LC03-3.3

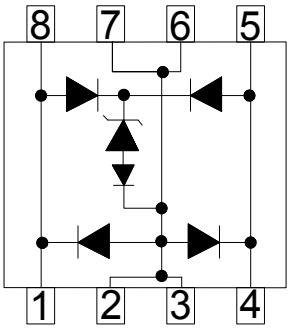
Low Capacitance Array for Surge & ESD Protection

LC03-3.3 transient voltage suppressor is designed to protect components which are connected to high speed telecommunication lines from voltage surges caused by lightning, electrostatic discharge (ESD), cable discharge events (CDE), and electrical fast transients (EFT).

Features

- 1800 watts peak pulse power (tp = 8/20μs)
- Protects two I/O lines
- Low capacitance
- Working voltages : 3.3V
- 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

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

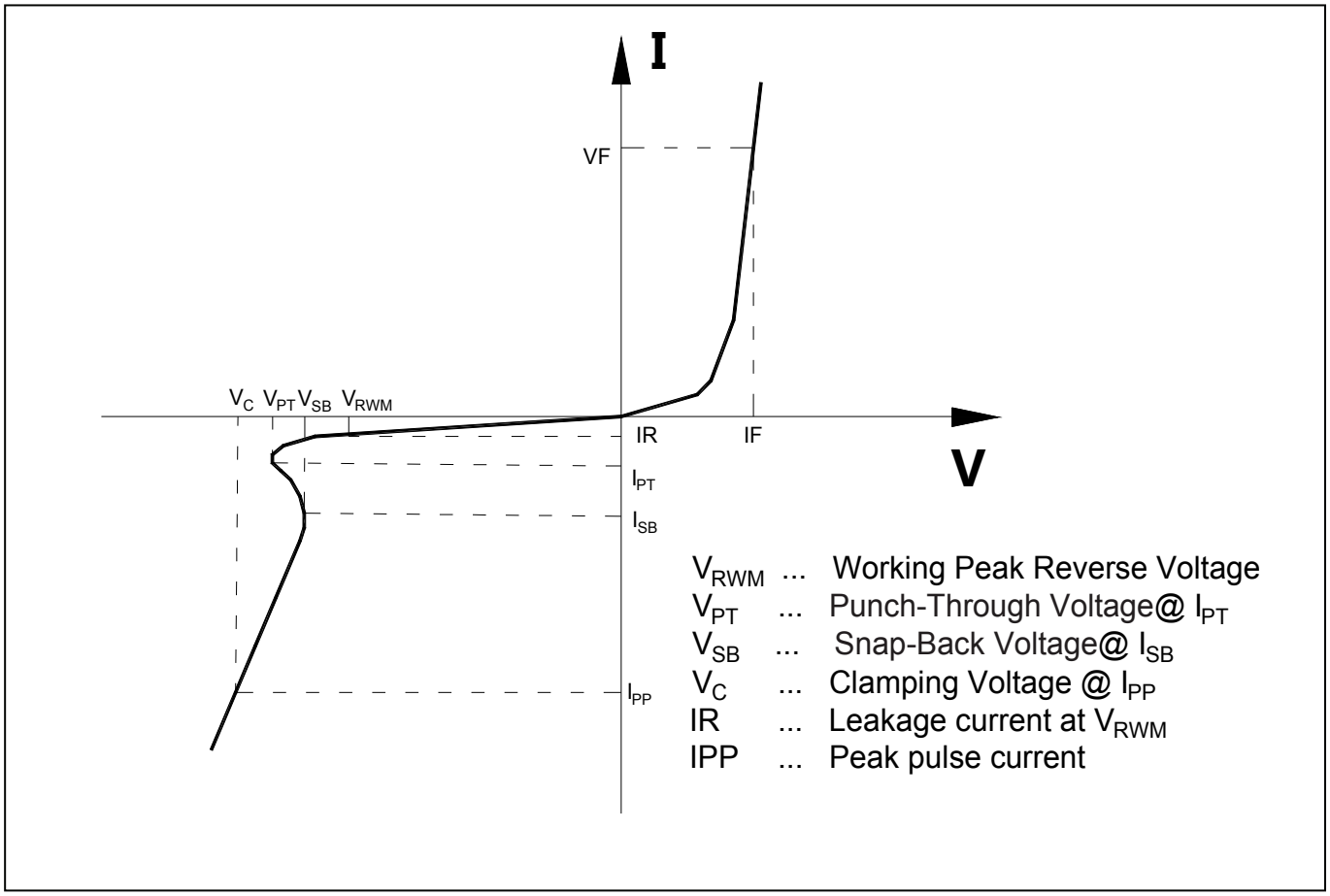
- Bellcore1089 (Intra-Building) 100A (2/10μs)
- ITU K.20 IPP=40A (5/310μs)
- IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 100A (8/20μs)

