

# ESD Protection Diode : TExSD32

## SOD-323 package



### ■ Features

1. RoHS compliant and halogen-free
2. Low capacitance
3. Low clamping voltage
4. Low leakage current
5. IEC 61000-4-2 (ESD) 30KV (air), 30KV (contact)



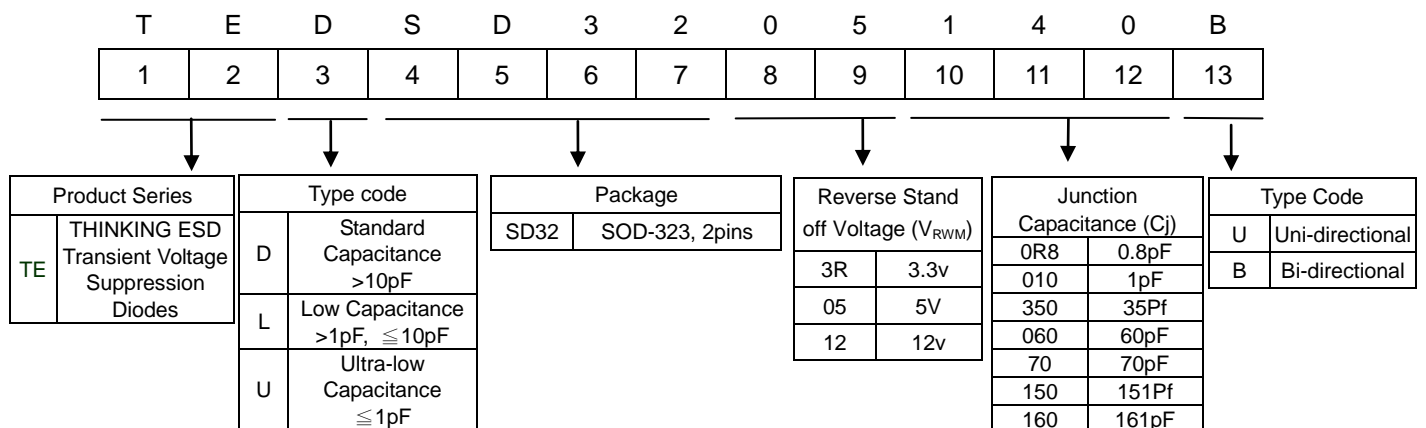
### ■ Recommended Applications

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. Meets MSL level 1, per J-STD-020

### ■ Part Number Code



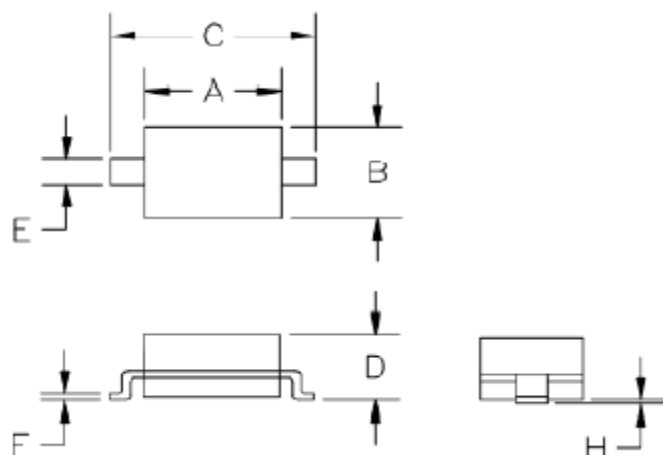
# ESD Protection Diode : TExSD32

## SOD-323 package



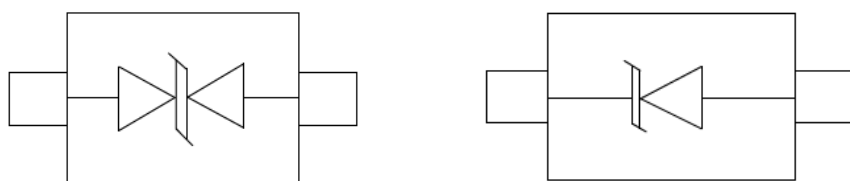
### Structures and Dimensions

Unit: mm



Symbol	SOD-323	
	Min	Max
A	1.5	1.8
B	1.2	1.4
C	2.3	2.7
D	-	1.1
E	0.3	0.4
F	0.1	0.25
H	-	0.1

