ESD Protection Diode : TEDST2312750B01

SOT23 package type

■ Features

1. RoHS compliant and halogen-free
2. Protects +12V to -7V lines
3. Low clamping voltage
4. Low leakage current
5. IEC 61000-4-2 (ESD) ±15KV (air), ±8KV (contact)

■ Recommended Applications

1. Extended common-mode RS-485
2. Security systems
3. Networks
4. Automatic teller machines

■ Mechanical Data

1. Case: SOT-23, molded plastic meets UL flammability rating 94V-0
2. High temperature soldering guaranteed:260℃/10 seconds
3. Meets MSL level 1, per J-STD-020

■ Part Number Code

T	E	D	S	T	2	3	1	2	7	5	0	B	0	1
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Product Series	
TE	THINKING ESD Transient Voltage Suppression Diodes

Type code	
D	Standard Capacitance >10pF
L	Low Capacitance >1pF, ≦10pF
U	Ultra-low Capacitance ≦1pF

Package	
SD32	SOD-323, 2pins
ST23	SOT-23, 3pins
D102	DFN1006, 2pins
D062	DFN0603, 2pins

Reverse Stand off Voltage(V_{RWM})	
05	5V

Junction Capacitance(Cj)	
0R5	0.5pF
030	3.0pF
03D	3.3pF
10F	10.5pF

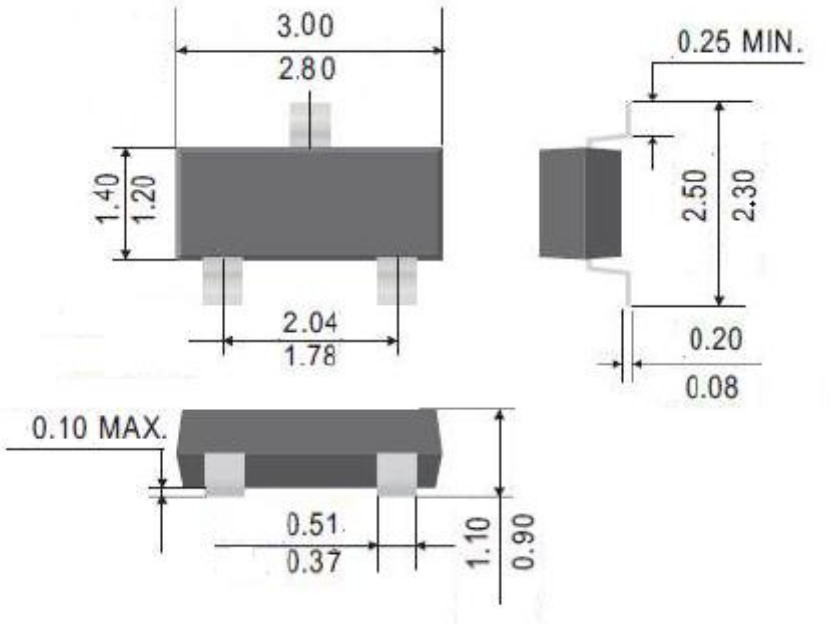
Type Code	
U	Uni-directional
B	Bi-directional,

Optional suffix	
01	Pin 1 to 3 and Pin2 to 3,V_{RWM}=12V Pin 3 to 1 and Pin3 to 2,V_{RWM}=7V

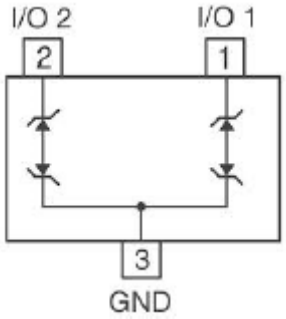
■ Structures and Dimensions

SOT-23

Unit: mm



■ Schematic & PIN Configuration



■ Maximum Rating (Rating at 25℃ ambient temperature unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power (tp= 8/20μs waveform)	P_{PPM}	400	W
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V_{ESD}	±15 ±8	KV
Operating temperature	T_J	-55~+150	ºC
Storage temperature	T_{STG}	-55~+150	ºC

