ESD Protection Diode : TEUSD32050R8B

SOD323 package Ultra-low capacitance type

■ Features

1. RoHS compliant and halogen-free
2. Working voltage: 5V
3. Ultra-low capacitance: 0.8pF
4. Low clamping voltage
5. Low leakage current
6. IEC 61000-4-2 (ESD) ±30KV (air), ±30KV (contact)

■ Recommended Applications

1. Notebooks, Desktops, Servers
2. USB interface
3. Personal Digital Assistant (PDA)
4. Networking and Telecom(Ethernet 10/100/1000 Base T)

■ Mechanical Data

1. Case: SOD-323, 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	U	S	D	3	2	0	5	0	R	8	B
1	2	3	4	5	6	7	8	9	10	11	12	13

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

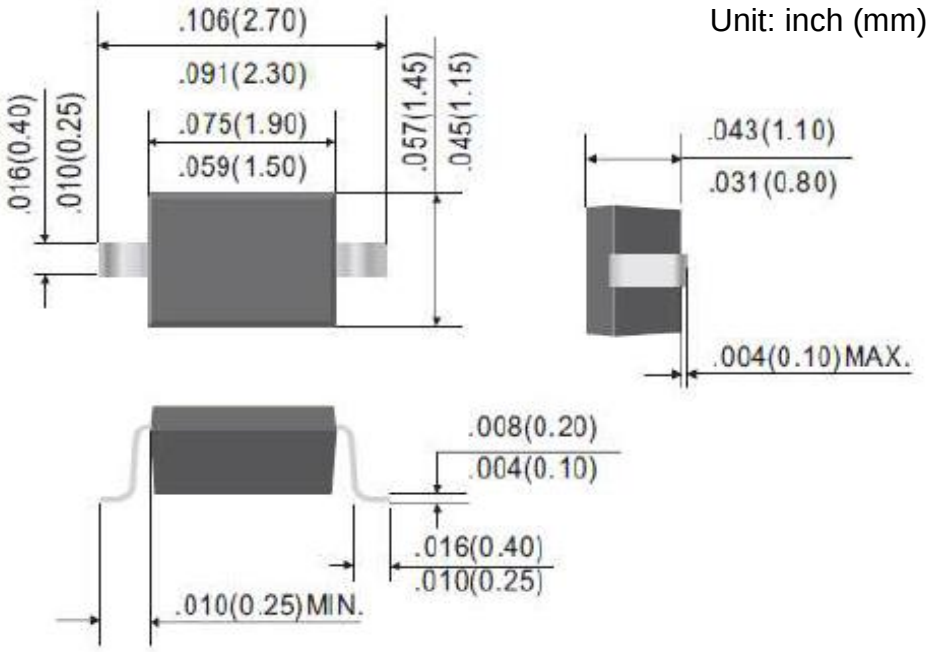
Junction Capacitance(Cj)	
0R8	0.8pF
030	3.0pF
03D	3.3pF
100	10pF

Type Code	
U	Uni-directional
B	Bi-directional,

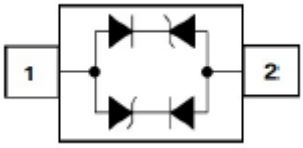
■ Structures and Dimensions

SOD-323

Unit: inch (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}	350	W
Peak Pulse Current (tp= 8/20μs waveform)	I_{PP}	17	A
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V_{ESD}	±30 ±30	KV
Operating junction temperature	T_J	-55~+150	ºC
Storage temperature range	T_{STG}	-55~+150	ºC

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse Stand-off Voltage	V_{RWM}	-			5	V
Breakdown Voltage	V_{BR}	IR =1mA	6.0			V
Reverse Leakage Current	I_R	V_{RWM}=5V			1	μ A
Clamping Voltage	V_c	Ipp =1A, tp= 8/20μs			9.8	V
Junction Capacitance	Cj	V_R=0V，f=1MHz		0.8	1.5	pF

