

## Product Summary

<b>V<sub>BR min</sub></b>	<b>I<sub>pp max</sub></b>	<b>C<sub>IN typ</sub></b>
13.3V	10A	0.6pF

## Description

The DBLC12CI is an ultra-low capacitance, bidirectional, Electro Static Discharge (ESD) protection diode in a small Surface-Mounted Device (SMD) plastic package designed to protect one data line from damage caused by ESD.

## Applications

- Ethernet – 10/100/1000 base T
- Handheld wireless systems
- USB interfaces

## Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±27kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

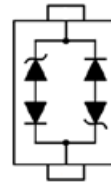
## Mechanical Data

- Package: SOD323
- Package Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.004 grams (Approximate)

SOD323



Top View



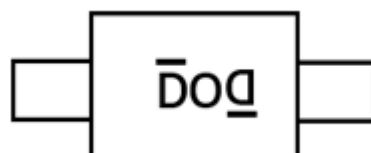
Device Schematic

## Ordering Information (Note 4)

Product	Compliance	Marking	Reel size(inches)	Tape width(mm)	Quantity per reel
DBLC12CI-7	Commercial	DOQ	7	8	3,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



DOQ = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	350	W	8/20μs, Per Figure 3
Peak Pulse Current	I <sub>PP</sub>	10	A	8/20μs, Per Figure 3
ESD Protection – Contact Discharge	V <sub>ESD_Contact</sub>	±27	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V <sub>ESD_Air</sub>	±30	kV	Standard IEC 61000-4-2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	500	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C
Soldering Temperature, t max =10s	T <sub>L</sub>	260	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	V <sub>RWM</sub>	—	—	12	V	—
Reverse Current (Note 5)	I <sub>R</sub>	—	—	1	μA	V <sub>R</sub> = V <sub>RWM</sub> = 12V
Reverse Breakdown Voltage	V <sub>BR</sub>	13.3	—	—	V	I <sub>R</sub> = 1mA
Reverse Clamping Voltage	V <sub>CL</sub>	—	—	23	V	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs
		—	—	35		I <sub>PP</sub> = 10A, t <sub>p</sub> = 8/20μs
Capacitance	C <sub>T</sub>	—	0.6	0.7	pF	V <sub>R</sub> = 0V, f = 1MHz

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown in Diodes Incorporated's package outline PDFs, which can be found on our website at <http://www.diodes.com/package-outlines.html>.  
 6. Short duration pulse test used to minimize self-heating effect.