ESD Protection Diode : TEDST2312750B01

SOT23 package type

■ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Pin 1 to 3 and 2 to 3 (12V TVS)			Pin 3 to 1 and 3 to 2 (7V TVS)			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Reverse Stand-off Voltage	V_{RWM}	Pin 3 to 1 or pin 2 to 1			12			7	V
Breakdown Voltage	V_{BR}	@1mA	13.3			7.5			V
Reverse Leakage Current	I_R	@V_{RWM}			1			20	μ A
Clamping Voltage	V_c	Ipp =5A, tp= 8/20μs Ipp=17A, tp= 8/20μs			20 26			10 12	V
Junction Capacitance	Cj	V_R=0V，f=1MHz			75			75	pF

■ Rate and Characteristic Curve (T_A=25℃ unless otherwise noted)

Figure 1

Non-repetitive peak pulse power vs pulse time

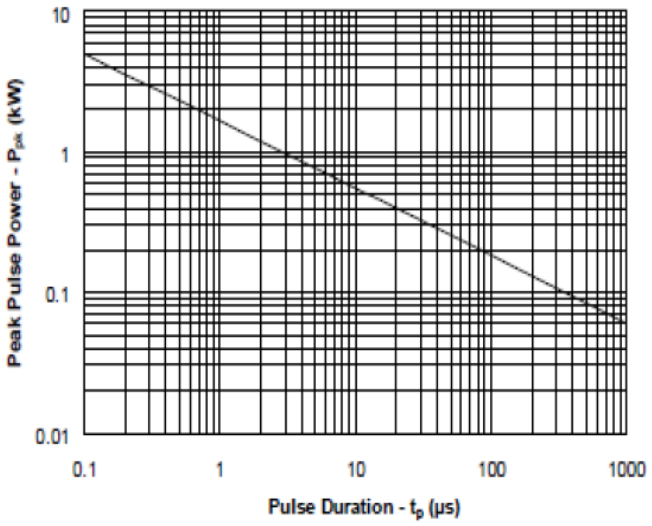


Figure 2

8/20μ s peak pulse current waveform

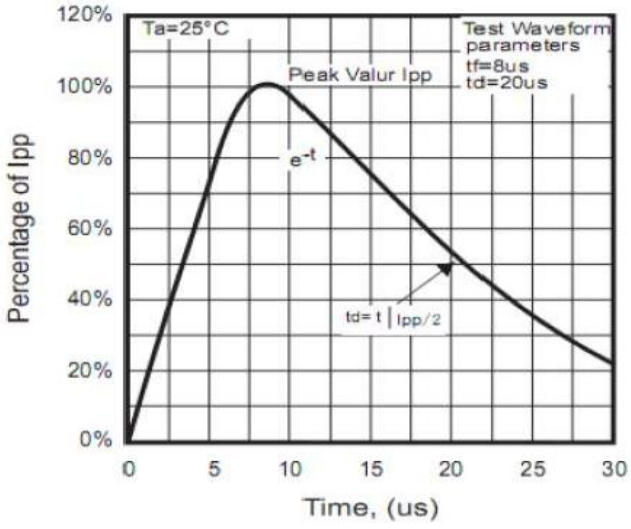


Figure 3 Power derating Curve

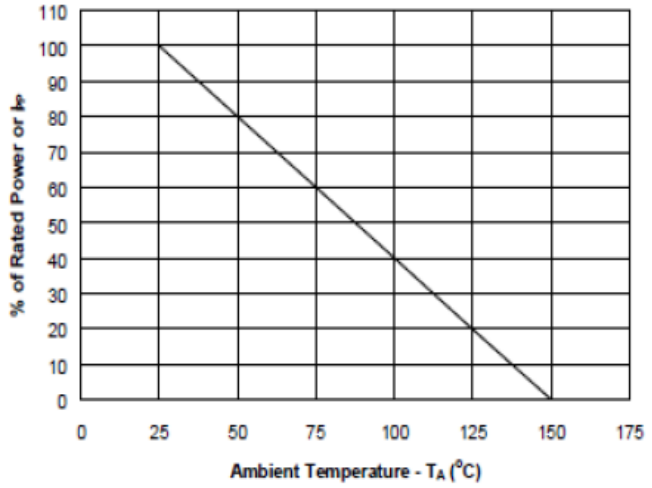
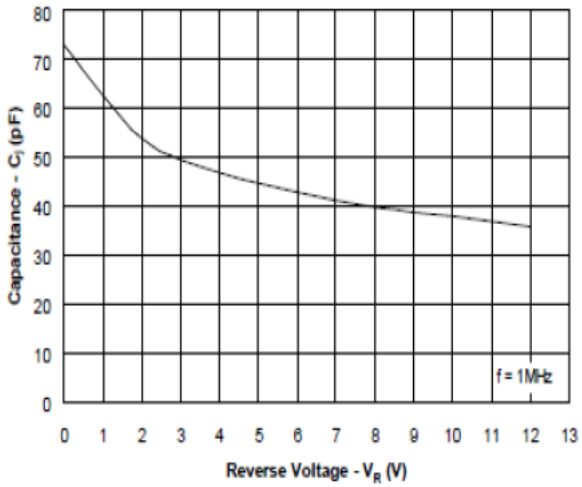
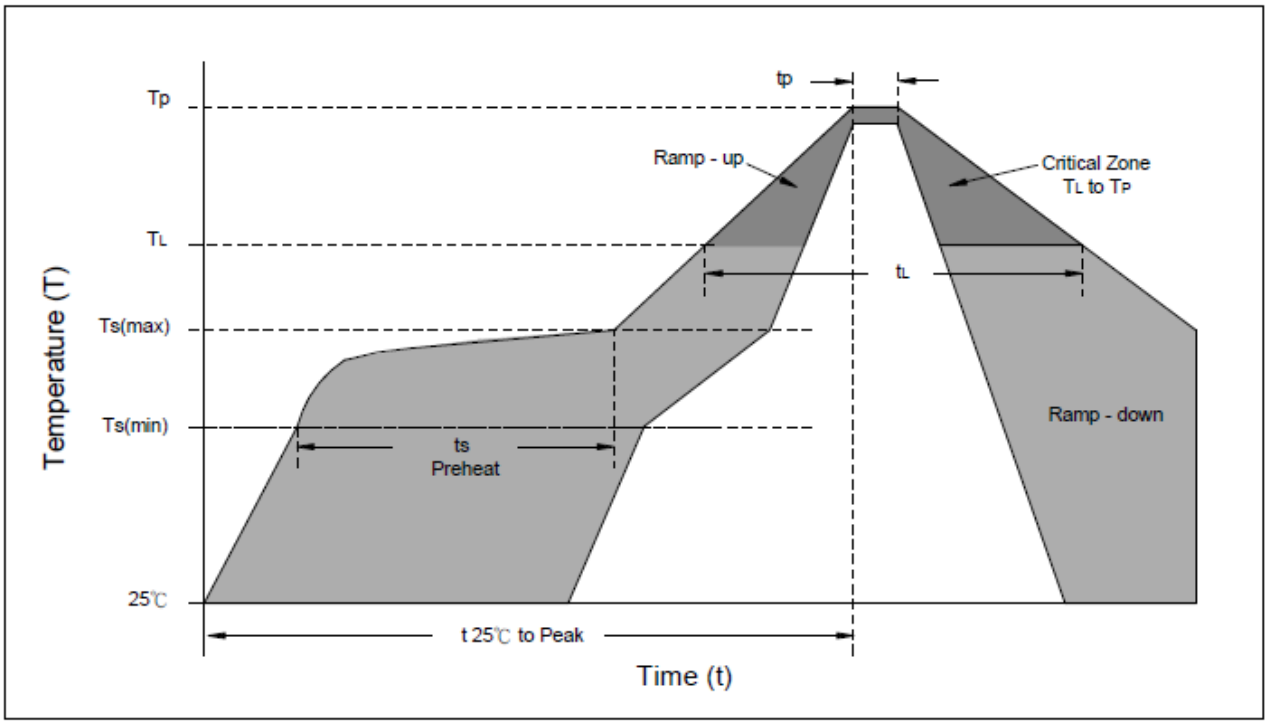