### Schematic & PIN Configuration



### Maximum Rating (Rating at 25°C ambient temperature unless otherwise noted)

P/N	Reverse Stand-off Voltage	Reverse Leakage Current	Product Polarity	Marking	Peak Pulse Power (8/20μs)	Peak Pulse Current (8/20μs)	ESD (contact)	ESD (air)	Operating Temp.	Storage Temp.
	$V_{RWM}$ (V)	$I_R$ (uA)			$P_{PK}$ (W)	$I_{PP}$ (A)	KV	KV	$T_J$ (°C)	$T_{stg}$ (°C)
	Pin 1 to 2	Pin 1 to 2	Uni/Bi							
	Max	Max								
TEUSD323R0R8B	3.3	0.1	Bi	CC	350	20	±30	±30	-40 to +85	-55 to +150
TEDSD323R700B	3.3	0.5	Bi	03		32	±30	±30	-55 to +125	-55 to +150
TEDSD323R161U	3.3	0.5	Uni	333	350	32	±30	±30	-55 to +125	-55 to +150
TEUSD32050R8B	5	0.1	Bi	AC	350	18	±30	±30	-40 to +85	-55 to +150
TEDSD3205600B	5	0.5	Bi	05		26	±30	±30	-55 to +125	-55 to +150
TEDSD3205151U	5	0.5	Uni	305	350	26	±30	±30	-55 to +125	-55 to +150
TEUSD3212010B	12	0.1	Bi	DC	350	10	±30	±30	-40 to +85	-55 to +150
TEDSD3212350B	12	0.5	Bi	12		15	±30	±30	-55 to +125	-55 to +150
TEDSD3212700U	12	0.5	Uni	312	350	15	±30	±30	-55 to +125	-55 to +150

# ESD Protection Diode : TExSD32

## SOD-323 package



### ■ Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

TEUSD323R0R8B						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	
Breakdown Voltage	V <sub>BR</sub>	4.0			V	IT = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.1	uA	VR = VRWM
Clamping Voltage	V <sub>C</sub>			7	V	IPP = 1A (8/20μs pulse)
				16	V	IPP = 20A (8/20μs pulse)
Junction Capacitance	C <sub>J</sub>		1		pF	VR = 0V, f = 1MHz

TEDSD323R700B						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	
Breakdown Voltage	V <sub>BR</sub>	4.0			V	IT = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.5	uA	VR = VRWM
Clamping Voltage	V <sub>C</sub>		5		V	IPP = 1A (8/20μs pulse)
			10		V	IPP = 32A (8/20μs pulse)
Junction Capacitance	C <sub>J</sub>			70	pF	VR = 0V, f = 1MHz

TEDSD323R161U						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			3.3	V	
Breakdown Voltage	V <sub>BR</sub>	4.0		6.0	V	IT = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.5	uA	VR = VRWM
Clamping Voltage	V <sub>C</sub>		5		V	IPP = 1A (8/20μs pulse)
			10		V	IPP = 32A (8/20μs pulse)
Junction Capacitance	C <sub>J</sub>			160	pF	VR = 0V, f = 1MHz

TEUSD32050R8B						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			5.0	V	
Breakdown Voltage	V <sub>BR</sub>	6.0			V	IT = 1mA
Reverse Leakage Current	I <sub>R</sub>			0.1	uA	VR = VRWM
Clamping Voltage	V <sub>C</sub>			10	V	IPP = 1A (8/20μs pulse)
				18	V	IPP = 18A (8/20μs pulse)
Junction Capacitance	C <sub>J</sub>		1		pF	VR = 0V, f = 1MHz

# ESD Protection Diode : TExSD32

## SOD-323 package



TEDSD3205600B						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			5.0	V	
Breakdown Voltage	$V_{BR}$	6.0			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.5	$\mu\text{A}$	$V_R = V_{RWM}$
Clamping Voltage	$V_C$		7		V	$I_{PP} = 1\text{A}$ (8/20 $\mu\text{s}$ pulse)
			11		V	$I_{PP} = 26\text{A}$ (8/20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$			60	pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