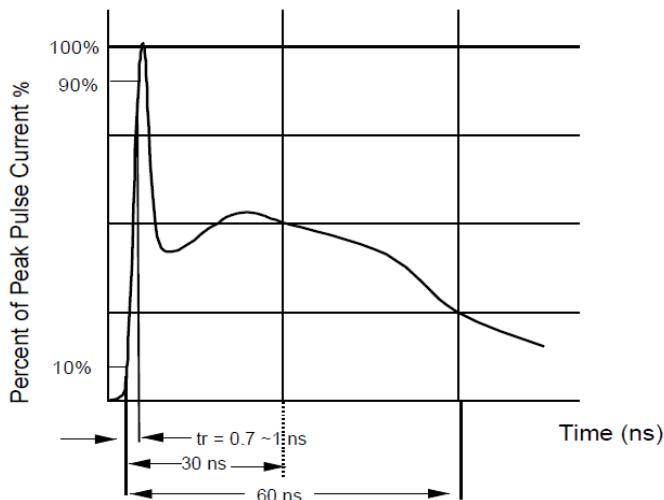


Figure 1, ESD pulse waveform according to IEC 61000-4-2

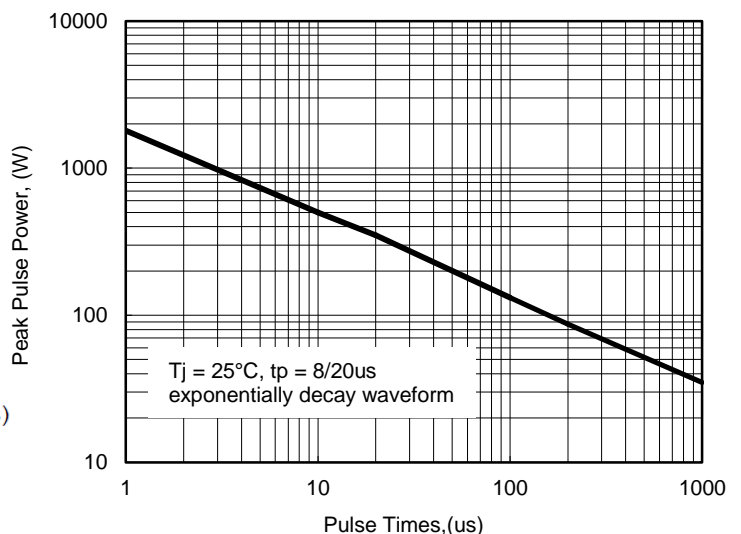


Figure 2, power dissipation versus pulse time

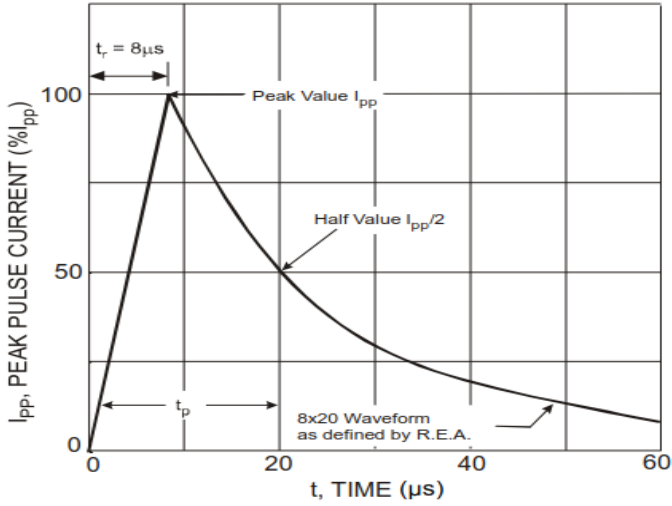


Figure 3, typical 8 x 20µs pulse waveform

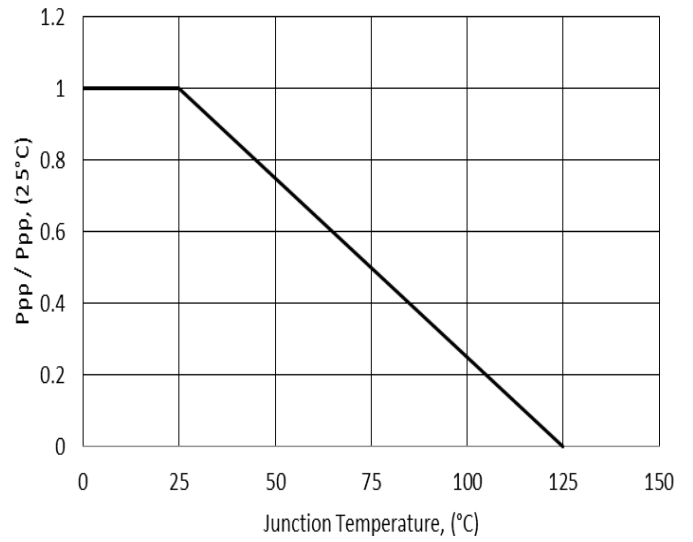


Figure 4, peak pulse power versus Tj

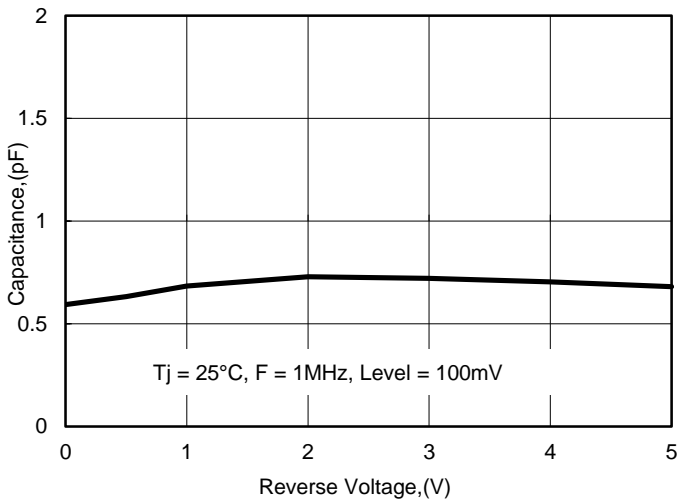


Figure 5, typical junction capacitance

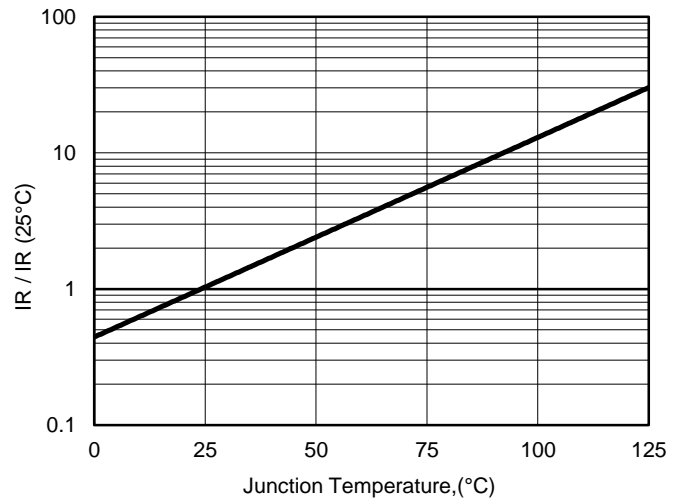


