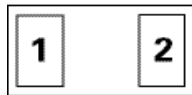# SC1205-01ETG
Bidirectional Discrete TVS Diode, General Purpose Surge Protection

HF RoHS

Note: This package image is for example and reference only. for detail package drawing, please refer to the package section in this datasheet.

Pinout

Functional Block Diagram

Description

The SC1205-01ETG bidirectional TVS is fabricated in a proprietary silicon avalanche technology. These diodes provide a high ESD (electrostatic discharge) protection level for electronic equipment. The SC1205-01ETG TVS can safely absorb repetitive ESD strikes of ±30 kV (contact and air discharge as defined in IEC 61000-4-2) without any performance degradation. In addition, it can safely dissipate a 7A 8/20μs surge event as defined in IEC 61000-4-5, 2nd Edition.

Features & Benefits

- ESD, IEC 61000-4-2, ±30kV contact, ±30kV air
- EFT, IEC 61000-4-4, 40A (5/50ns)
- Surge tolerance, IEC 61000-4-5, 2nd Edition, 7A (8/20μs)
- Low leakage current of 20nA
- (MAX) at 5V
- Halogen-free, lead-free and RoHS compliant
- Moisture Sensitivity Level (MSL -1)

Applications

- Switches / Buttons
- Test Equipment / Instrumentation
- Point-of-Sale Terminals
- Medical Equipment
- Notebooks / Desktops / Servers
- Computer Peripherals
- Battery

Littelfuse®

SC1205-01ETG
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Absolute Maximum Ratings

Symbol	Parameter	Value	Units
I_{PP}	Peak Current (t_p=8/20µs)	7	A
T_{OP}	Operating Temperature	-40 to 125	°C
T_{STOR}	Storage Temperature	-55 to 150	°C

Caution: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the component. This is a stress only rating and operation of the component at these or any other conditions above those indicated in the operational sections of this specification is not implied.

Electrical Characteristics (T_{OP}=25°C)

| Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	V_{RWM}	I_R=1µA			5	V
Breakdown Voltage	V_{BR}	I_R=1mA	5.3	5.5		V
Reverse Leakage Current	I_{LEAK}	V_R=5V		1	20	nA
Clamp Voltage[1]	V_C	I_{PP}=7A, t_p=8/20µs		10		V
Dynamic Resistance[2]	R_{DYN}	TLP, t_p=100ns		0.17		Ω
ESD Withstand Voltage[1]	V_{ESD}	IEC 61000-4-2 (Contact Discharge)	±30			kV
		IEC 61000-4-2 (Air Discharge)	±30			kV
Diode Capacitance[1]	C_{IO-GND}	Reverse Bias=5V, f=1MHz		7	9	pF

Note:

1. Parameter is guaranteed by design and/or component characterization.

2.Transmission Line Pulse (TLP) with 100ns width, 0.2ns rise time, and average window t1=70ns to t2= 90ns
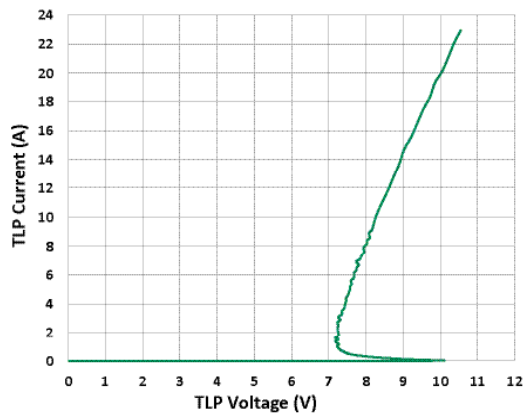
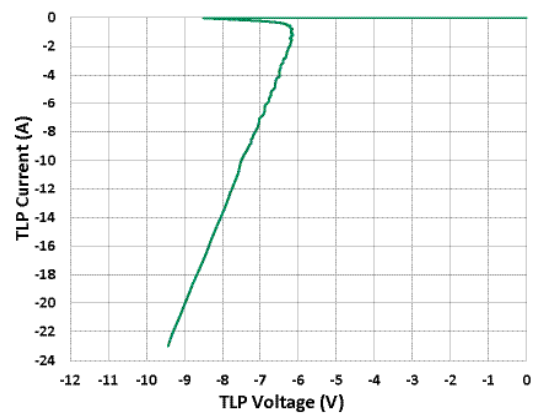### Capacitance vs Reverse Bias
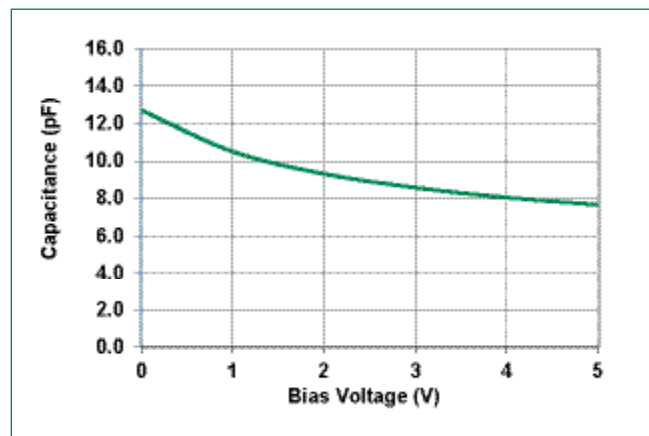
Clamping Voltage vs I_{PP}
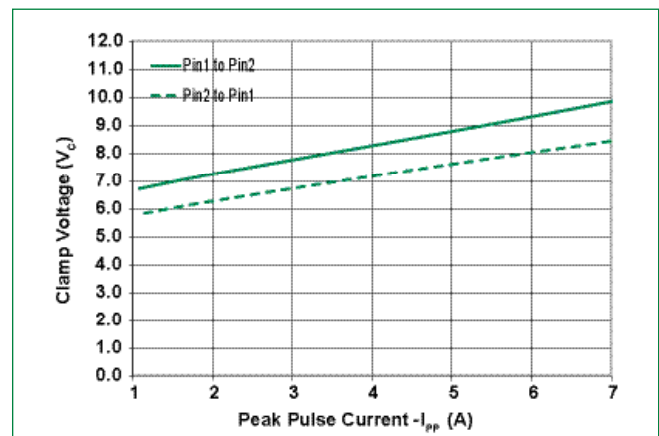
SC1205-01ETG
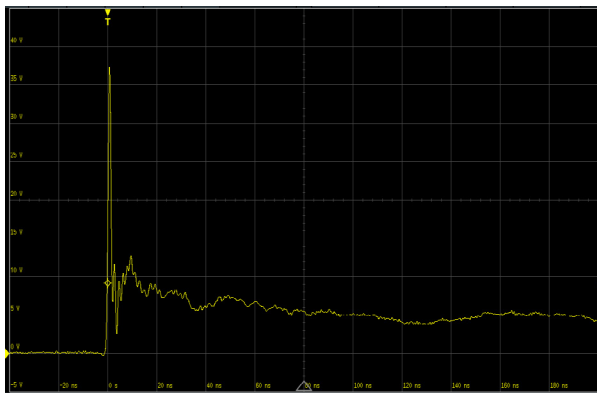## Bidirectional Discrete TVS Diode, General Purpose Surge Protection
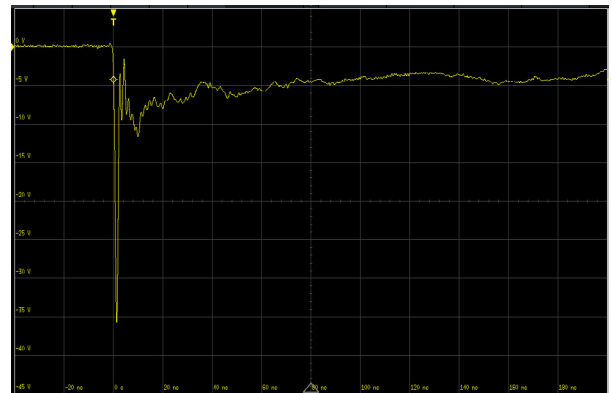
Positive Transmission Line Pulsing (TLP) Plot
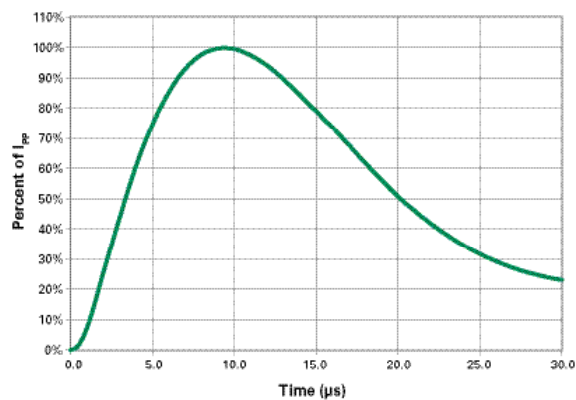

Negative Transmission Line Pulsing (TLP) Plot

IEC 61000-4-2 +8 kV Contact ESD Clamping Voltage

IEC 61000-4-2 -8 kV Contact ESD Clamping Voltage


8/20µs Pulse Waveform

SC1205-01ETG
Bidirectional Discrete TVS Diode, General Purpose Surge Protection

Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus) Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260$^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C
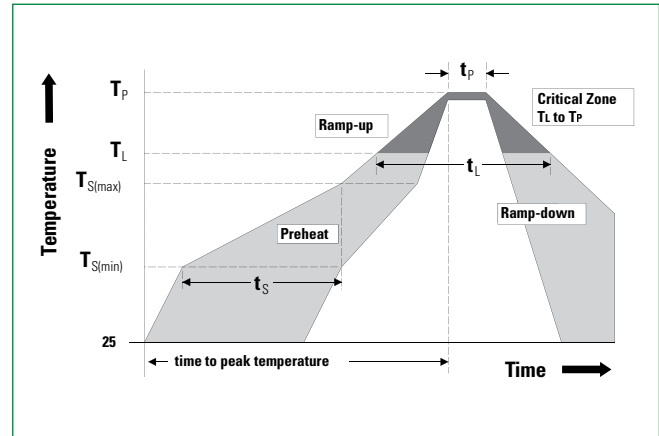
Ordering Information