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{PK}	1800	Watts
Peak Pulse Current(tp=8/20μs waveform)	IPP	100	A
ESD Rating per IEC61000-4-2（Contact） ESD Rating per IEC61000-4-2（Air）	V_{ESD}	30 30	KV
Lead Soldering Temperature	TL	260 (10 sec.)	℃
Operating Temperature Range	TJ	-55 ~ 150	℃
Storage Temperature Range	TSTG	-55 ~ 150	℃

Attention: Stresses above the max. values listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the integrated circuit.

Electrical Characteristics at TA = 25 °C, unless otherwise specified



Electrical characteristics (Tamb=25℃ Unless Otherwise Specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VRWM	Reverse Working Voltage				3.3	V
VPT	Punch-Through Voltage	IPT = 2μA	3.5			V
VSB	Snap-Back Voltage	ISB = 50mA	2.8			
IR	Reverse Leakage Current	V_{RWM} = 3.3V, Line to Ground			1	μA
VC	Clamping Voltage	IF = 15mA		0.85	1.2	V
		I_{PP} = 50A, tp =8/20μs, Line to Ground			15.5	V
		I_{PP} = 100A, tp =8/20μs, Line to Ground			20	V
		V_R = 0V, f = 1MHz, between I/O pins		8	15	V
CJ	Junction Capacitance	VR = 0V, f = 1MHz, any I/O pin to Ground		16	25	pF