Figure 6, reverse leakage current versus Tj

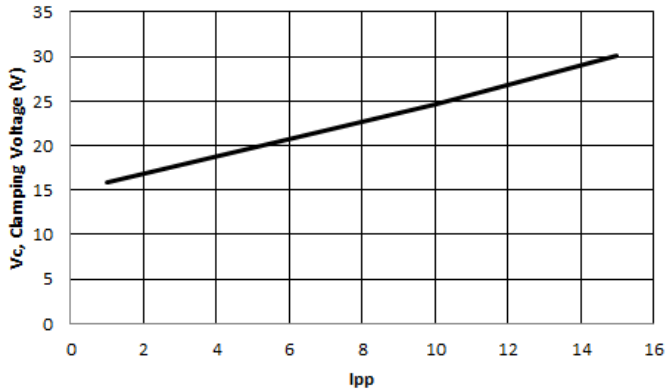
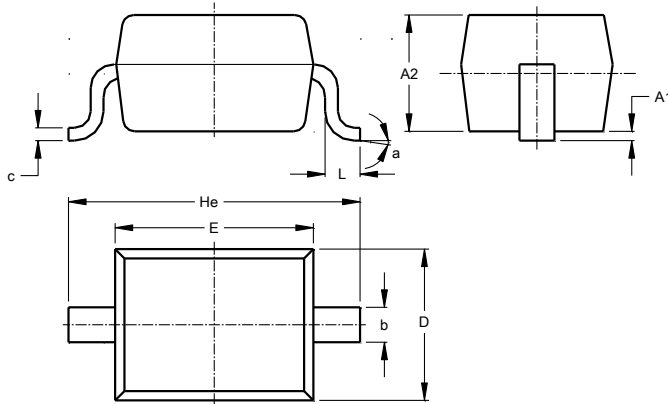


Figure 7, Clamping Voltage Characteristic (tp=8/20µs)

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD323**

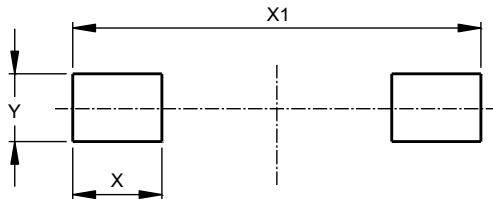


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOD323**



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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