LC03-6

Low Capacitance Array for Surge & ESD Protection

TVS diodes are ideal for use as board level protection of sensitive semiconductor components. The LC03-6 combines a TVS diode with a rectifier bridge to provide transient protection in both common and differential mode with a single device. The capacitance of the device is minimized (< 25pF) to ensure correct signal transmission on high speed lines. The LC03-6 meets the short-haul (intra-building) transient immunity requirements of Bellcore1089 for telecommunications applications.

The LC03-6 has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events),and EFT (electrical fast transients).

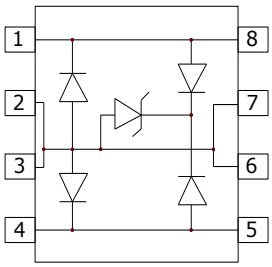
Features

- Protects two I/O lines
- 2000 watts peak pulse power (tp = 8/20μs)
- Low capacitance
- Working voltages : 6V
- Low capacitance (<25pF) for high-speed interfaces
- Integrated structure saves board space and increases reliability
- Solid-state silicon avalanche technology
- Meets MSL 1 Requirements
- ROHS compliant
- WeiPan technology

SOP-8

Main applications

- T1/E1 Line Cards
- T3/E3 and DS3 Interfaces
- STS-1 Interfaces
- ISDN S/T-Interfaces
- ISDN U-Interfaces
- 10/100 Ethernet



Protection solution to meet

- Bellcore1089 (Intra-Building) 100A (2/10μs)
- ITU K.20 IPP=40A (5/310μs)
- IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 100A (8/20μs)

Ordering Information

Device	Qty per Reel	Reel Size
WPLC03-6	2500	13 Inch

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	2000	Watts
Peak Pulse Current(tp=8/20μs waveform)	I_{PP}	100	A
ESD Rating per IEC61000-4-2： Contact Air		8 15	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

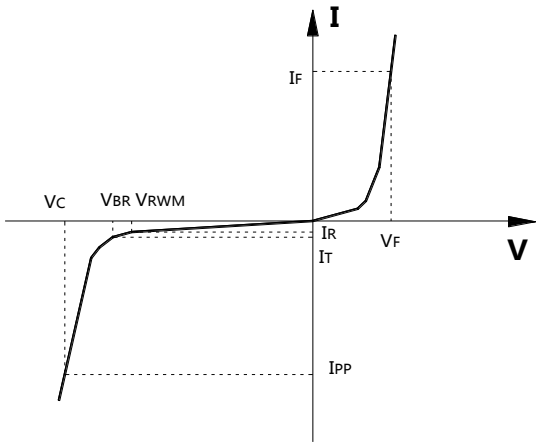
**Other voltages may be available upon request.*

1. Non-repetitive current pulse, per Figure 1.

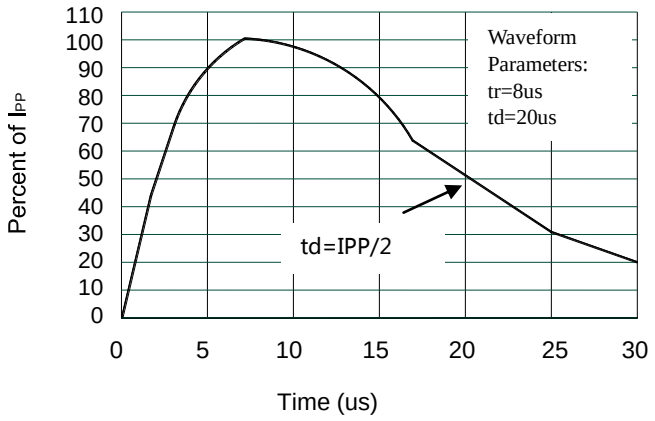
Electrical characteristics (Tamb=25℃ Unless Otherwise Specified)						
Symbol	**Parameter**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
V_{RWM}	Reverse Working Voltage	Line to Ground			6	V
V_{BR}	Reverse Breakdown Voltage	IT = 1mA, Line to Ground	6.0			V
I_R	Reverse Leakage Current	V_{RWM} = 6V, Line to Ground			25	μA
V_C	Clamping Voltage	I_{PP} = 50A, tp =8/20μs, Line to Ground			20	V
		I_{PP} = 100A, tp =8/20μs, Line to Ground			28	V
I_{PP}	Peak Pulse Current	tp =8/20μs			100	A
C_J	Junction Capacitance	V_R = 0V, f = 1MHz, between I/O pins		8	12	pF
		V_R = 0V, f = 1MHz, any I/O pin to Ground		16	25	pF

Junction capacitance is measured in VR=0V,F=1MHz

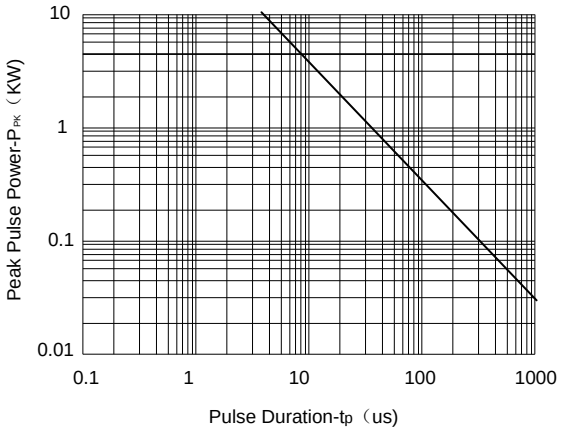
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