TEDSD3205151U						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			5.0	V	
Breakdown Voltage	$V_{BR}$	6.0			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.5	$\mu\text{A}$	$V_R = V_{RWM}$
Clamping Voltage	$V_C$		7		V	$I_{PP} = 1\text{A}$ (8/20 $\mu\text{s}$ pulse)
			11		V	$I_{PP} = 26\text{A}$ (8/20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$			150	pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

TEUSD3212010B						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			12.0	V	
Breakdown Voltage	$V_{BR}$	13.3			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.1	$\mu\text{A}$	$V_R = V_{RWM}$
Clamping Voltage	$V_C$			19	V	$I_{PP} = 1\text{A}$ (8/20 $\mu\text{s}$ pulse)
				25	V	$I_{PP} = 10\text{A}$ (8/20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$		1		pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

TEDSD3212350B						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			12.0	V	
Breakdown Voltage	$V_{BR}$	13.3			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.5	$\mu\text{A}$	$V_R = V_{RWM}$
Clamping Voltage	$V_C$		15		V	$I_{PP} = 1\text{A}$ (8/20 $\mu\text{s}$ pulse)
			24		V	$I_{PP} = 15\text{A}$ (8/20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$			35	pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

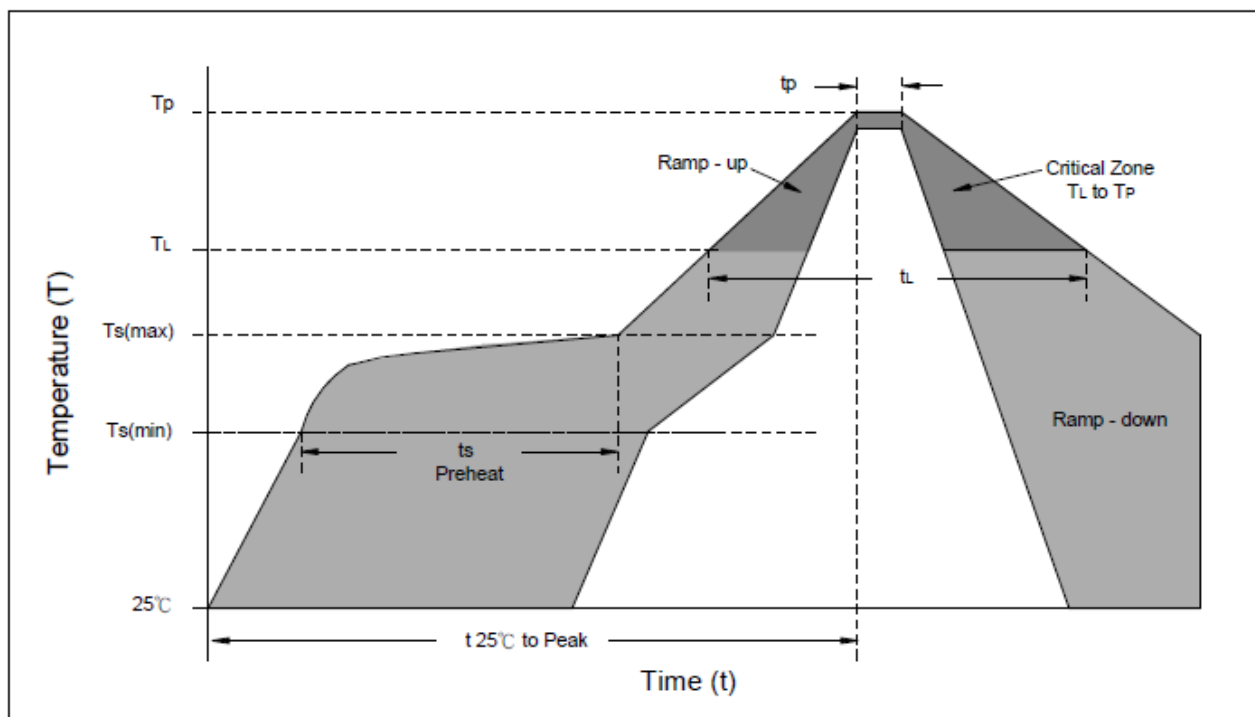
# ESD Protection Diode : TExSD32

## SOD-323 package



TEDSD3212700U						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	$V_{RWM}$			12.0	V	
Breakdown Voltage	$V_{BR}$	13.3			V	$I_T = 1\text{mA}$
Reverse Leakage Current	$I_R$			0.5	$\mu\text{A}$	$V_R = V_{RWM}$
Clamping Voltage	$V_C$		15		V	$I_{PP} = 1\text{A}$ (8/20 $\mu\text{s}$ pulse)
			24		V	$I_{PP} = 15\text{A}$ (8/20 $\mu\text{s}$ pulse)
Junction Capacitance	$C_J$			70	pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