Part Number	Package	Min. Order Qty.
SC1205-01ETG	SOD882	100,000

Product Characteristics

| Lead Plating	Pre-Plated Frame or Matte Tin
Lead material	Copper Alloy
Substrate Material	Silicon
Body Material	Molded Compound
Flammability	UL Recognized compound meeting flammability rating V-0

Part Marking System

Date code
Part code
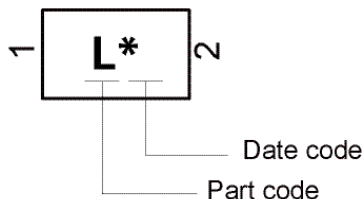
Part Numbering System

SC 1205 - 01 E T G

TVS Diode Arrays (SPA® Diodes)

Series

Number of Channels

Package E: SOD882

T= Tape & Reel

G= Green
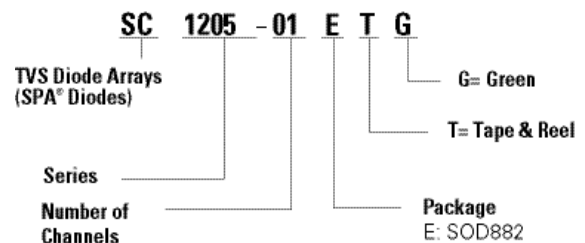
SC1205-01ETG
Bidirectional Discrete TVS Diode, General Purpose Surge Protection

Package Dimensions — SOD882

TOP VIEW

BOTTOM VIEW-1

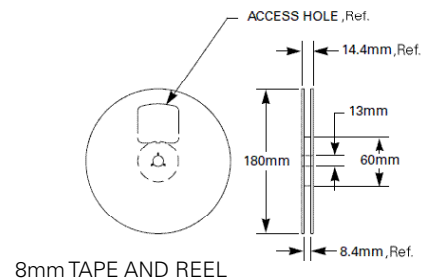SIDE VIEW

Recommended Soldering Pattern

Drawing# : E03-B
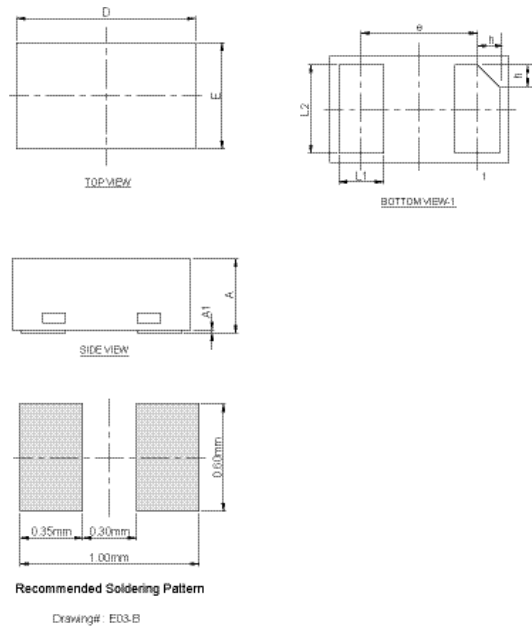
Symbol	SOD882					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	0.40	0.50	0.55	0.016	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
L1	0.20	0.25	0.30	0.008	0.010	0.012
L2	0.45	0.50	0.55	0.018	0.020	0.022
D	0.95	1.00	1.05	0.037	0.039	0.041
E	0.55	0.60	0.65	0.022	0.024	0.026
e	0.65 BSC			0.026 BSC		
h	0.07	0.12	0.17	0.003	0.005	0.007

Embossed Carrier Tape & Reel Specification — SOD882
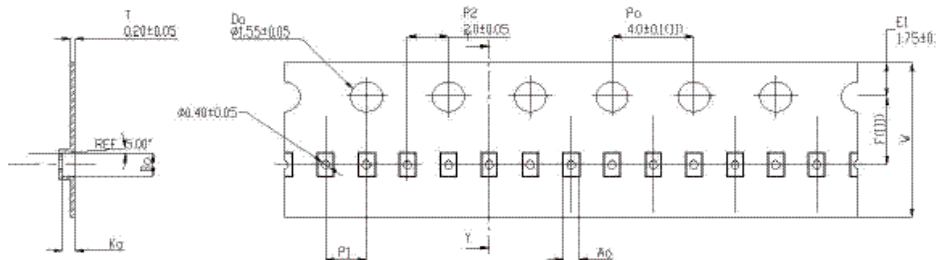
Symbol	Millimeters
A0	0.70+/-0.045
B0	1.10+/-0.045
K0	0.65+/-0.045
F	3.50+/-0.05
P1	2.00+/-0.10
W	8.00 + 0.30 -0.10

8mm TAPE AND REEL