

ESD Protection Diode : TEDST2312500U01



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°C/10 seconds
3. Meets MSL level 1, per J-STD-020

■ Part Number Code

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

Product Series		Type code		Package		Reverse Stand off Voltage(V_{RWM})		Junction Capacitance(C_j)		Type Code	
TE	THINKING ESD Transient Voltage Suppression Diodes	D	Standard Capacitance >10pF	SD32	SOD-323, 2pins	12	12V	0R5	0.5pF	U	Uni-directional
		L	Low Capacitance >1pF, ≤10pF	ST23	SOT-23, 3pins			030	3.0pF	B	Bi-directional,
		U	Ultra-low Capacitance ≤1pF	D102	DFN1006, 2pins	03D	3.3pF	Optional suffix 01 Pin 1 to 3 and Pin2 to 3, $V_{RWM}=12V$ Pin 3 to 1 and Pin3 to 2, $V_{RWM}=7V$			
D062	DFN0603, 2pins	500	50pF								

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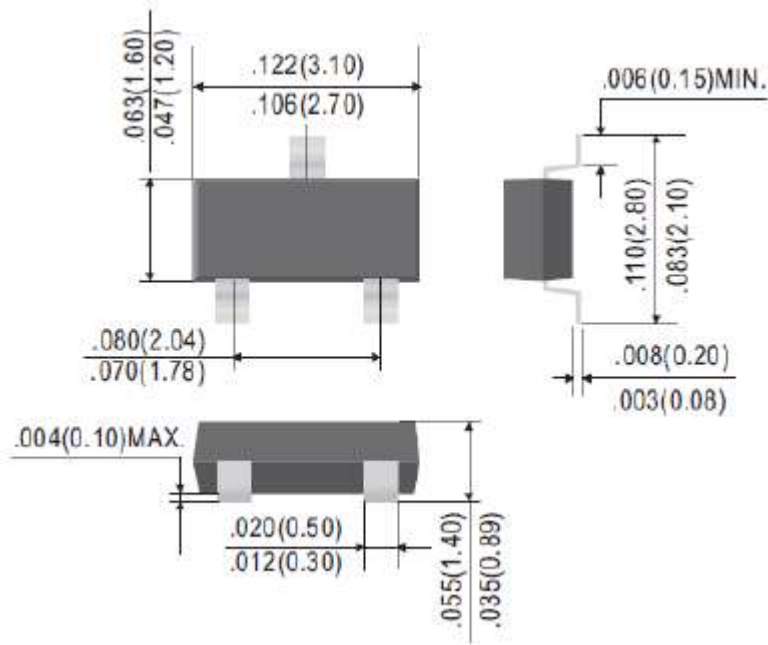


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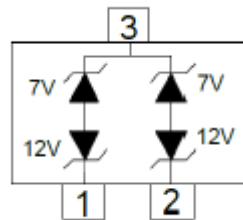
Structures and Dimensions

SOT-23

Unit: mm



Schematic & PIN Configuration



Maximum Rating (Rating at 25°C 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)	V _{ESD}	±15	KV
ESD per IEC61000-4-2 (Contact)		±8	
Operating temperature	T _J	-55~+150	°C
Storage temperature	T _{STG}	-55~+150	°C