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

Figure 1

Non-repetitive peak pulse power vs pulse time

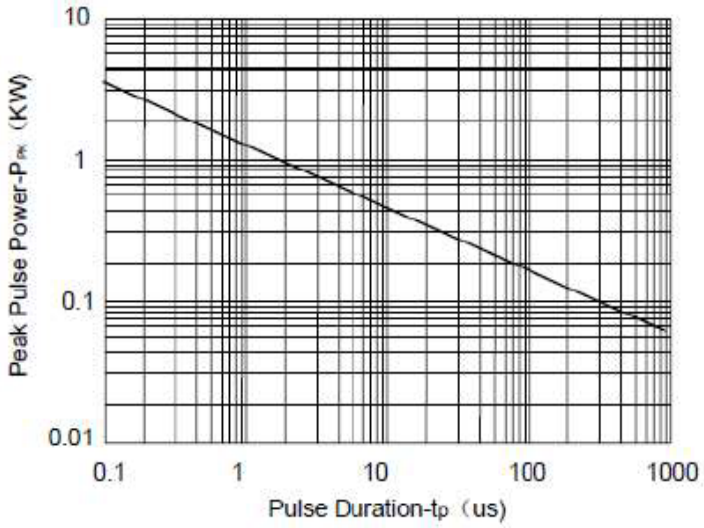


Figure 2

8/20μ s peak pulse current waveform

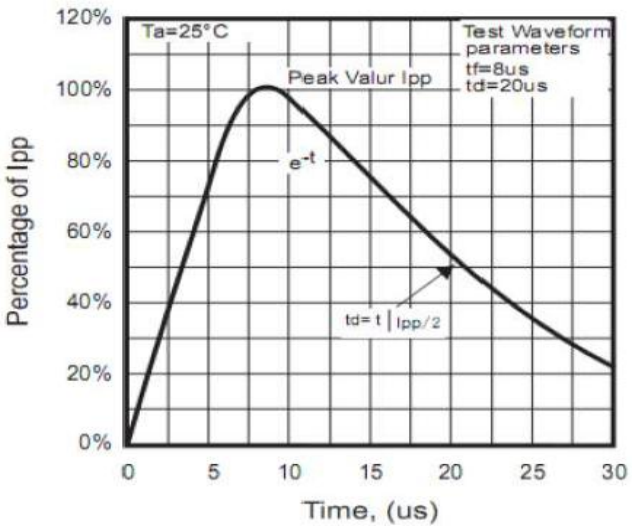


Figure 3 Power derating Curve