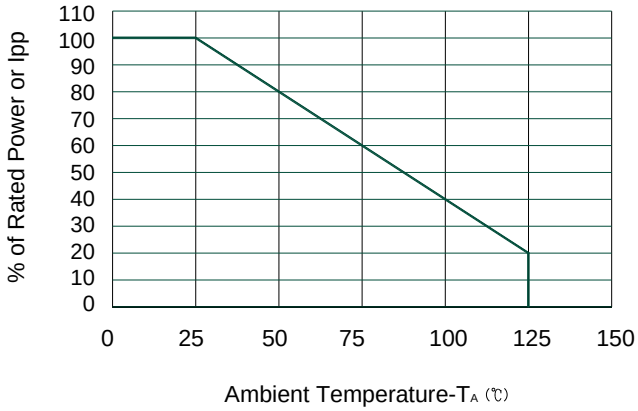
Typical electrical characterist applications



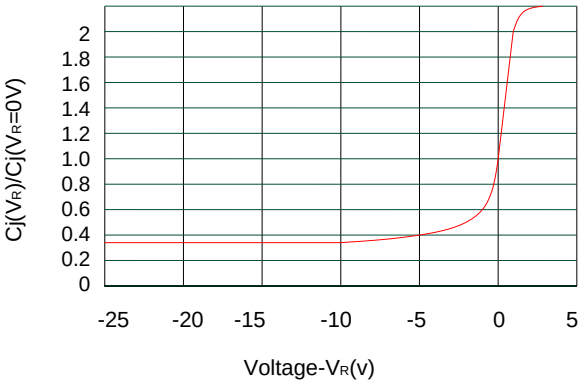
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



Junction Capacitance vs. Reverse Voltage

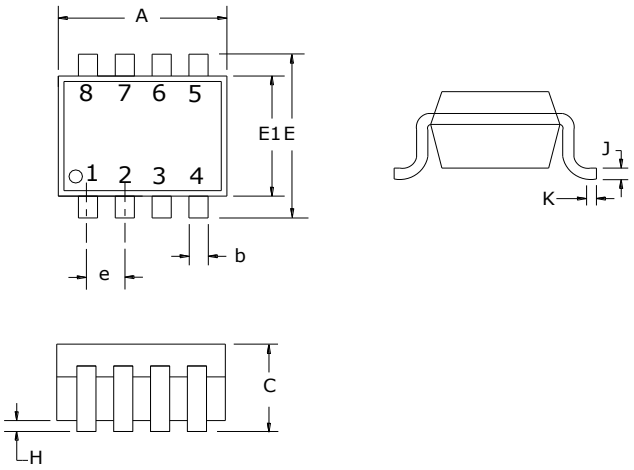
Package Information

SOP-8

Mechanical Data

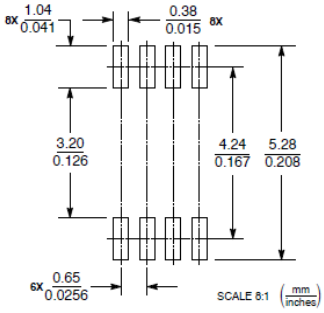
Case: SOP-8

Case Material: Molded Plastic. UL Flammability

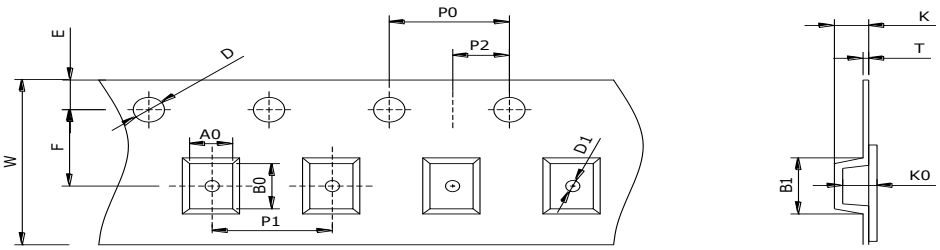


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	4.80	5.00	0.189	0.197
E	6.00(BSC)		0.236(BSC)	
E1	3.80	4.00	0.150	0.157
b	0.33	0.51	0.013	0.020
C	1.35	1.75	0.053	0.069
J	0.17	0.25	0.007	0.010
e	1.27(BSC)		0.05(BSC)	
K	0.40	1.27	0.016	0.050
H	0.10	0.25	0.004	0.010

Recommended Pad outline



SOP-8 Reel Dim



Package	Chip Size (mm)	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SOP-8	6.0×5.0×1.50	6.20×5.20×1.70	12mm	330mm(13")	2500	8mm	8mm
D0	D1	E	F	K	T	W	
1.5mm	1.5mm	1.75mm	5.0mm	1.55mm	0.20mm	12mm	