

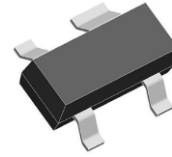
ESD Protection Diode : TExST14

SOT-143 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) 15~30KV (air), 8~25KV (contact)



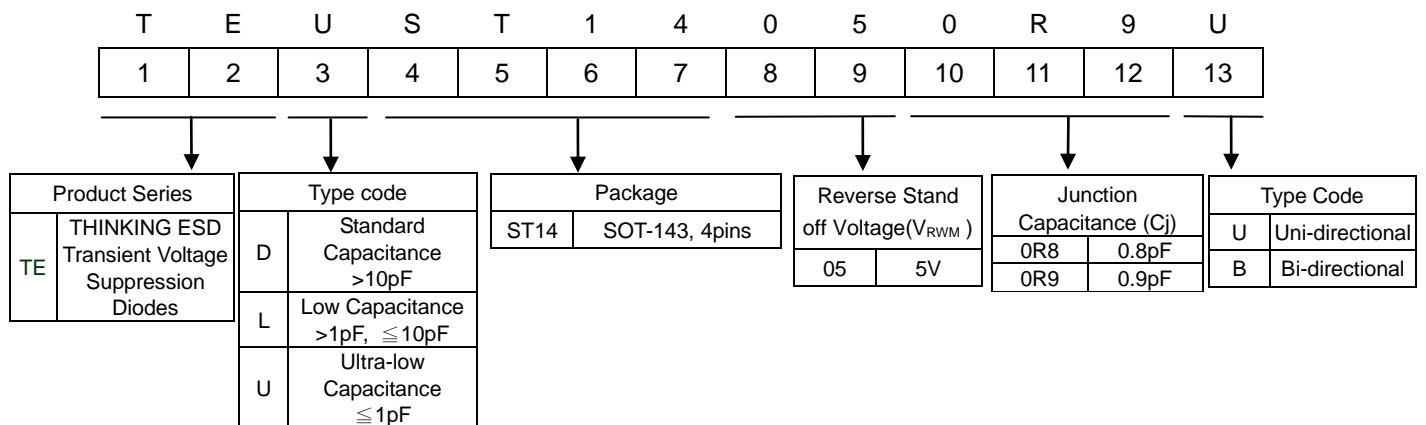
■ Recommended Applications

1. USB 1.1/2.0/OTG
2. IEEE 1394 Firewire Ports
3. Projection TV monitors and flat panel displays
4. Set top box, Projection TV

■ Mechanical Data

1. Case: SOT-143, molded plastic meets UL flammability rating 94V-0
2. Meets MSL level 1, per J-STD-020

■ Part Number Code



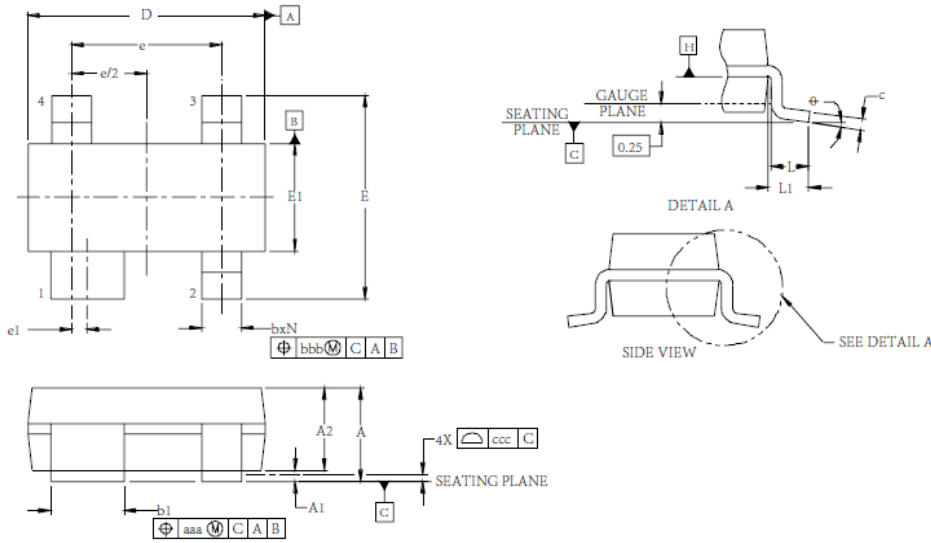
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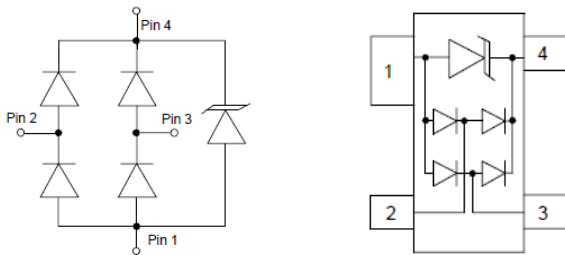
Structures and Dimensions