Typical Characteristics at TA = 25 °C, unless otherwise specified

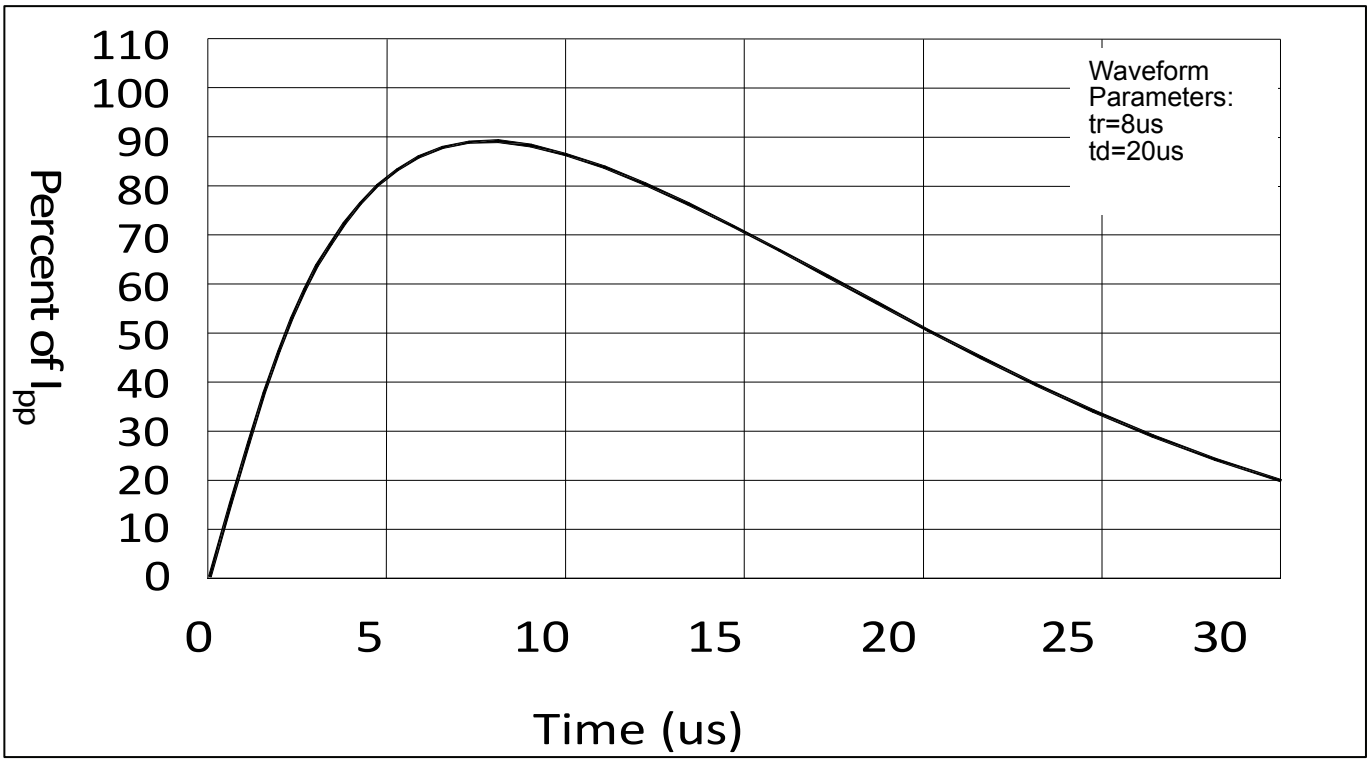


Figure 4-1 Pulse Waveform

