

Description

The ST24CL is a Bi-directional TVS diode array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage. The ST24CL complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOT-323 package. It is designed to protect components which are connected to data and transmission lines from voltage surges.

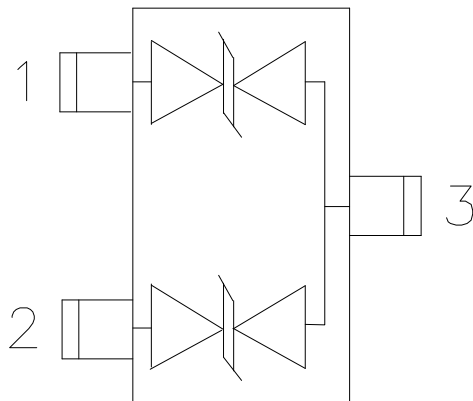
Applications

- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

Mechanical Characteristics

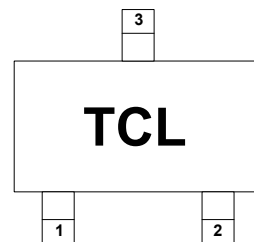
- Package: SOT-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below
- Protects two Bi-directional lines
- Ultra low leakage: nA level
- Operating voltage: 24V
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 3A (8/20 μs)
- RoHS Compliant

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



TCL= Device Marking Code

Ordering Information

Part Number	Marking	Packaging	Reel Size
ST24CL	TCL	3000/Tape & Reel	7 inch

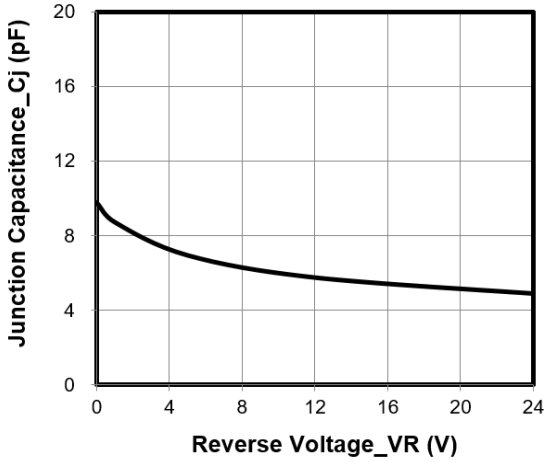
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	150	W
Peak Pulse Current (8/20 μs)	I _{PP}	3	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

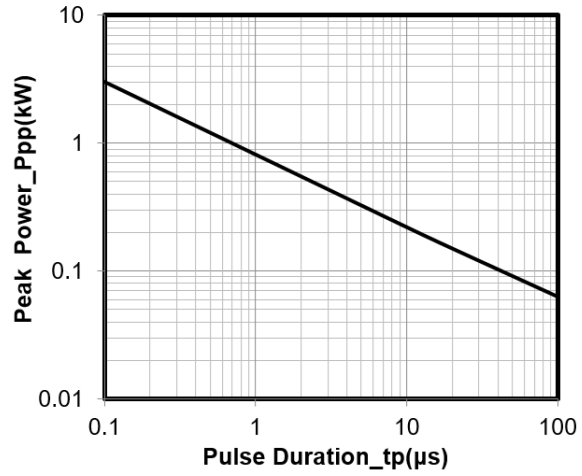
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			24	V	
Breakdown Voltage	V _{BR}	26.7			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 24V
Clamping Voltage	V _C			36	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C			50	V	I _{PP} = 3A (8 x 20 μs pulse)
Junction Capacitance	C _J		10		pF	V _R = 0V, f = 1MHz, Pin 1 to Pin 3 or Pin 2 to Pin 3
Junction Capacitance	C _J		5		pF	V _R = 0V, f = 1MHz, Pin 1 to Pin 2

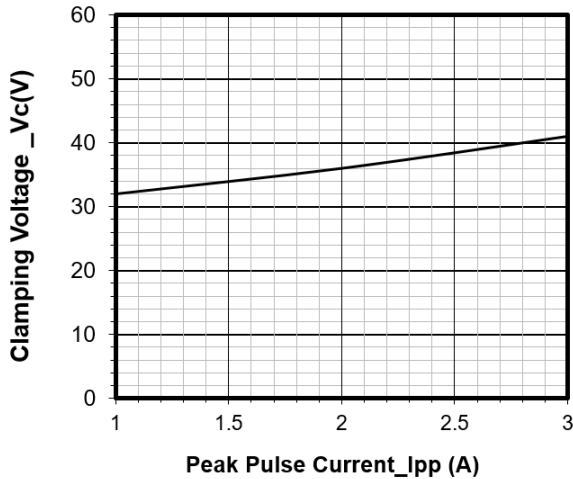
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