Unit: mm



Symbol	SOT-143		
	Min.	Nom.	Max.
A	0.80		1.22
A1	0.013	0.10	0.05
A2	0.75	0.9	1.07
b	0.30	-	0.51
b1	0.76	-	0.94
c	0.08	-	0.20
D	2.80	2.9	3.04
E	2.10	2.37	2.64
E1	1.20	1.30	1.40
e	1.92BSC		
e1	0.2BSC		
L	0.40	0.50	0.60
L1	(0.54)		
N	4.00		
θ	0°	-	8°
aaa	0.15		
bbb	0.20		
ccc	0.10		

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 (8/20 μ s)	Peak Pulse Current (8/20 μ s)	ESD (contact)	ESD (air)	Operating Temp.	Storage Temp.
	V_{RWM} (V)	I_R (μ A)				P_{PK} (W)	I_{PP} (A)	KV	KV	T_J (°C)	T_{stg} (°C)
	Max	Typ	Max	Uni/Bi							
TEUST14050R9U	5.0		1	Uni	R05	150	5	8	15	-55 to +125	-55 to +150
TEUST14050R8U	5.0	0.01	0.5	Uni	R05	100	3	\pm 25	\pm 30	-55 to +125	-55 to +150

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

TEUST14050R9U						
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			1	μA	$V_R = V_{RWM}$
Clamping Voltage	V_C			15.5	V	$I_{PP} = 1\text{A}$ (8/20 μs pulse)
				30	V	$I_{PP} = 5\text{A}$ (8/20 μs pulse)
Junction Capacitance	C_J		0.45	0.6	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O to I/O
			0.9	1.2	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O to GND

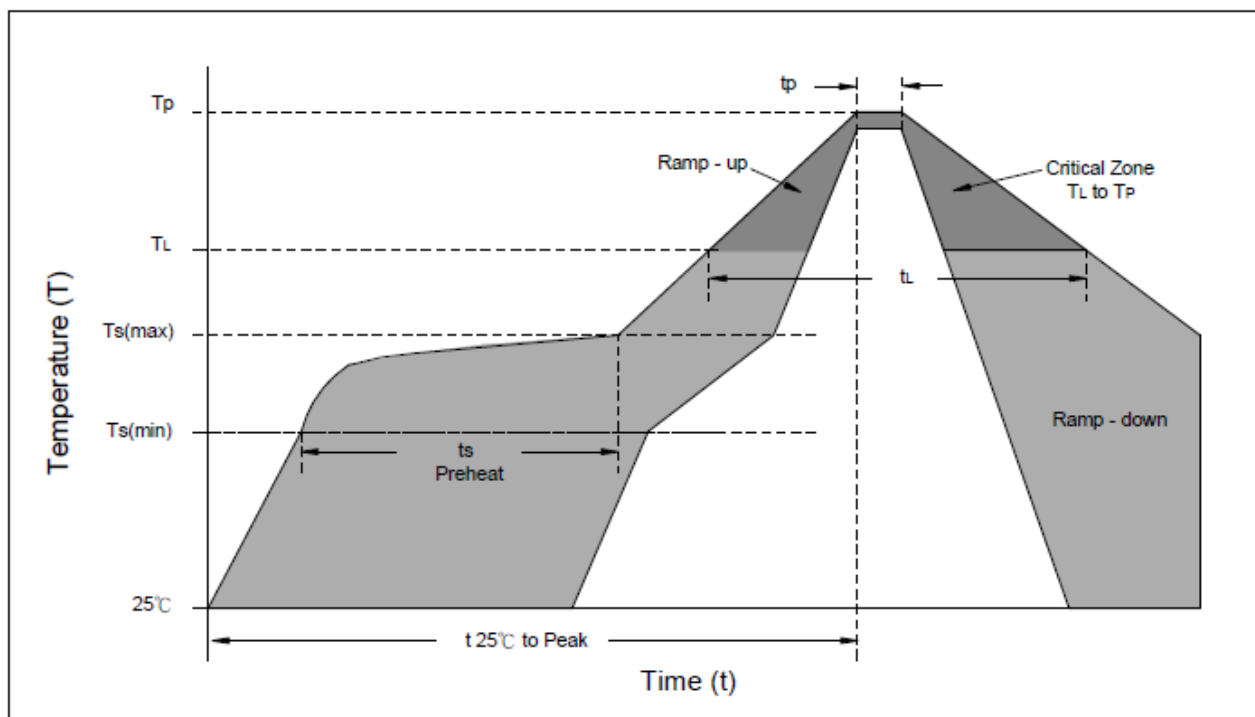
TEUST14050R8U						
Parameter	Symbol	Min	Typ.	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5.0	V	
Breakdown Voltage	V_{BR}	6.0			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R		0.01	0.5	μA	$V_R = V_{RWM}$
Clamping Voltage	V_C			15	V	$I_{PP} = 1\text{A}$ (8/20 μs pulse)
				18	V	$I_{PP} = 3\text{A}$ (8/20 μs pulse)
Junction Capacitance	C_J		0.3	0.4	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O to I/O
				0.8	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$, I/O to GND