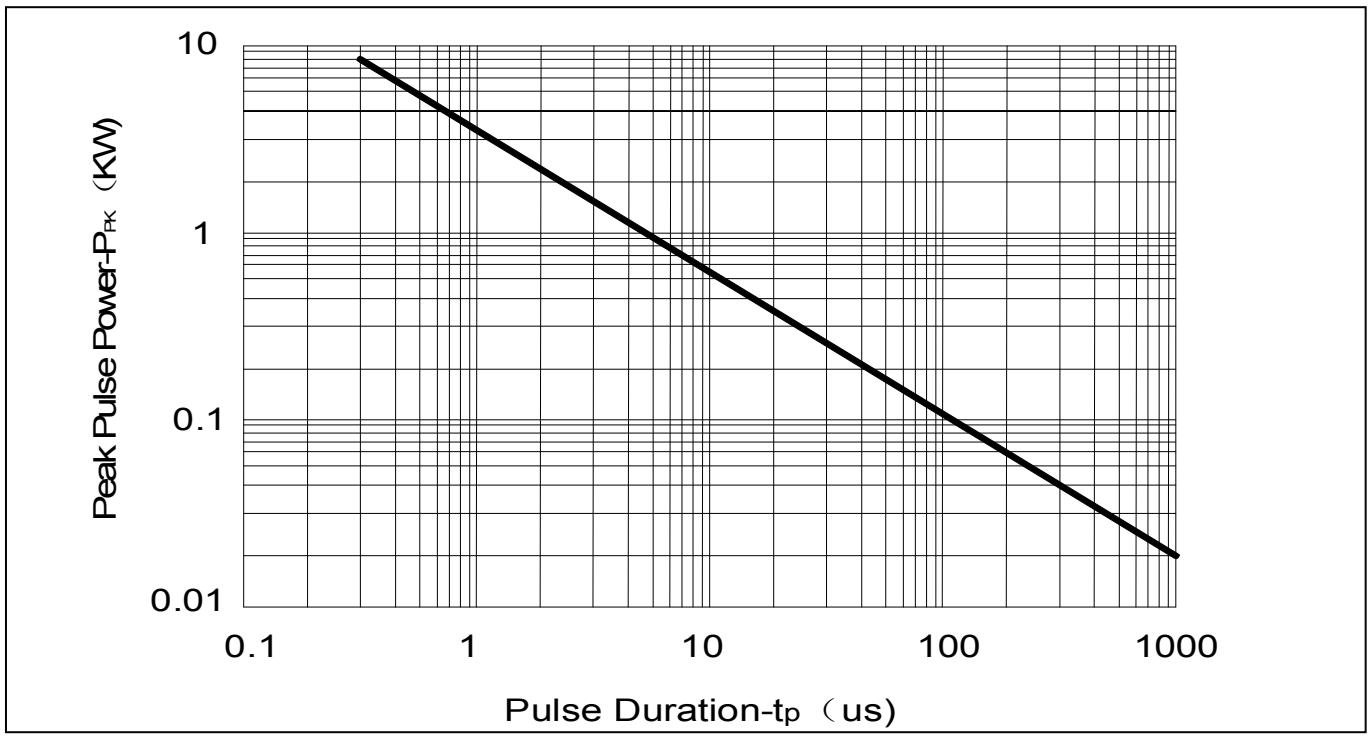


Figure 4-2 Non-Repetitive Peak Pulse Power vs. Pulse Time

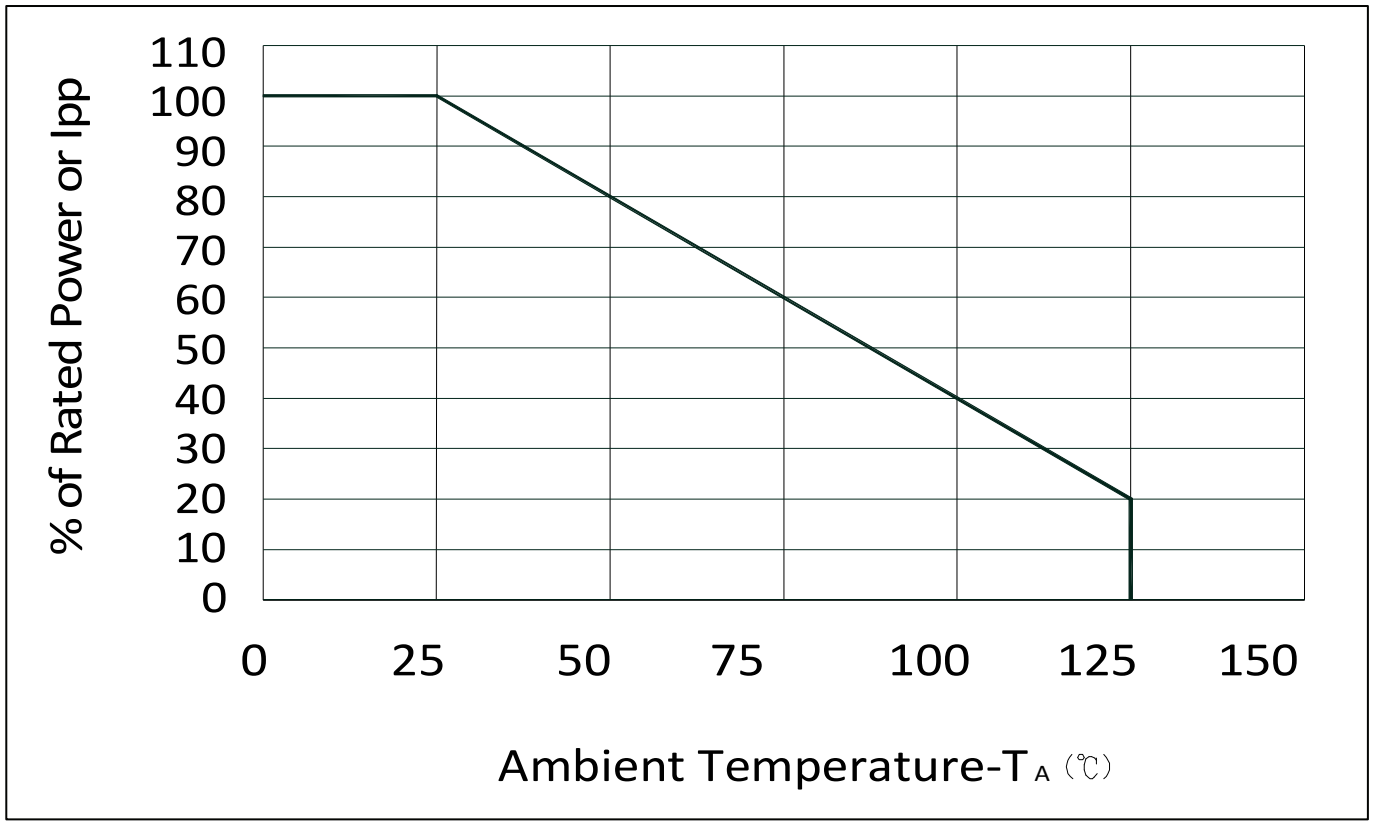