Figure 4 Capacitance vs.Reverse voltage

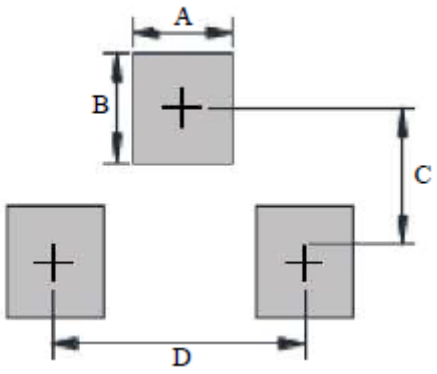


■ Soldering Recommendation



Reflow Condition	Lead-free assembly
Preheat -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	 150℃ 200℃ 60 – 180 seconds
Average ramp up rate -Temperature Liquidus (TL) to peak	 3℃/second max
Ts(max) to TL -Ramp-up Rate	 3℃/second max.
Reflow -Temperature Liquidus (TL) -Time (tL)	 217℃ 60 – 150 seconds
Peak Temperature (TP)	260℃
Time within 5℃ of actual peak Temperature(tP)	20 – 40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to peak Temperature(TP)	8 minutes max.
Do not exceed	260℃

■ Recommended Soldering Pad Dimensions



Unit: mm

Package Type	A	B	C	D
SOT-23	0.80	0.80	2.02	1.90

■ Packaging

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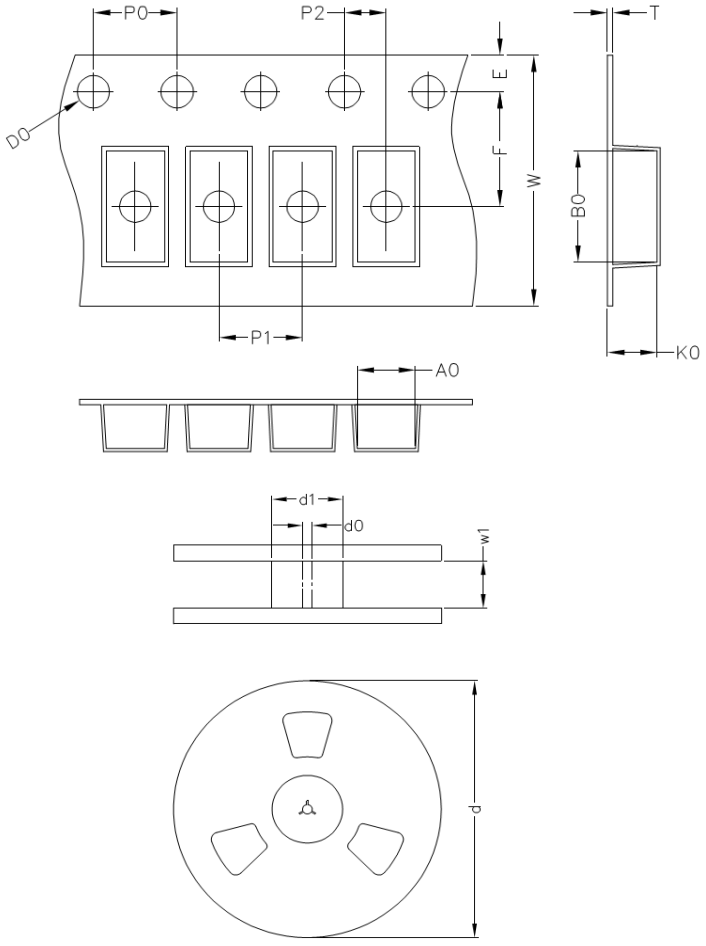

Symbol	SOT-23 (Unit: mm)
A0	2.25 ± 0.10
B0	2.34 ± 0.10
K0	1.22 ± 0.10
D0	1.55 ± 0.05
E	1.75 ± 0.10
F	3.50 ± 0. 05
P0	4.00 ± 0.10
P1	4.00 ± 0.10
P2	2.00 ± 0.05
T	0.20 ± 0.10
W	8.00 ± 0.20
d (7")	178.00 ± 2.00
d1	MIN. 50.00
d0	13.00 ± 0.20
w1	MAX. 13.50

■ Quantity

Package Type	Marking Code	Reel Size (inch)	Reel (Kpcs)
SOT-23	M72	7	3

■ Warehouse Storage Conditions of product

● Storage condition:

1.Storage Temperature: -10℃~+40℃

2.Relatiive Humidity: ≦75%RH

3.Keep away from corrosive atmosphere and sunlight.

● Period of Storage: 1 year.