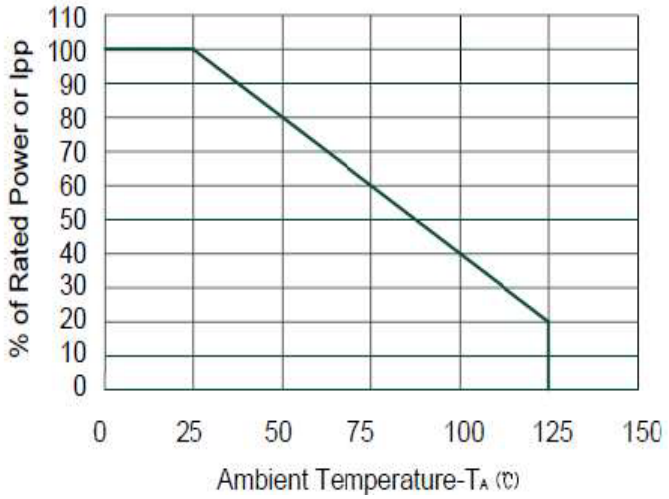


Figure 4 Capacitance vs.Reverse voltage

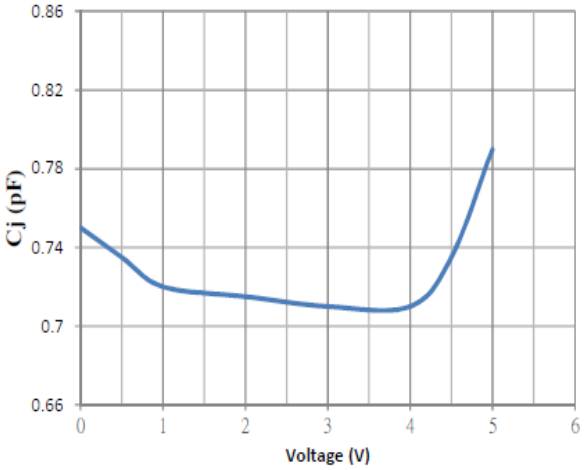


Figure 5 Vc vs Ipp

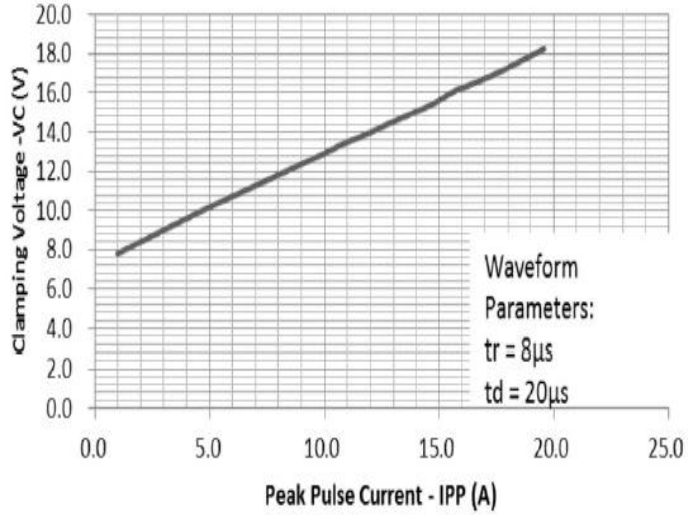
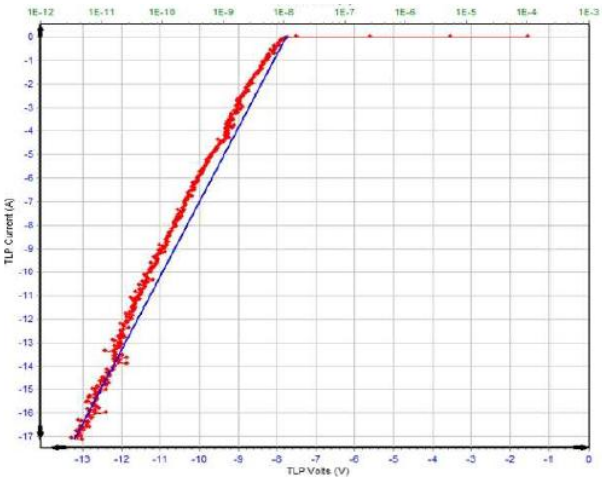
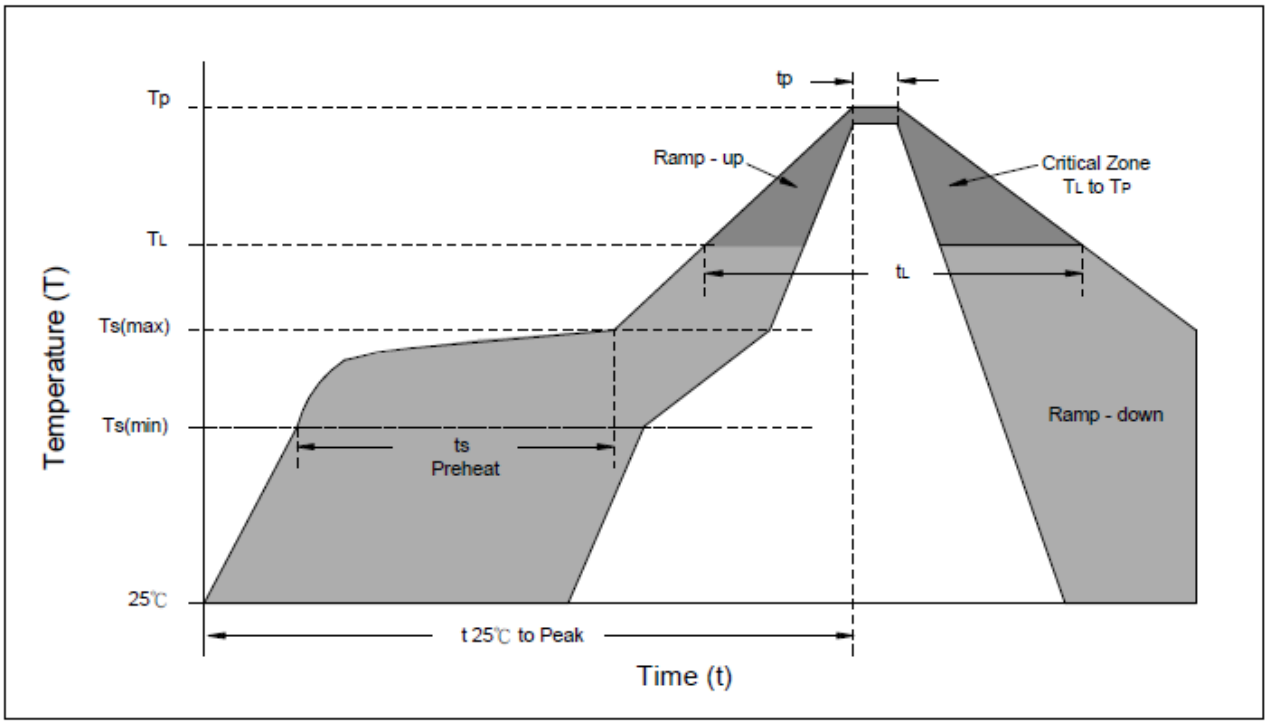


