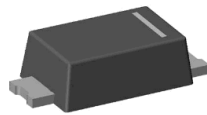


## Features

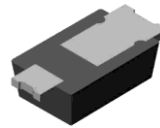
- Planar Die Construction
- Ultra-Small Surface Mount Package (PowerDI<sup>®</sup>)
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: PowerDI323 (Type B)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 <sup>(e3)</sup>
- Polarity: Cathode Band
- Marking Information: See Below
- Ordering Information: See Below
- Weight: 0.005 grams (Approximate)



Top View



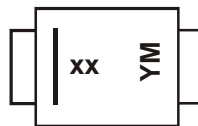
Bottom View

## Ordering Information (Note 4)

Device	Packaging	Shipping
(Type Number)-7*	PowerDI323 (Type B)	3000/Tape & Reel

- Note:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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. Package type was changed from PowerDI323 to PowerDI323 (Type B) since date code 1643.
- \*Add "-7" to the appropriate type number in Electrical Characteristics Table from Page 2. Example: 6.2V Zener = PD3Z284C6V2-7.

## Marking Information



xx = Product Type Marking Code  
(See Electrical Characteristics Table)  
YM = Date Code Marking  
Y = Year (ex. D = 2016)  
M = Month (ex. 9 = September)

### Date Code Key

Year	2006	2007	2008	...	2016	2017	2018	2019	2020	2021
Code	T	U	V	...	D	E	F	G	H	I

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Characteristic	Symbol	Value	Unit
Forward Voltage @ I <sub>F</sub> = 10mA @ I <sub>F</sub> = 100mA	V <sub>F</sub>	0.9 1.1	V

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	500	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	250	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

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

Type Number	Marking Code	Zener Voltage Range (Note 6)				Maximum Zener Impedance (Note 7)			Maximum Reverse Current (Note 6)		Temperature Coefficient of Zener Voltage @ I <sub>ZT</sub> = 5mA mV/°C	
		V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>	I <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>	Min	Max
		Nom (V)	Min (V)	Max (V)	(mA)	Ω	mA	μA	V			
PD3Z284C2V4	06	2.4	2.20	2.60	5	100	400	1.0	50	1.0	-3.5	0
PD3Z284C2V7	08	2.7	2.5	2.9	5	100	450	1.0	20	1.0	-3.5	0
PD3Z284C3V0	0A	3.0	2.8	3.2	5	95	500	1.0	10	1.0	-3.5	0
PD3Z284C3V3	0B	3.3	3.1	3.5	5	95	500	1.0	5	1.0	-3.5	0
PD3Z284C3V6	0C	3.6	3.4	3.8	5	90	500	1.0	5	1.0	-3.5	0
PD3Z284C3V9	0D	3.9	3.7	4.1	5	90	500	1.0	3	1.0	-3.5	0
PD3Z284C4V3	0E	4.3	4.0	4.6	5	90	600	1.0	3	1.0	-3.5	0
PD3Z284C4V7	0F	4.7	4.4	5.0	5	80	500	1.0	3	2.0	-3.5	0.2
PD3Z284C5V1	Z0G, 0G	5.1	4.8	5.4	5	60	480	1.0	2	2.0	-2.7	1.2
PD3Z284C5V6	Z0H, 0H	5.6	5.2	6.0	5	40	400	1.0	1	2.0	-2.0	2.5
PD3Z284C6V2	Z0K, 0K	6.2	5.8	6.6	5	10	150	1.0	3	4.0	0.4	3.7
PD3Z284C6V8	Z0L, 0L	6.8	6.4	7.2	5	15	80	1.0	2	4.0	1.2	4.5
PD3Z284C7V5	Z0M, 0M	7.5	7.0	7.9	5	10	80	1.0	1	5.0	2.5	5.3
PD3Z284C8V2	Z0N, 0N	8.2	7.7	8.7	5	10	80	1.0	0.7	5.0	3.2	6.2
PD3Z284C9V1	Z0P, 0P	9.1	8.5	9.6	5	10	100	1.0	0.5	6.0	3.8	7.0
PD3Z284C10	Z0Q, 0Q	10	9.4	10.6	5	10	150	1.0	0.2	7.0	4.5	8.0
PD3Z284C11	Z0R, 0R	11	10.4	11.6	5	10	150	1.0	0.1	8.0	5.4	9.0
PD3Z284C12	Z0S, 0S	12	11.4	12.7	5	10	150	1.0	0.1	8.0	6.0	10.0
PD3Z284C13	0T	13	12.4	14.1	5	10	170	1.0	0.1	8.0	7.0	11.0
PD3Z284C15	0V	15	13.8	15.6	5	15	200	1.0	0.1	10.5	9.2	13.0
PD3Z284C16	0W	16	15.3	17.1	5	20	200	1.0	0.1	11.2	10.4	14.0
PD3Z284C18	0Y	18	16.8	19.1	5	20	225	1.0	0.1	12.6	12.4	16.0
PD3Z284C20	0Z	20	18.8	21.2	5	20	225	1.0	0.1	14.0	14.4	18.0
PD3Z284C22	11	22	20.8	23.3	5	25	250	1.0	0.1	15.4	16.4	20.0
PD3Z284C24	12	24	22.8	25.6	5	30	250	1.0	0.1	16.8	18.4	22.0
PD3Z284C27	14	27	25.1	28.9	2	40	250	0.5	0.1	18.9	21.4	25.3
PD3Z284C30	16	30	28.0	32.0	2	40	250	0.5	0.1	21.0	24.4	29.4
PD3Z284C33	17	33	31.0	35.0	2	40	275	0.5	0.1	23.1	27.4	33.4
PD3Z284C36	18	36	34.0	38.0	2	60	300	0.5	0.1	25.2	30.4	37.4
PD3Z284C39	19	39	37.0	41.0	2	75	300	0.5	0.1	27.3	33.4	41.2