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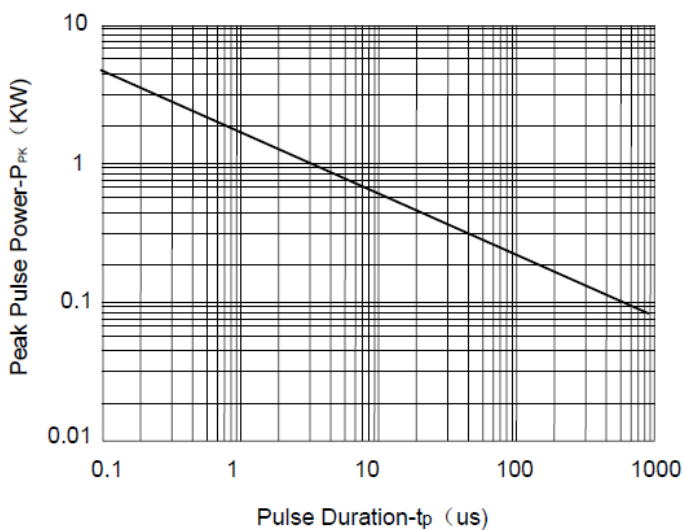
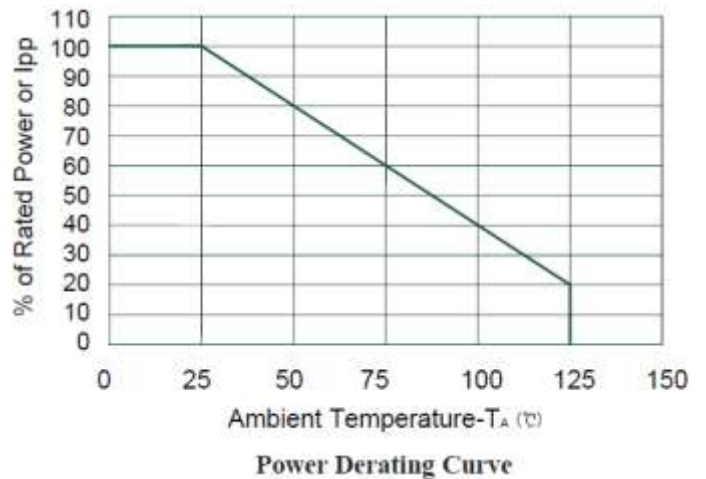
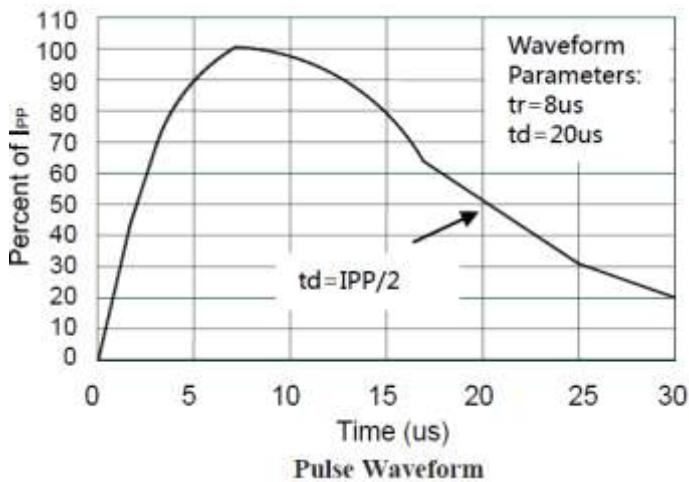


