

ESD Protection Diode

Description

EPDLC08CI a 8V bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The EPDLC08CI has a low capacitance with a typical value at 1pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make EPDLC08CI an ideal choice to protect cell phone, wireless systems, and communication equipment.

Features

- ◆ Ultra low capacitance : 1.0pF typical
- ◆ Ultra low leakage: nA level
- ◆ Low Operating: 8V
- ◆ Low clamping voltage
- ◆ Protects one power line or data line
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ RoHS Compliant
- ◆ AEC-Q101 qualified (Automotive grade with suffix "Q").

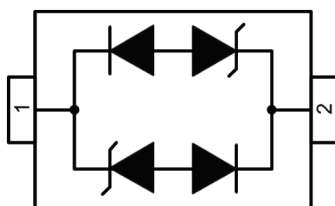
Mechanical Characteristics

- ◆ Package: SOD-323
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below
- ◆ Marking Information: See Below

Applications

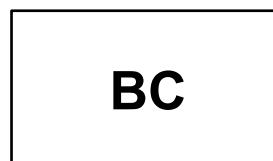
- ◆ USB Ports
- ◆ Smart Phones
- ◆ Wireless Systems

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



BC = Device Marking Code

Ordering Information

Part Number	Marking	Packaging	Reel Size
EPDLC08CI	BC	3000/Tape & Reel	7 inch

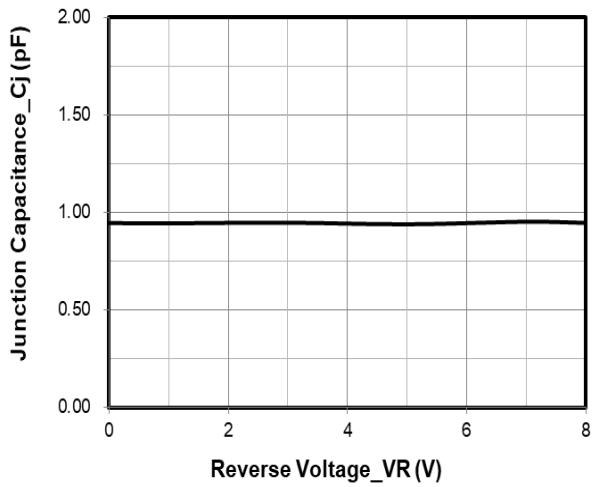
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Operating Temperature Range	T _J	-40 to +85	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

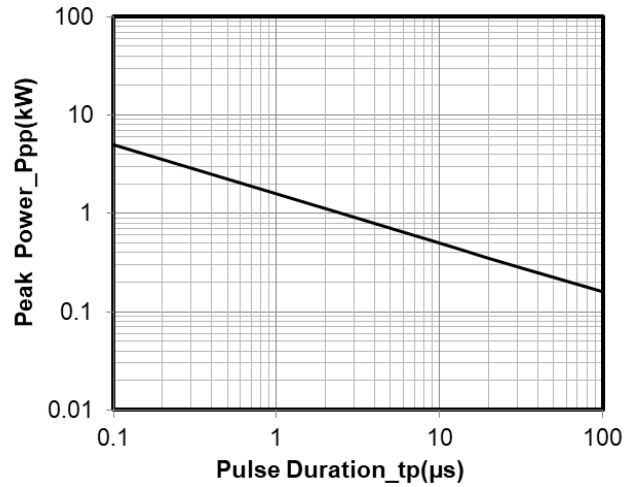
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			8	V	
Breakdown Voltage	V _{BR}	8.5			V	I _T = 1mA
Reverse Leakage Current	I _R			100	nA	V _{RWM} = 8V
Clamping Voltage	V _C			13	V	I _{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V _C			15	V	I _{PP} = 8A (8 x 20μs pulse)
Clamping Voltage	V _C			20	V	I _{PP} = 17A (8 x 20μs pulse)
Peak Pulse Current	I _{PP}			17	A	t _p =8/20μs
Junction Capacitance	C _J		1.0		pF	V _R = 0V, f = 1MHz

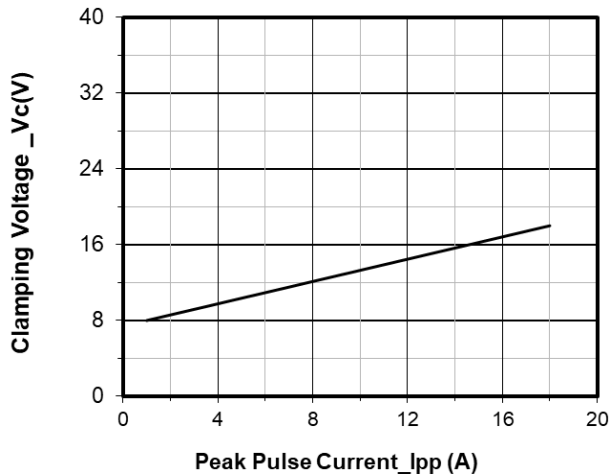
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