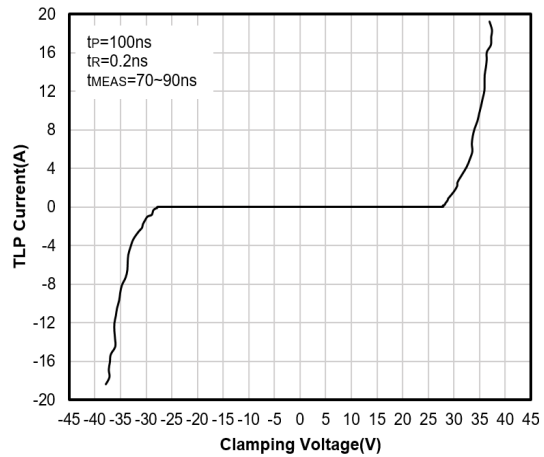
Junction Capacitance vs. Reverse Voltage



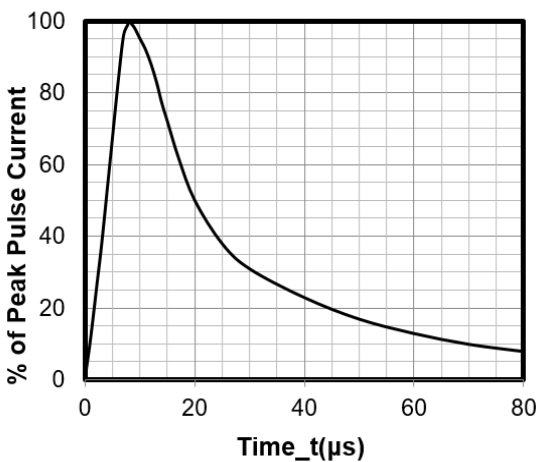
Peak Pulse Power vs. Pulse Time



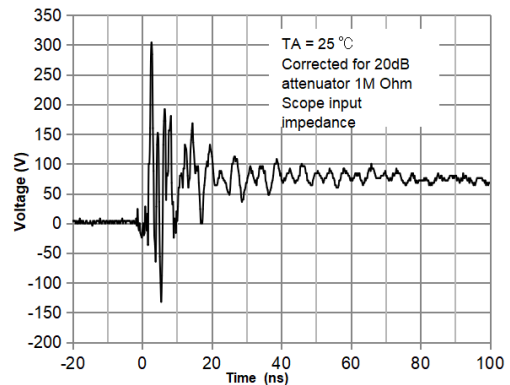
Clamping Voltage vs. Peak Pulse Current



TLP Curve



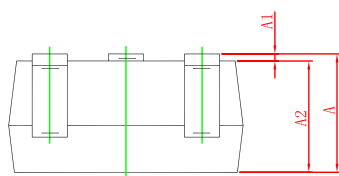
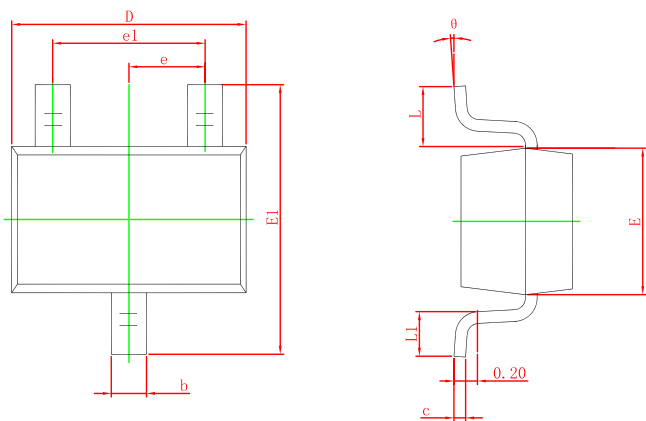
8 X 20µs Pulse Waveform



Note: Data is taken with a 10x attenuator

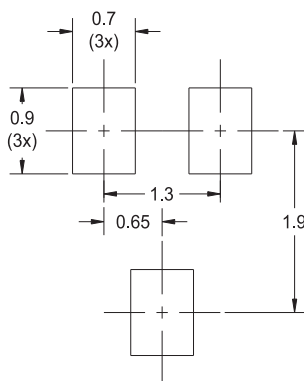
**ESD Clamping Voltage
8 kV Contact per IEC61000-4-2**

SOT-323 Package Outline Drawing



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

Suggested Land Pattern



Contact Information

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