SOT23 package type

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

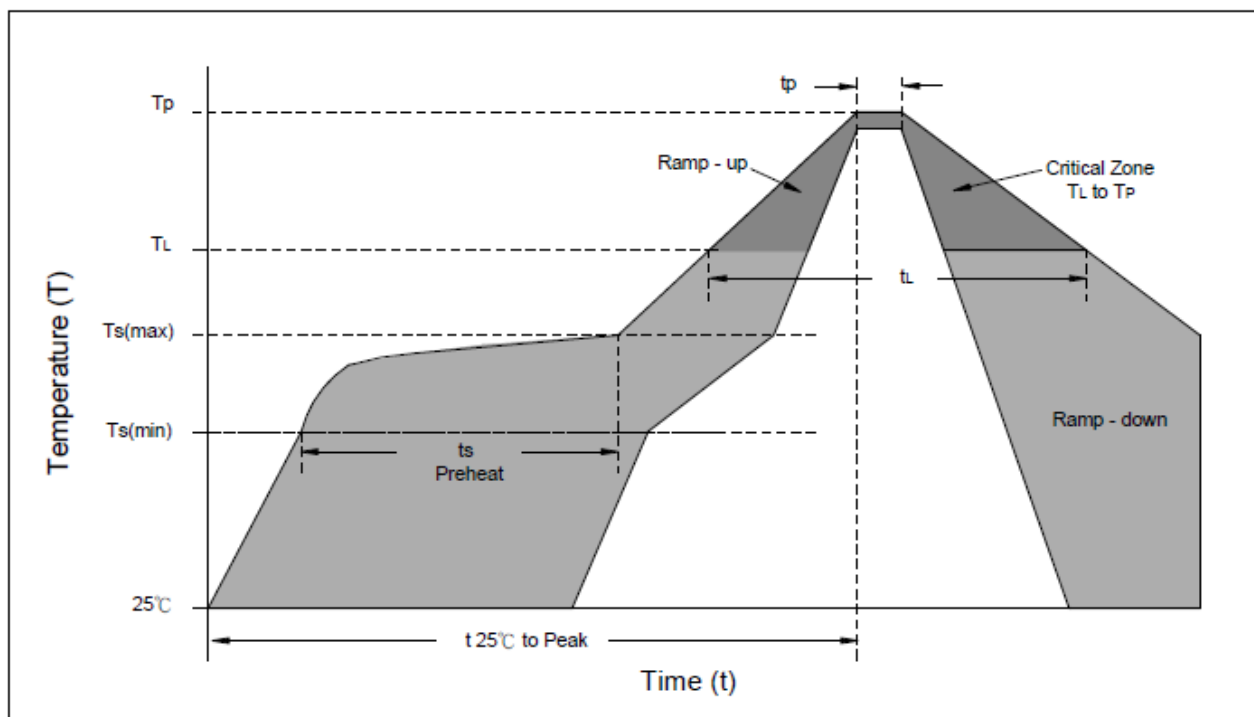
Parameter	Symbol	Condition	Pin 1 to 3 and 2 to 3 (12V TVS)			Pin 3 to 1 and 3 to 2 (7V TVS)			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Reverse Stand-off Voltage	V_{RWM}	Pin 3 to 1 or pin 2 to 1			12			7	V
Breakdown Voltage	V_{BR}	@1mA	13.3			7.5			V
Reverse Leakage Current	I_R	@ V_{RWM}			1			20	μA
Clamping Voltage	V_c	$I_{pp}=5\text{A}$, $t_p=8/20\mu\text{s}$ $I_{pp}=17\text{A}$, $t_p=8/20\mu\text{s}$			18			10	V
					28		15		
Junction Capacitance	C_j	$V_R=0\text{V}$, $f=1\text{MHz}$		50	65		50	65	pF

Rate and Characteristic Curve ($T_A=25^\circ\text{C}$ unless otherwise noted)



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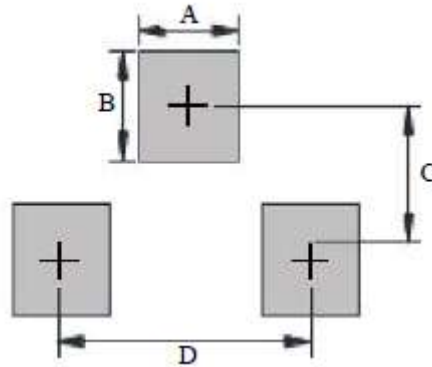
■ Soldering Recommendation



