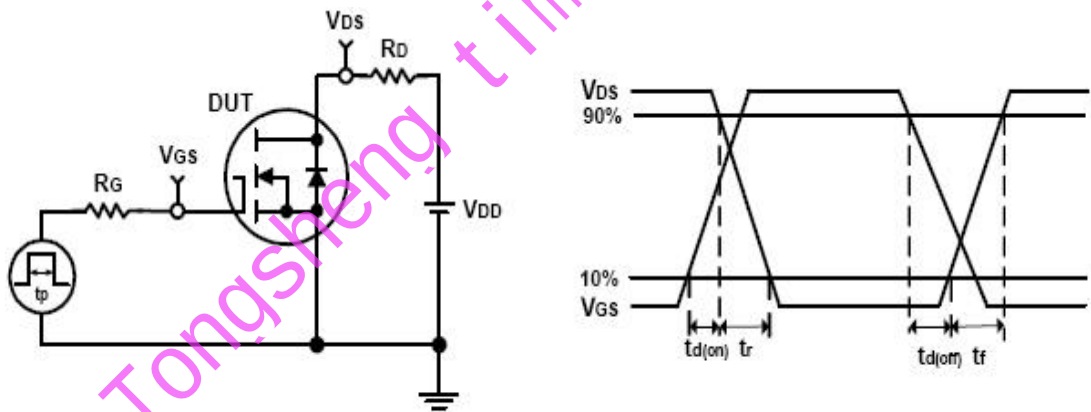
Typical Characteristics



Avalanche Test Circuit and Waveforms

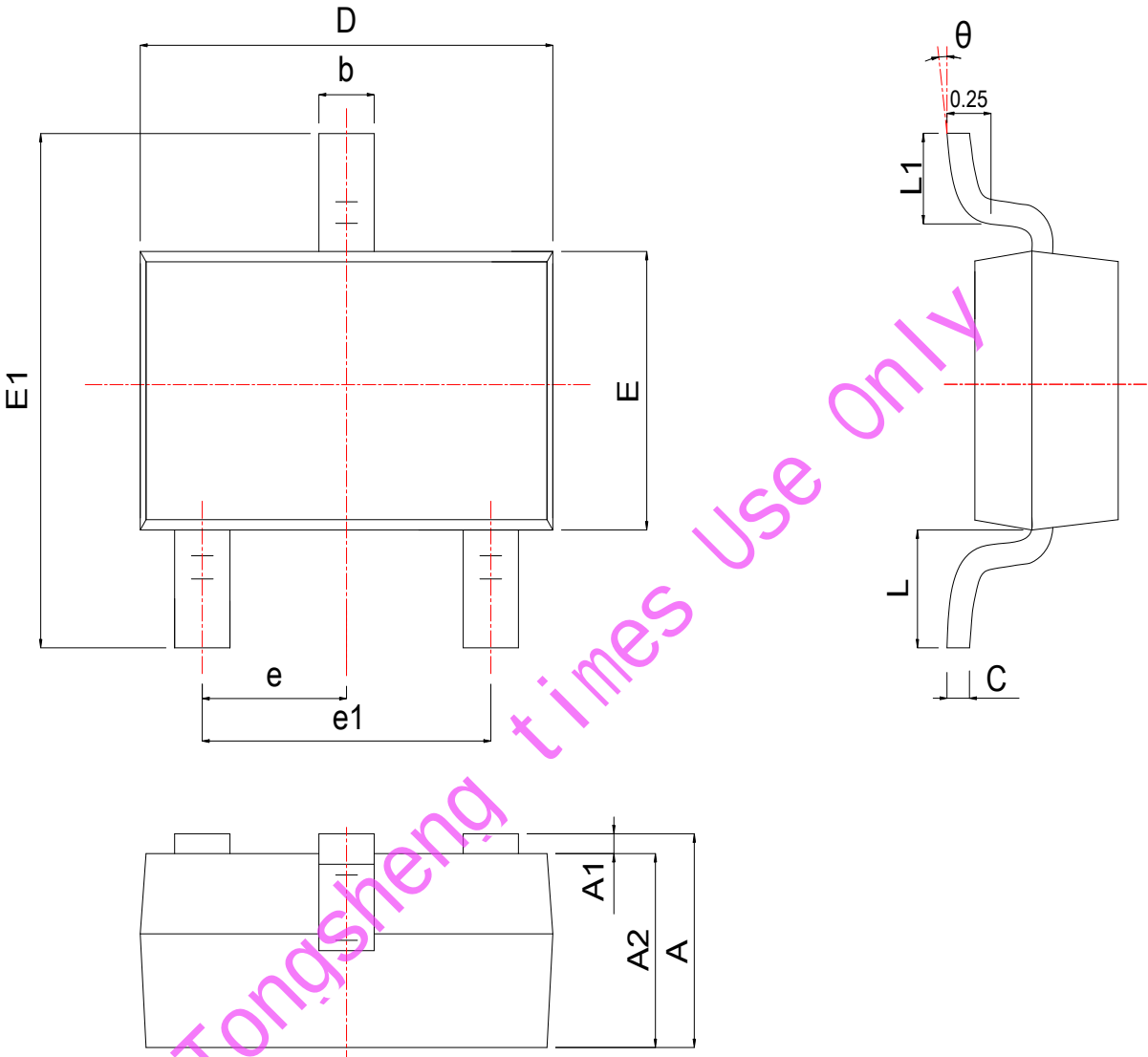


Switching Time Test Circuit and Waveforms



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°