Figure 4-3 Power Derating Curve

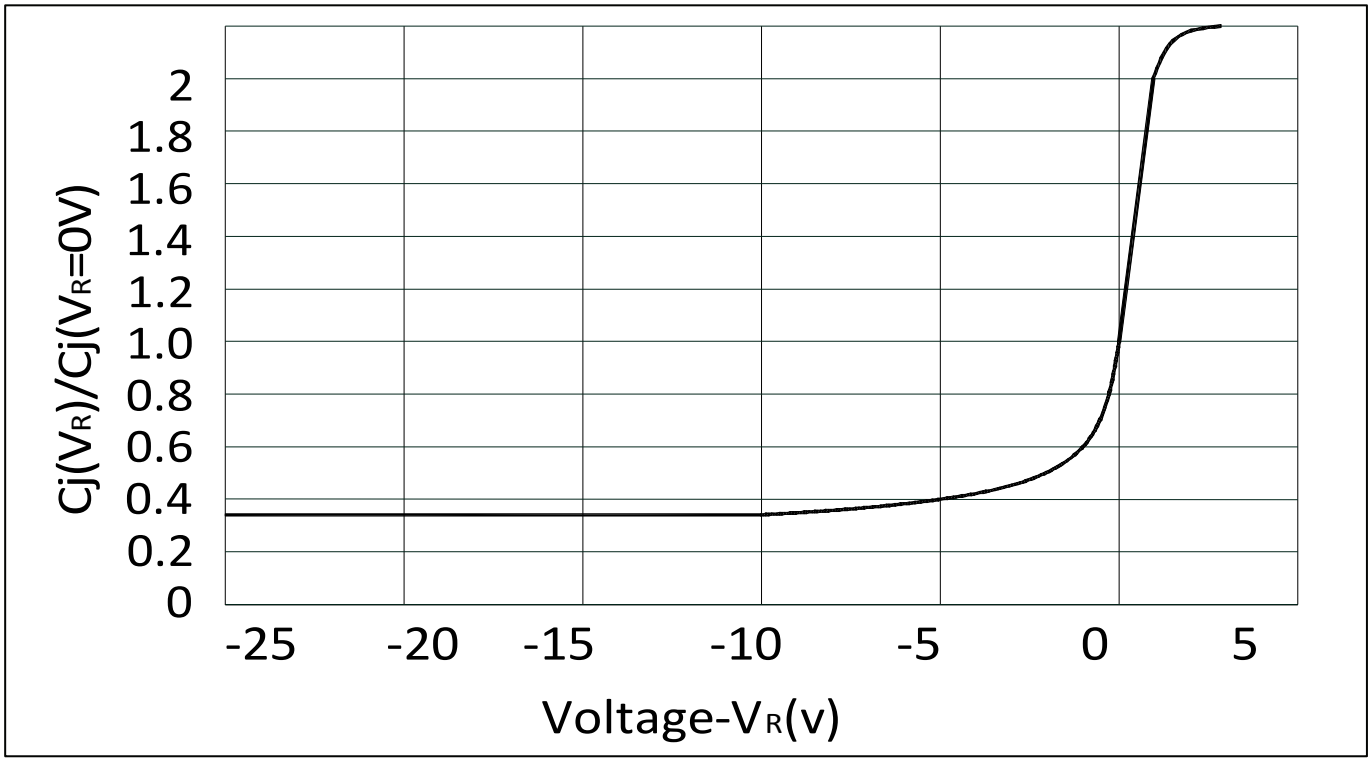
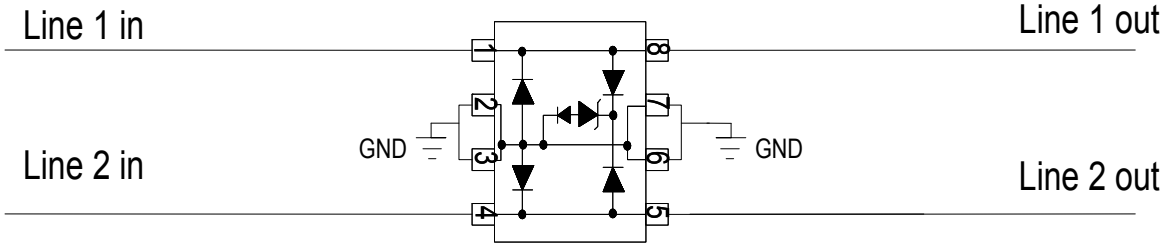


