NEW PRODUCT

**PD3R1600**

**1.0A SURFACE MOUNT STANDARD RECTIFIER**
POWERDI®323

## Features

- Ultra-Small Surface Mount Package
- Low Leakage Current
- Soft, Fast Switching Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Green Molding Compound (No Br, Sb)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: POWERDI®323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.006 grams (approximate)

Top View

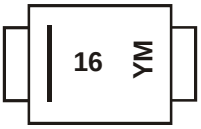
Bottom View

## Ordering Information (Note 2)

| Part Number | Case | Packaging |
|---|---|---|
| PD3R1600-7 | POWERDI®323 | 3000/Tape & Reel |

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes.*
2. For packaging details, go to our website at http://www.diodes.com..

## Marking Information




16 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: V = 2008)
M = Month (ex: 9 = September)

Date Code Key

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| Code | Y | Z | A | B | C | D |

| 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 |

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## Maximum Ratings @$T_A$ = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 600 | V |
| Average Rectified Output Current (see figure 4) | $I_O$ | 1.0 | A |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 20 | A |

## Thermal Characteristics

| Characteristic | Symbol | Typ | Max | Unit |
|---|---|---|---|---|
| Thermal Resistance, Junction to Ambient Air (Note 3) | $R_{\theta JA}$ | 125 | — | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -65 to +175 | | °C |

## Electrical Characteristics @$T_A$ = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | —<br>—<br>— | 0.94<br>—<br>— | —<br>1.1<br>0.98 | V | $I_F$ = 0.5A<br>$I_F$ = 1.0A<br>$I_F$ = 1.0A, $T_J$ = 125°C |
| Leakage Current (Note 4) | $I_R$ | —<br>— | —<br>— | 1<br>50 | µA | $V_R$ = 600V<br>$V_R$ = 600V, $T_J$ = 125°C |
| Typical Reverse Recovery Time | $t_{rr}$ | — | 530 | — | ns | $I_F$ = 0.5A, $I_R$ = 1.0A,<br>$I_{rr}$ = 0.25A |

Notes: 3. Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com. $T_A$ = 25°C.
4. Short duration pulse test used to minimize self-heating effect.

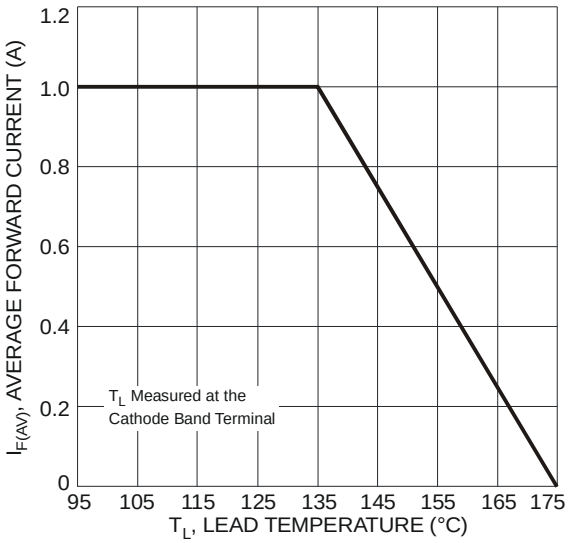


Fig. 1 Forward Current Derating Curve

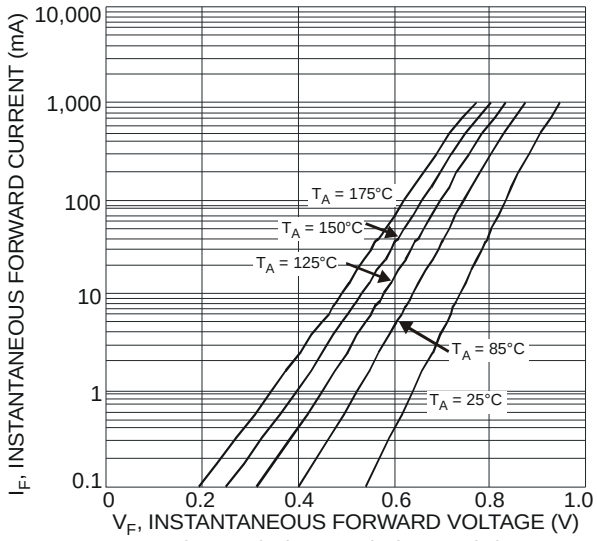


Fig.2 Typical Forward Characteristics

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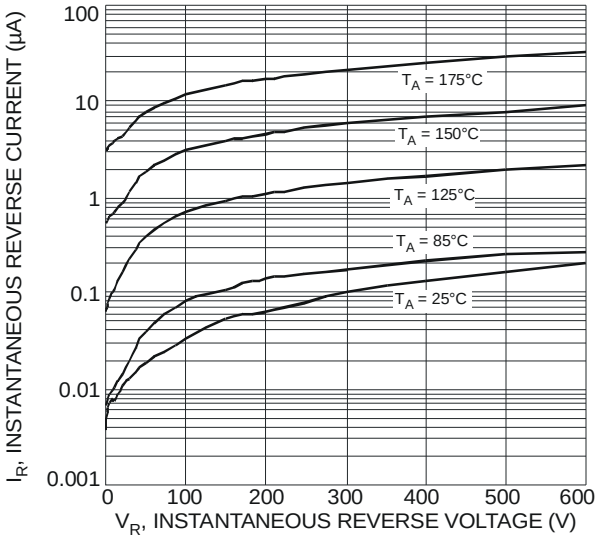
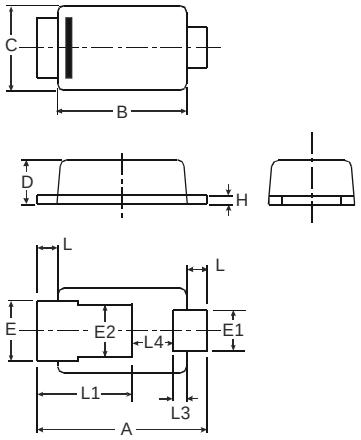


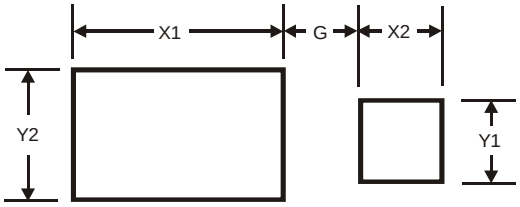

Fig. 3 Typical Reverse Characteristics

## Package Outline Dimensions




| POWERDI®323 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 2.40 | 2.60 | 2.50 |
| **B** | 1.85 | 1.95 | 1.90 |
| **C** | 1.20 | 1.30 | 1.25 |
| **D** | 0.60 | 0.70 | 0.65 |
| **E** | 0.78 | 0.98 | 0.88 |
| **E1** | 0.50 | 0.70 | 0.60 |
| **E2** | 0.60 | 1.00 | 0.80 |
| **H** | 0.08 | 0.18 | 0.13 |
| **L** | 0.20 | 0.40 | 0.30 |
| **L1** | — | — | 1.40 |
| **L3** | — | — | 0.20 |
| **L4** | 0.40 | 0.80 | 0.60 |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout




| Dimensions | Value (in mm) |
|---|---|
| **G** | 0.5 |
| **X1** | 2.0 |
| **X2** | 0.8 |
| **Y1** | 0.8 |
| **Y2** | 1.1 |

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