

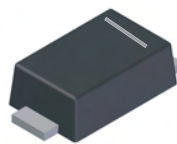
### Features

- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- Ultra-Small Surface Mount Package
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

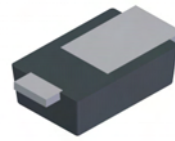
### Mechanical Data

- Case: POWERDI323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Band
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.006 grams (approximate)

POWERDI323



Top View



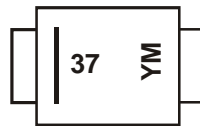
Bottom View

### Ordering Information (Note 4)

Part Number	Case	Packaging
PD3S160-7	POWERDI323	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See <http://www.diodes.com> 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 <http://www.diodes.com>.

### Marking Information



- 37 = Product Type Marking Code
- YM = Date Code Marking
- Y = Year (ex: T = 2006)
- M = Month (ex: 9 = September)

#### Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	T	U	V	W	X	Y	Z	A	B	C	D	E

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.)

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>R(RM)</sub>	60	V
Working Peak Reverse Voltage	V <sub>R(WM)</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	42	V
Average Forward Current (See also figure 4)	I <sub>F(AV)</sub>	1.0	A
Repetitive Peak Forward Current t <sub>p</sub> ≤ 1ms; δ ≤ 0.25	I <sub>F(RM)</sub>	8	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I <sub>F(SM)</sub>	22	A

### Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	R <sub>θJS</sub>	—	6	°C/W
Thermal Resistance Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	173	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 6)	R <sub>θJA</sub>	125	—	°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.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	60	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	0.40	0.45	V	I <sub>F</sub> = 0.1A
		—	0.55	0.58		I <sub>F</sub> = 0.7A
		—	—	0.64		I <sub>F</sub> = 1.0A
Leakage Current (Note 4)	I <sub>R</sub>	—	0.3	5	μA	V <sub>R</sub> = 5V, T <sub>A</sub> = +25°C
		—	3	50		V <sub>R</sub> = 60V, T <sub>A</sub> = +25°C
Total Capacitance (See also figure 3)	C <sub>T</sub>	—	38	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