Figure 4-4 Junction Capacitance vs. Reverse Voltage

Application Information

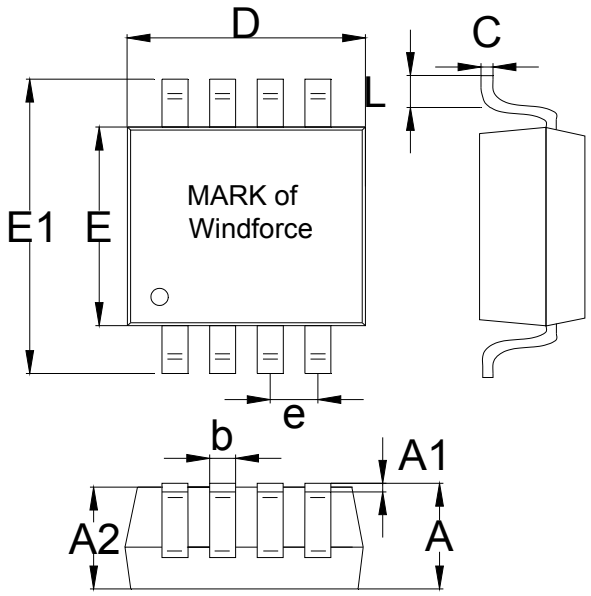


The protection device should be placed very close to the location
where the ESD or other transients can occur to keep loops and inductances as small as possible .
Pin 1 and Pin 8 (or pin 4 and Pin5) should be connected directly to a ground plane on the board .