Figure 6 TLP I-V Curve
Figure 6 TLP V-I Curve

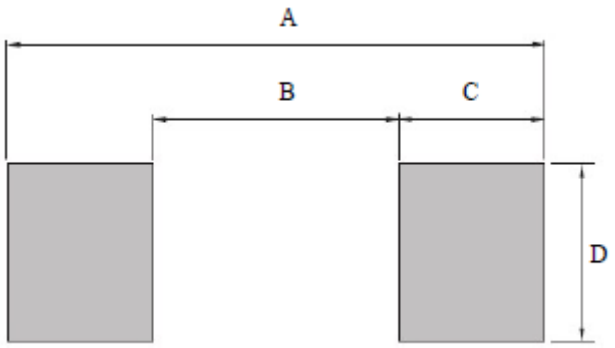


■ Soldering Recommendation



Reflow Condition	Lead-free assembly
Preheat	
-Temperature Min(Ts min)	150℃
-Temperature Min(Ts max)	200℃
-Time (min to max) (ts)	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)	217℃
-Time (tL)	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
SOD-323	2.85	1.45	0.70	0.70

■ Packaging

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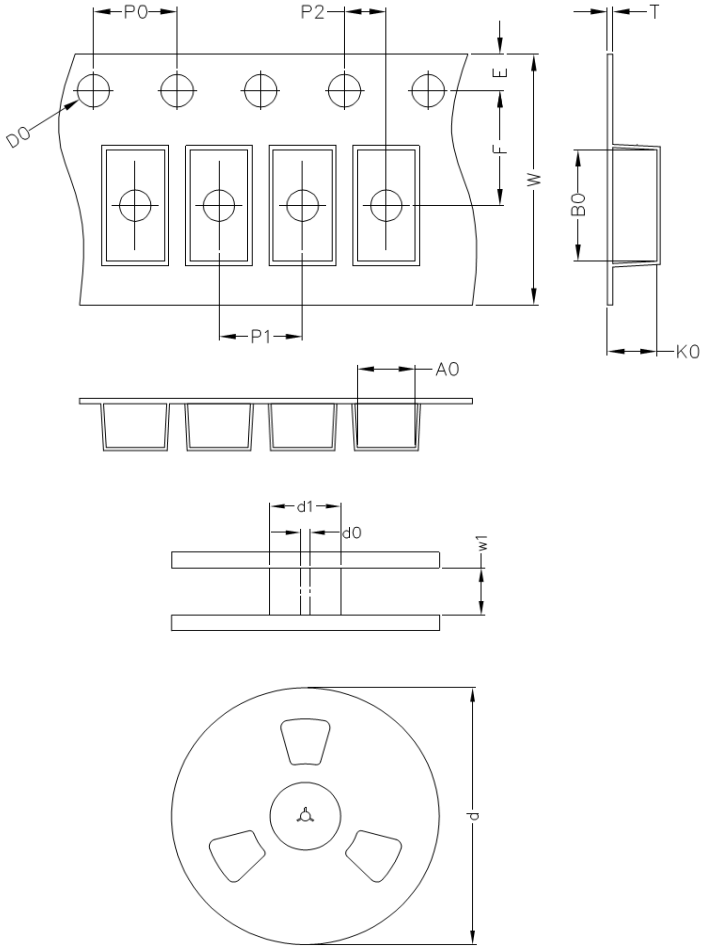

Symbol	SOD-323 (Unit: mm)
A0	1.50 ± 0.10
B0	3.30 ± 0.10
K0	0.95 ± 0.10
D0	1.50 ± 0.10
E	1.75 ± 0.10
F	3.50 ± 0.10
P0	4.00 ± 0.10
P1	4.00 ± 0.10
P2	2.00 ± 0.10
T	0.20 ± 0.05
W	8.00 ± 0.20
d (7")	178.00 ± 2.00
d1	MIN. 54.00
d0	13.00 ± 0.20
w1	MAX. 13.50

■ Quantity

Package Type	Marking Code	Reel Size (inch)	Reel (Kpcs)
SOD-323	AC	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.