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

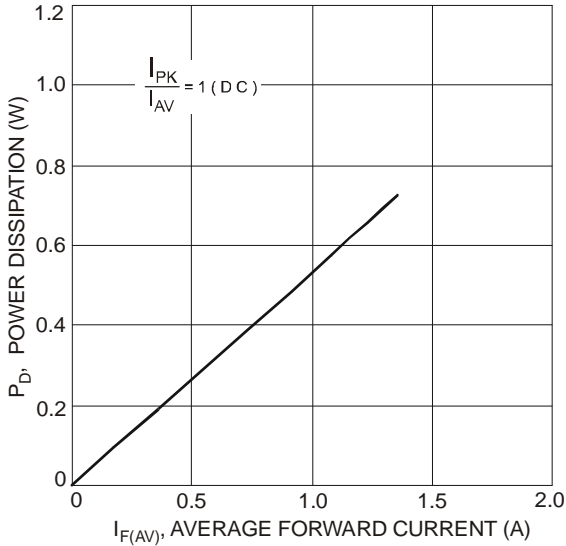


Figure 1 Forward Power Dissipation

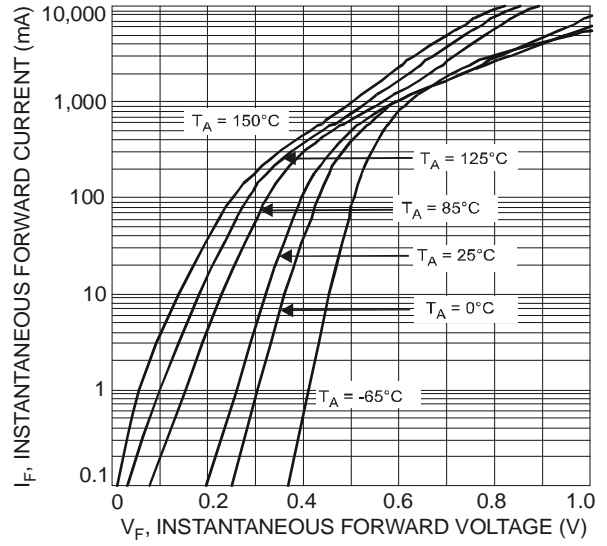


Figure 2 Typical Forward Characteristics

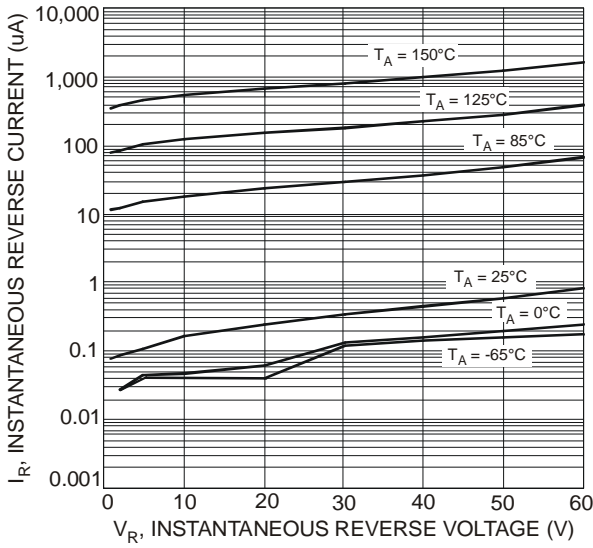


Figure 3 Typical Reverse Characteristics

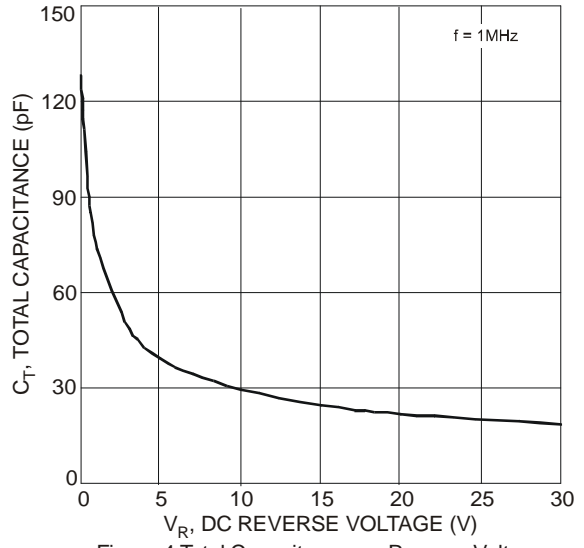


Figure 4 Total Capacitance vs. Reverse Voltage

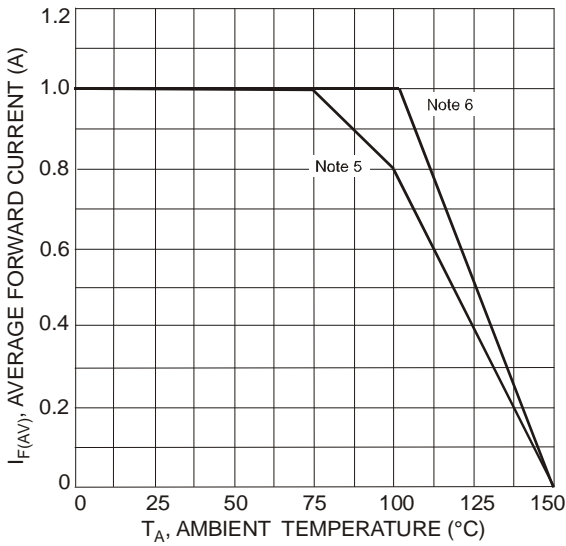


Figure 5 Forward Current Derating Curve

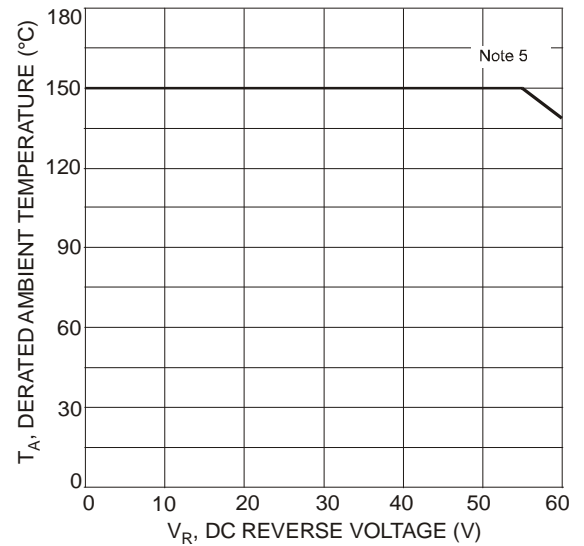
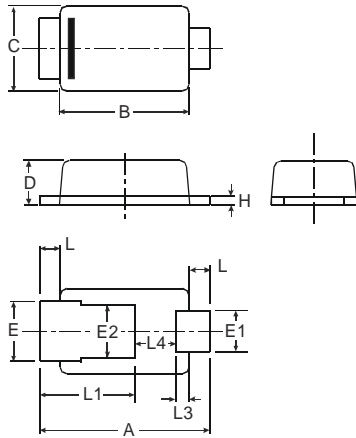


Figure 6 Operating Temperature Derating

## Package Outline Dimensions

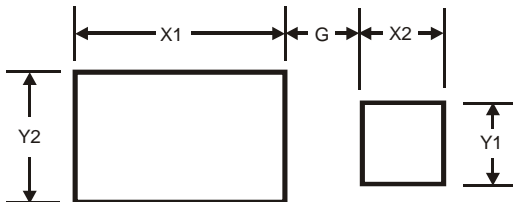
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



POWERDI323			
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

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



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

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