NOTE: Connection for Differential (Line-to-Line) and Common Mode Protection (Line-to-Ground)

Mechanical Data

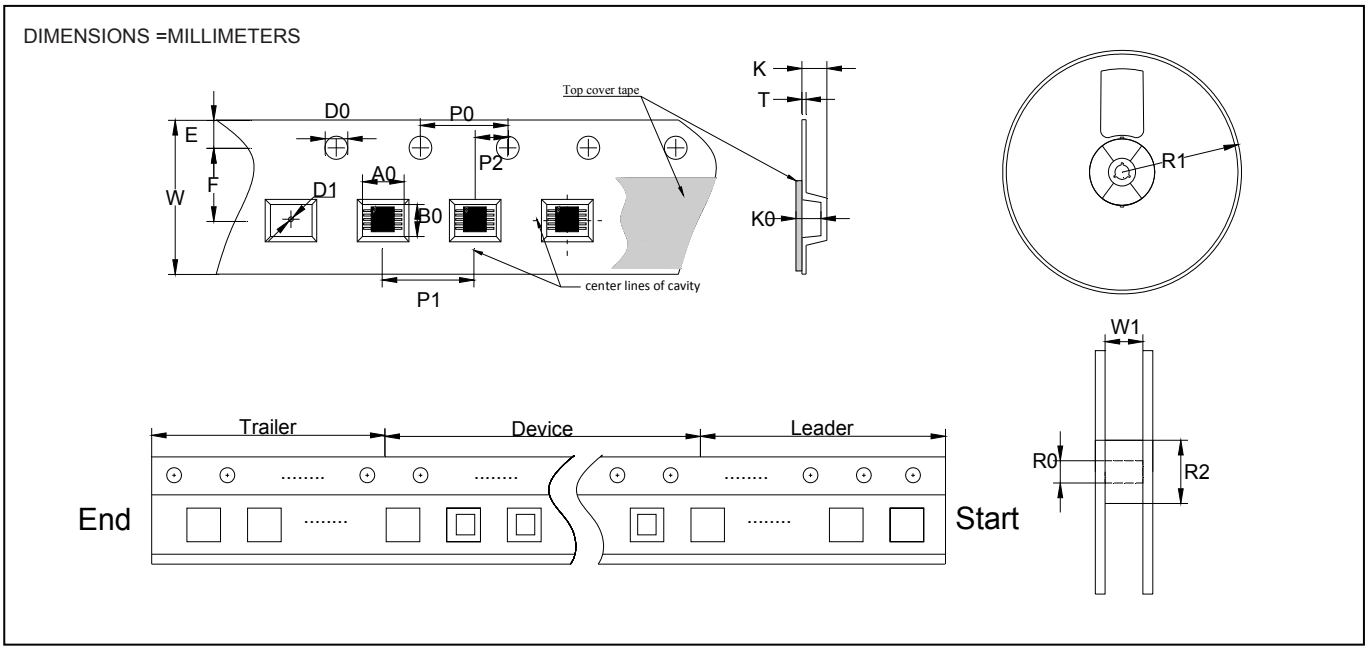
SOP-8



DIM	Millimeters	
	Min	Max
A	1.35	1.75
A1	0.100	0.250
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.7	5.1
E	3.8	4.0
E1	5.8	6.2
e	1.27(BSC)	
L	0.40	1.27

This is a molded SOP-8 package with lead free 100 % Sn plating on the lead frame.
It has a flammability rating of UL 94V-0.

Packaging



The LEADER is a minimum of 20components in length and it consists of empty cavities with sealed cover tape
The TRAILER is a minimum of 20 components in length and it consists of empty cavities with sealed cover tape.
Pin one towards sprocket hole

Item	Symbol	SOP-8
Carrier Width	A0	6.30±0.10
Carrier Length	B0	5.20±0.10
Carrier Depth	K0	1.85±0.10
Sprocket Hole	D0	1.50±0.05
Feed Hole Diameter	R0	13±0.20
Reel Outside Diameter	R1	178
Reel Inner Diameter	R2	50 MIN
Sprocket Hole Position	E	1.75±0.10
Punch Hole Position	F	3.50±0.05
Punch Hole Pitch	P1	4.00±0.10
Sprocket Hole Pitch	P0	4.00±0.10
Embossment Center	P2	2.00±0.05
Overall Tape Thickness	T	0.20
Tape Width	W	8±0.20
Reel Width	W1	14.4 MAX
Quantity per Reel		500

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Attention please!
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