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

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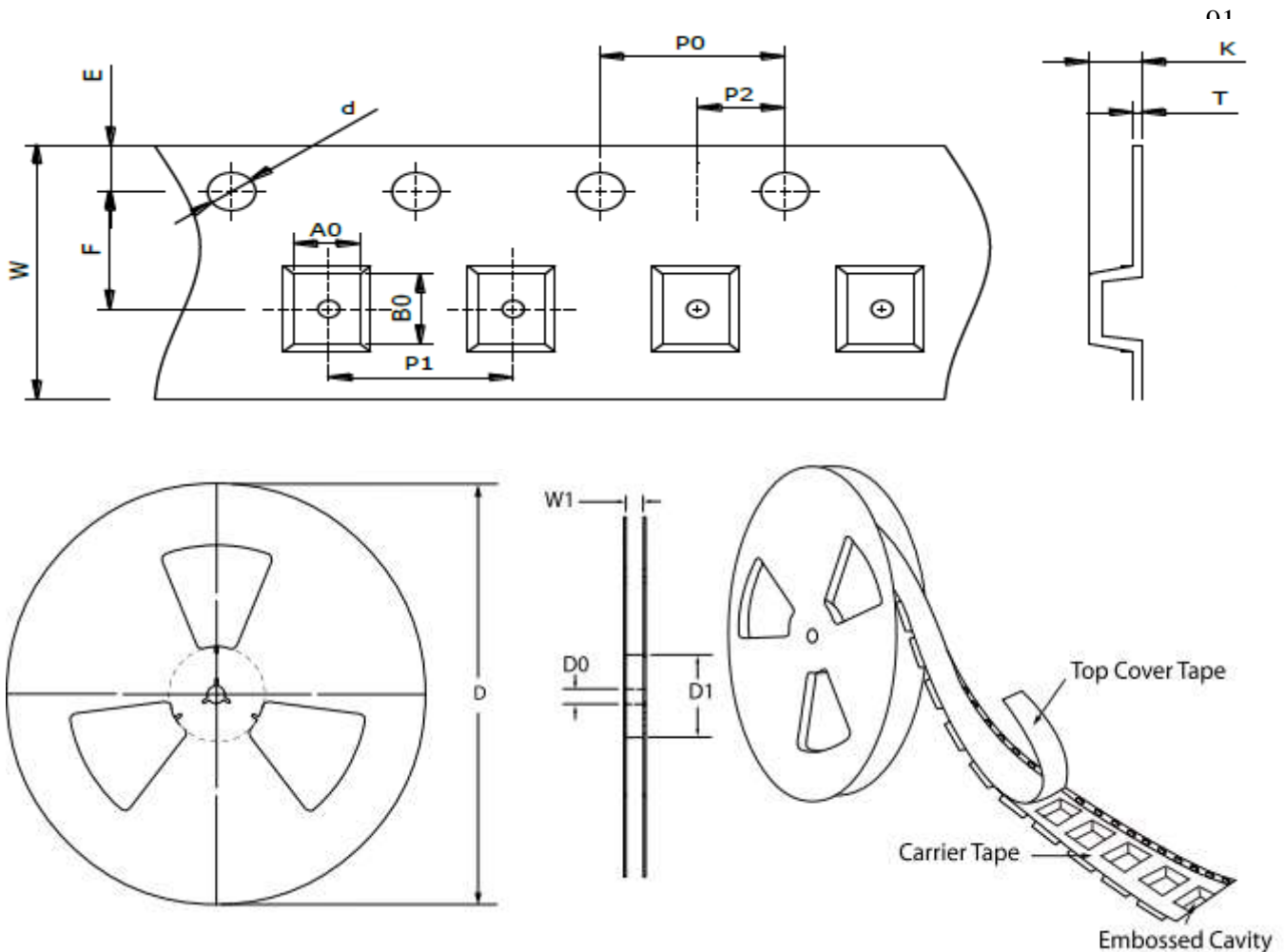
Recommended Soldering Pad Dimensions



Unit: mm

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

Packaging



SOT23 package type

Item	Symbol	SOT-23 (Unit: mm)
Carrier width	A0	3.10 ± 0.10
Carrier length	B0	2.70 ± 0.10
Carrier length	K	1.15± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D0	13.00 ± 0.20
Reel inner diameter	D1	MIN. 54.00
Sprocke hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocke hole pitch	P0	4.00 ± 0.10
Punch hole pitch	P1	4.00 ± 0.10
Embossment center	P2	2.00 ± 0.10
Overall tape thickness	T	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W1	MAX. 13.50

■ Quantity

Package Type	Marking Code	Reel Size (inch)	Reel (Kpcs)
SOT-23	712	7	3

■ Warehouse Storage Conditions of product

- Storage condition:
 - 1.Storage Temperature: -10℃~+40℃
 - 2.Relative Humidity: ≤75%RH
 - 3.Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.