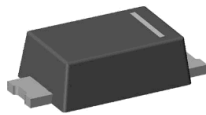


## Features

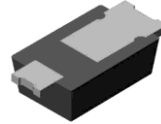
- Planar Die Construction
- Ultra-Small Surface Mount Package (PowerDI®)
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## 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 
- Polarity: Cathode Band
- Marking Information: See Below
- Ordering Information: See Below
- Weight: 0.005 grams (Approximate)



Top View



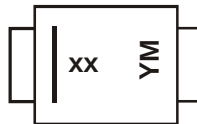
Bottom View

## 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<br>@ I <sub>F</sub> = 10mA<br>@ I <sub>F</sub> = 100mA | V <sub>F</sub> | 0.9<br>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> |                                                                        |      |
|             |              | Nom (V)                          | Min (V) | Max (V) | (mA)            | Ω                                 |                                   | mA              | μA                               | V              | Min                                                                    | Max  |
| 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.

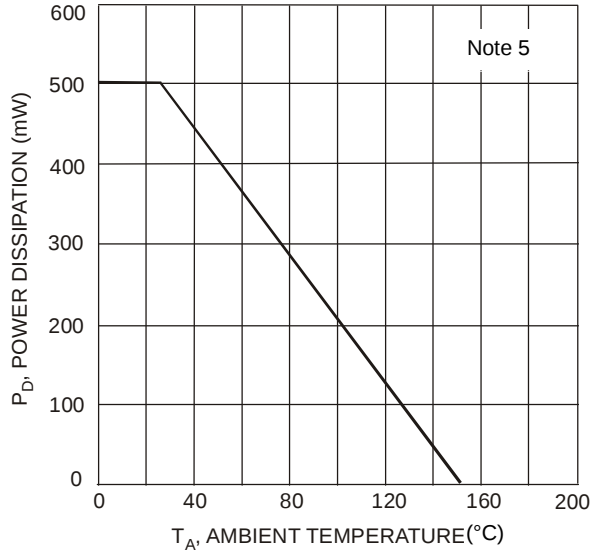


Fig. 1 Power Derating Curve

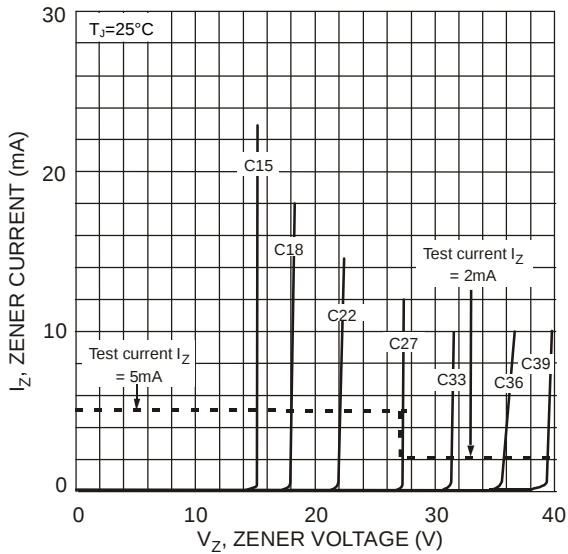


Fig. 3. Typical Zener Breakdown Characteristics

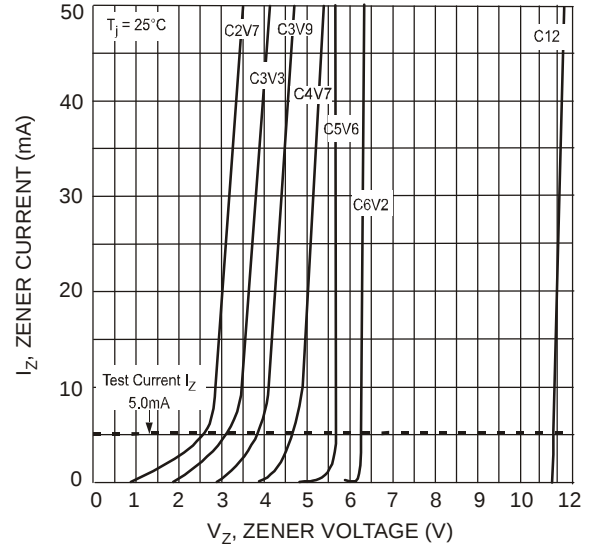


Fig. 2 Typical Zener Breakdown Characteristics

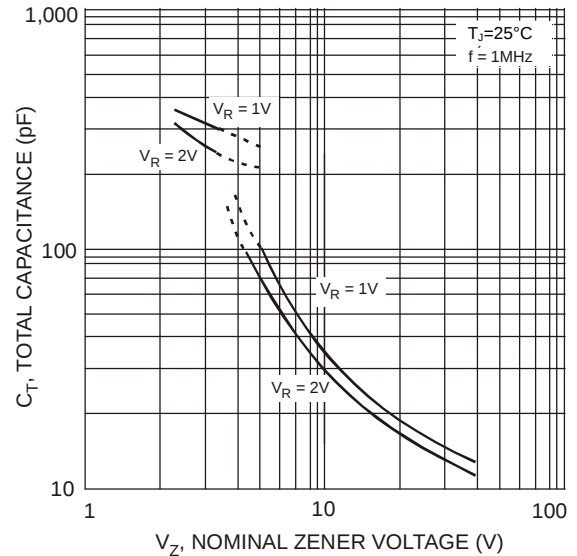
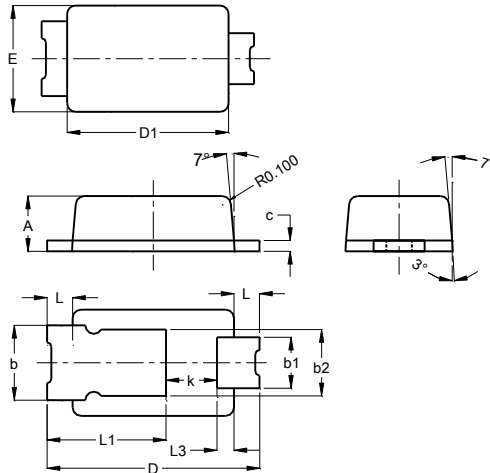


Fig. 4 Total Capacitance vs. Nominal Zener Voltage

## Package Outline Dimensions

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

PowerDI323 (Type B)

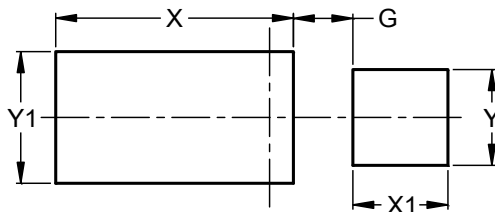


| PowerDI323 (Type B)  |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.60 | 0.70 | 0.65 |
| b                    | 0.78 | 0.98 | 0.88 |
| b1                   | 0.50 | 0.70 | 0.60 |
| b2                   | 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          |

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[PD3Z284C6V2-7](#) [PD3Z284C6V8-7](#) [PD3Z284C7V5-7](#) [PD3Z284C8V2-7](#) [PD3Z284C9V1-7](#)