Notes: 5. Part mounted on polyimide PC board with recommended pad layout, as per <http://www.diodes.com/package-outlines.html>.  
6. Short duration pulse test used to minimize self-heating effect.  
7. f = 1kHz.

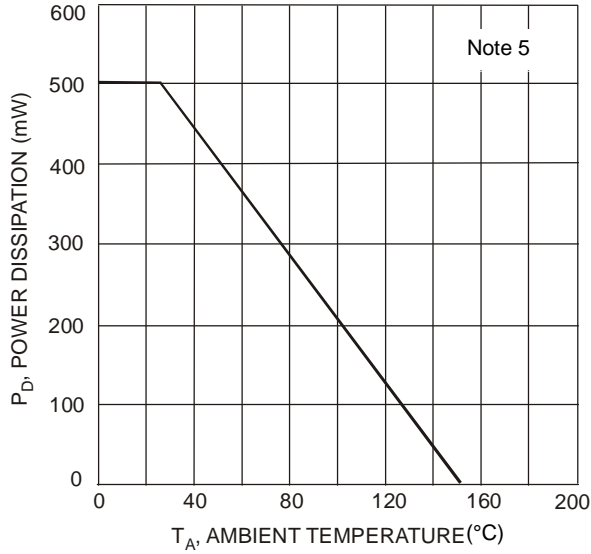


Fig. 1 Power Derating Curve

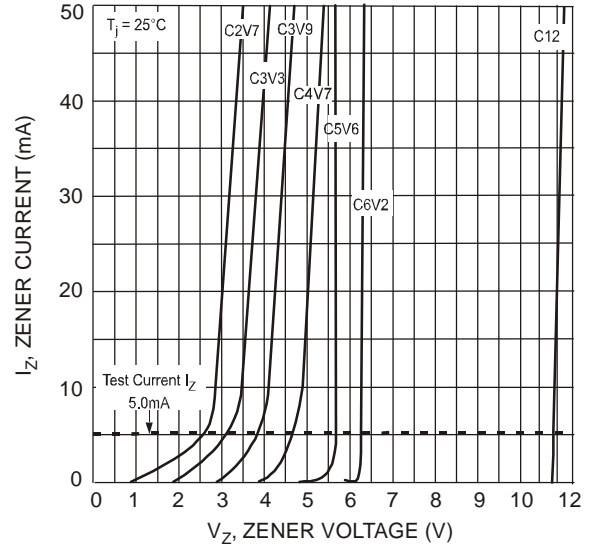


Fig. 2 Typical Zener Breakdown Characteristics

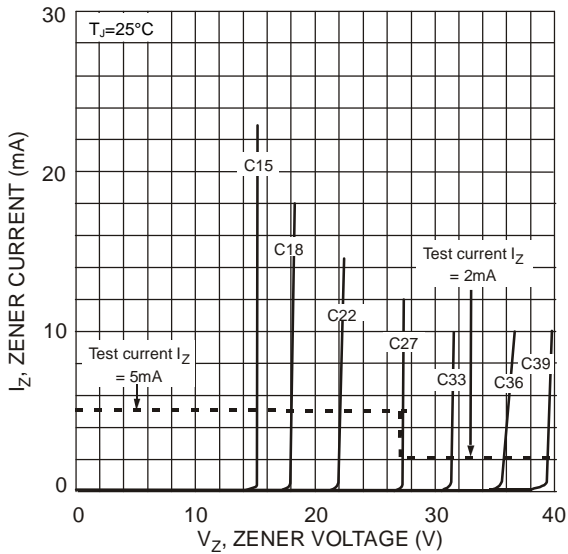


Fig. 3. Typical Zener Breakdown Characteristics

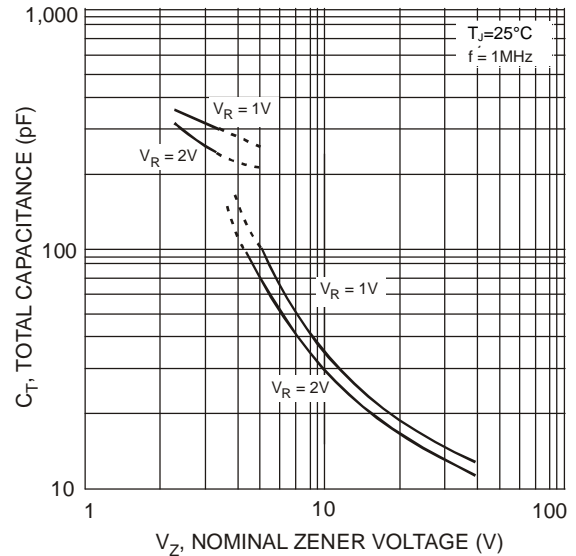
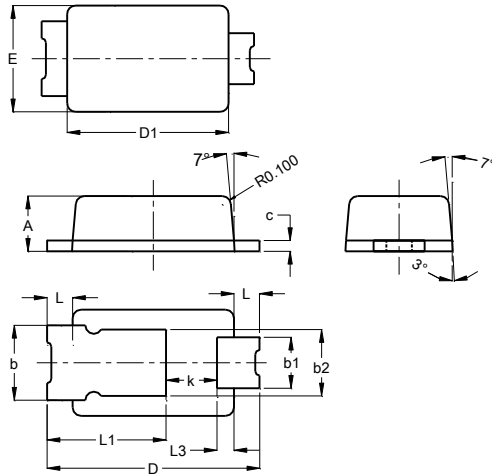


Fig. 4 Total Capacitance vs. Nominal Zener Voltage

## Package Outline Dimensions

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

PowerDI323 (Type B)

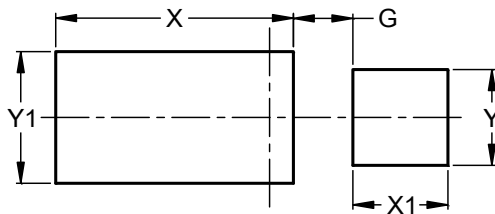


PowerDI323 (Type B)			
Dim	Min	Max	Typ
A	0.60	0.70	0.65
b	0.78	0.98	0.88
b1	0.50	0.70	0.60
b2	0.60	1.00	0.80
c	0.08	0.18	0.13
D	2.40	2.60	2.50
D1	1.85	1.95	1.90
E	1.20	1.30	1.25
k	0.40	0.80	0.60
L	0.20	0.40	0.30
L1	--	--	1.40
L3	--	--	0.20
All Dimensions in mm			

## Suggested Pad Layout

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

PowerDI323 (Type B)



Dimensions	Value (in mm)
G	0.50
X	2.00
X1	0.80
Y	0.80
Y1	1.10

**IMPORTANT NOTICE**

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

**LIFE SUPPORT**

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2016, Diodes Incorporated

[www.diodes.com](http://www.diodes.com)