

## Excellent Integrated System Limited

Stocking Distributor

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[Diodes Incorporated](#)  
[PD3R1600-7](#)

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**PD3R1600**

**1.0A SURFACE MOUNT STANDARD RECTIFIER  
POWERDI<sup>®</sup>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<sup>®</sup>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<sup>③</sup>
- Weight: 0.006 grams (approximate)



Top View



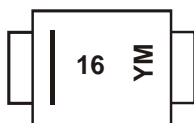
Bottom View

**Ordering Information** (Note 2)

Part Number	Case	Packaging
PD3R1600-7	POWERDI <sup>®</sup> 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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June 2011

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NEW PRODUCT

**Maximum Ratings** @T<sub>A</sub> = 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	V <sub>RRM</sub>	600	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Average Rectified Output Current (see figure 4)	I <sub>O</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	20	A

**Thermal Characteristics**

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Ambient Air (Note 3)	R <sub>θJA</sub>	125	—	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175		°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	V <sub>F</sub>	—	0.94	—	V	I <sub>F</sub> = 0.5A I <sub>F</sub> = 1.0A I <sub>F</sub> = 1.0A, T <sub>J</sub> = 125°C
		—	—	1.1		
		—	—	0.98		
Leakage Current (Note 4)	I <sub>R</sub>	—	—	1	μA	V <sub>R</sub> = 600V V <sub>R</sub> = 600V, T <sub>J</sub> = 125°C
		—	—	50		
Typical Reverse Recovery Time	t <sub>rr</sub>	—	530	—	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>rr</sub> = 0.25A

Notes: 3. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com>. T<sub>A</sub> = 25°C.  
 4. Short duration pulse test used to minimize self-heating effect.

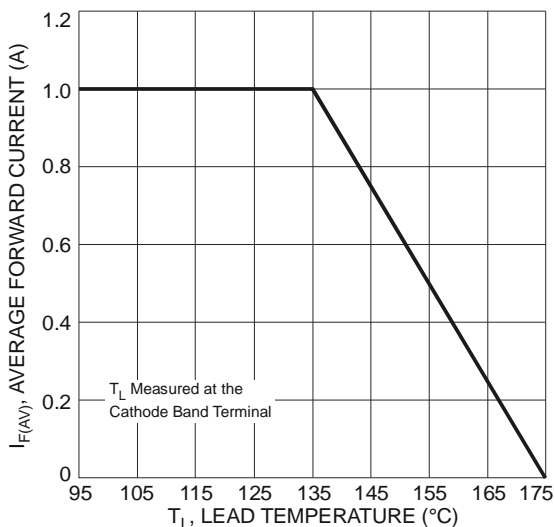


Fig. 1 Forward Current Derating Curve

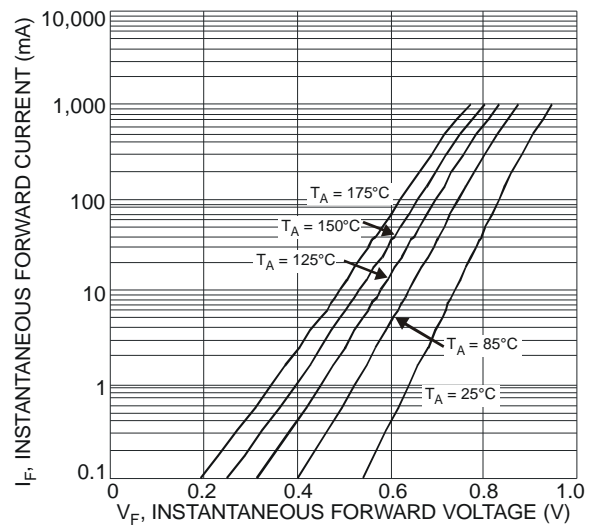


Fig. 2 Typical Forward Characteristics



**PD3R1600**

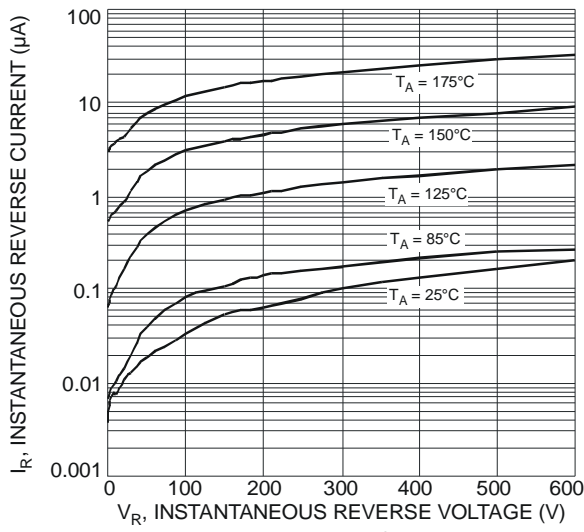
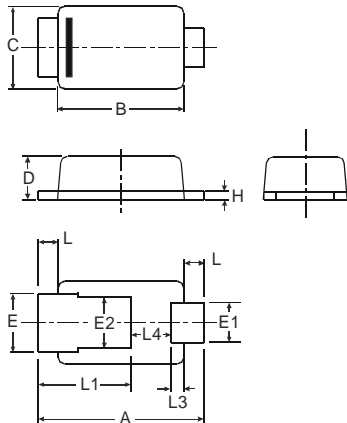


Fig. 3 Typical Reverse Characteristics

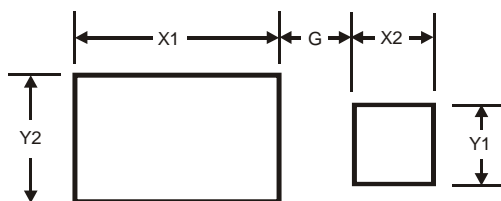
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**Package Outline Dimensions**



POWERDI <sup>®</sup> 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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