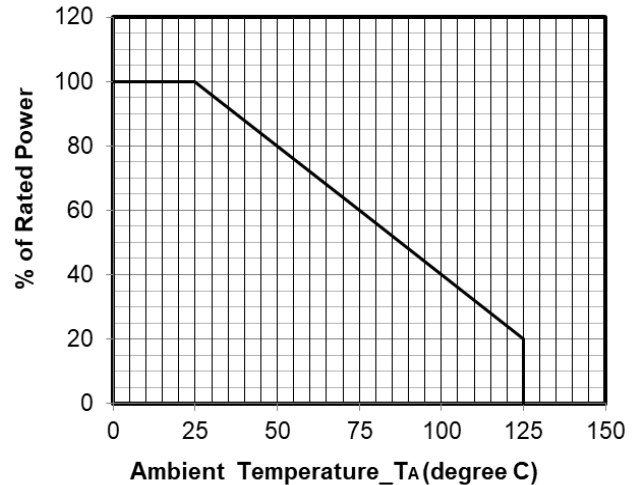
Junction Capacitance vs. Reverse Voltage



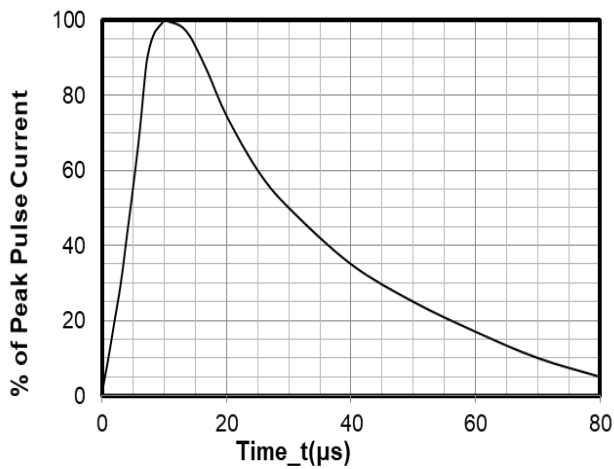
Peak Pulse Power vs. Pulse Time



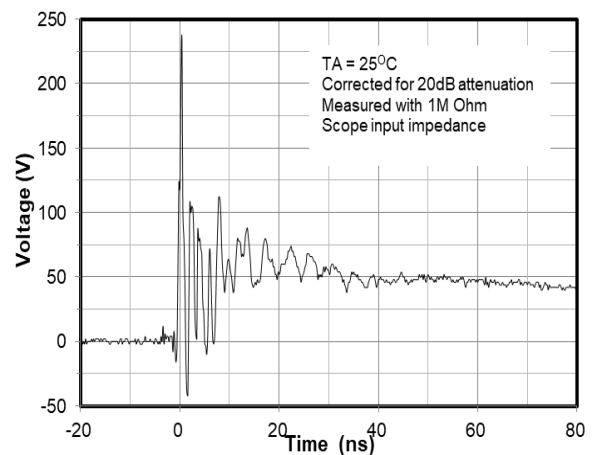
Clamping Voltage vs. Peak Pulse Current



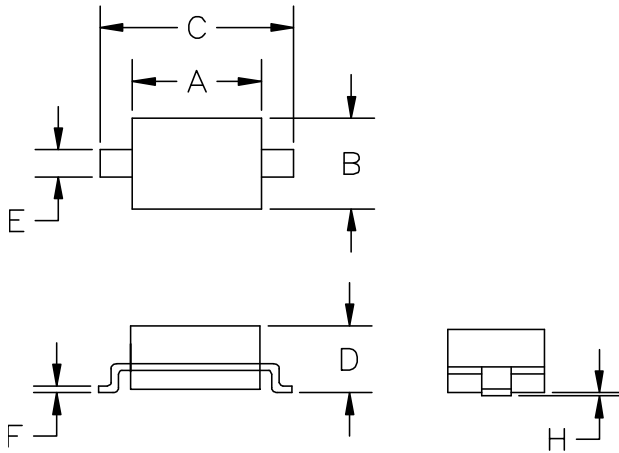
Power Derating Curve



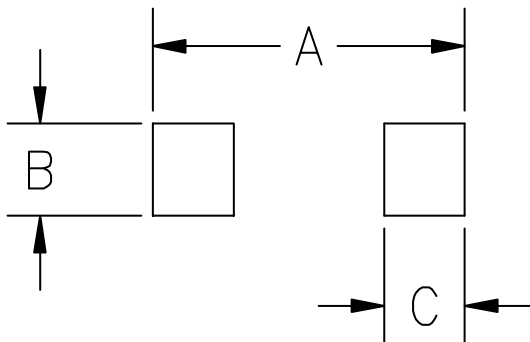
8 X 20μS Pulse Waveform



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

SOD-323 Package Outline Drawing

SYM	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

Suggested Land Pattern

SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031