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SOT-143 package



■ Soldering Recommendation



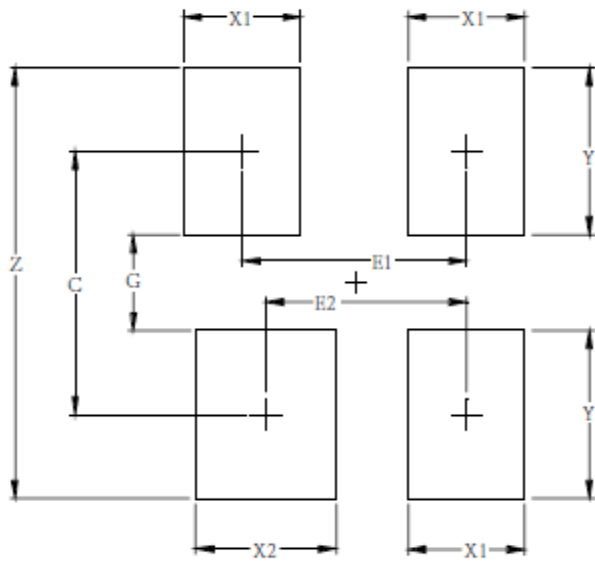
Reflow Condition	Lead-free assembly
Preheat -Temperature Min(T_s min) -Temperature Min(T_s max) -Time (min to max) (t_s)	150°C 200°C 60 – 180 seconds
Average ramp up rate -Temperature Liquidus (T_L) to peak	3°C/second max
$T_s(max)$ to T_L -Ramp-up Rate	3°C/second max.
Reflow -Temperature Liquidus (T_L)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

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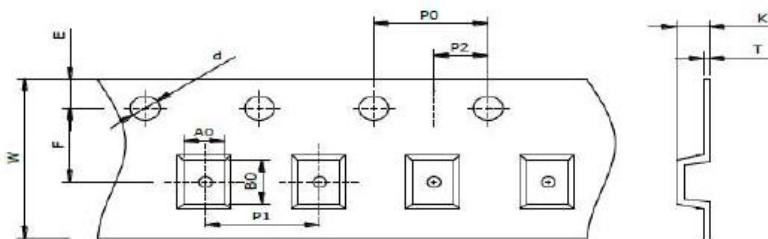
Recommended Soldering Pad Dimensions



Unit: mm

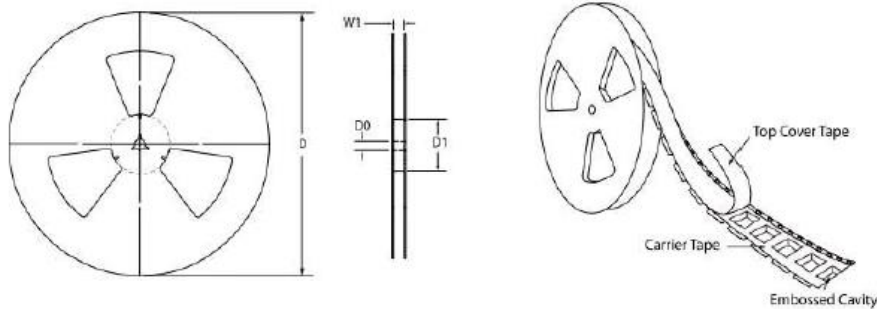
Symbol	SOT-143
C	2.2
E1	1.92
E2	1.72
G	0.8
X1	1
X2	1.2
Y	1.4
Z	3.6

Packaging



Unit: mm

Symbol	SOT-143
A0	2.60 ± 0.10
B0	3.05 ± 0.10
K	1.00 ± 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



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■ Quantity

MPQ: 3,000pcs

Package Type	Reel Size (inch)	Reel (Kpcs)
SOT-143	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.