### ■ Soldering Recommendation



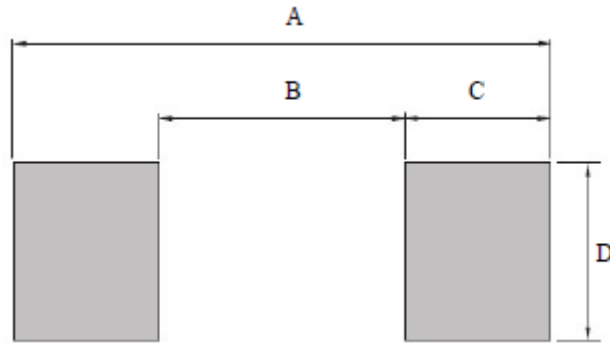
Reflow Condition	Lead-free assembly
<b>Preheat</b> -Temperature Min(Ts min) -Temperature Min(Ts max) -Time (min to max) (ts)	150°C 200°C 60 – 180 seconds
<b>Average ramp up rate</b> -Temperature Liquidus (TL) to peak	3°C/second max
<b>Ts(max) to TL</b> -Ramp-up Rate	3°C/second max.
<b>Reflow</b> -Temperature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

# ESD Protection Diode : TExSD32

## SOD-323 package



### Recommended Soldering Pad Dimensions

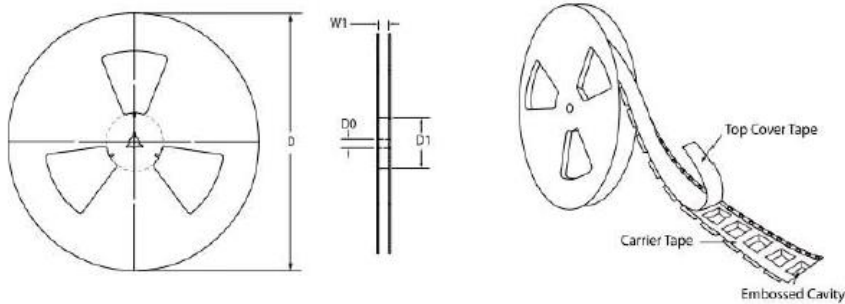
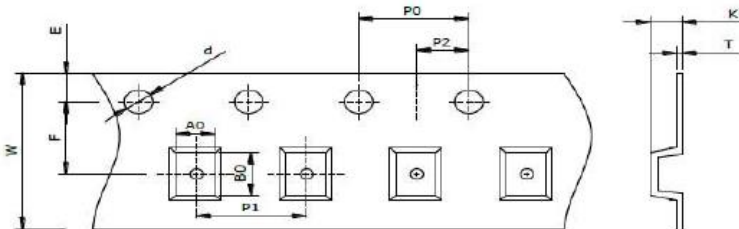


Unit: mm

Package Type	A	B	C	D
SOD-323	2.85	1.45	0.70	0.70

### Packaging

Unit: mm



Symbol	SOD-323
A0	1.50 ± 0.10
B0	3.30 ± 0.10
K	0.95 ± 0.10
d	1.50 ± 0.10
D	178.00 ± 2.00
D0	13.00 ± 0.20
D1	MIN. 54.00
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
W1	MAX. 13.50

# ESD Protection Diode : TExSD32

## SOD-323 package



### ■ Quantity

MPQ: 3,000pcs

Package Type	Reel Size (inch)	Reel (Kpcs)
SOD-323	7	3

### ■ Warehouse Storage Conditions of product

- Storage condition:
  1. Storage Temperature:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
  2. Relative Humidity:  $\leq 75\% \text{RH}$
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.