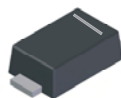


Features

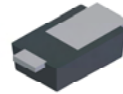
- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **"Green" Molding Compound (No Br, Sb)**
- **Ultra-Small Surface Mount Package**
- **Qualified to AEC-Q101 Standards for High Reliability**

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-020D
- Polarity: Cathode Band
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)



Top View



Bottom View

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 | V _{RRM} | 20 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 14 | V |
| Average Forward Current (See also figure 4) | I _{F(AV)} | 1.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load | I _{FSM} | 33 | A |

Thermal Characteristics

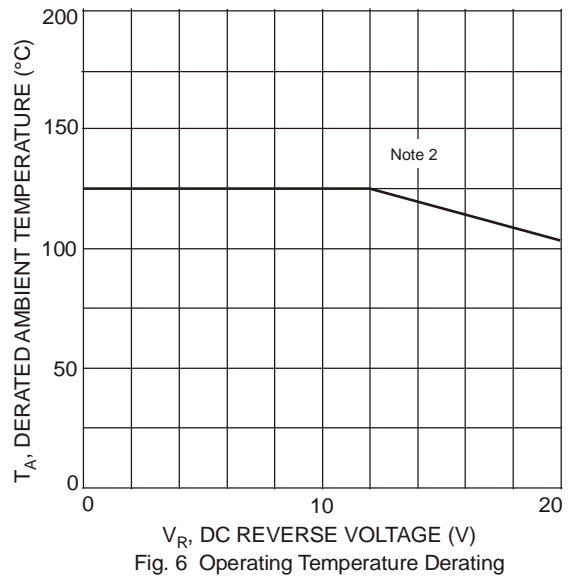
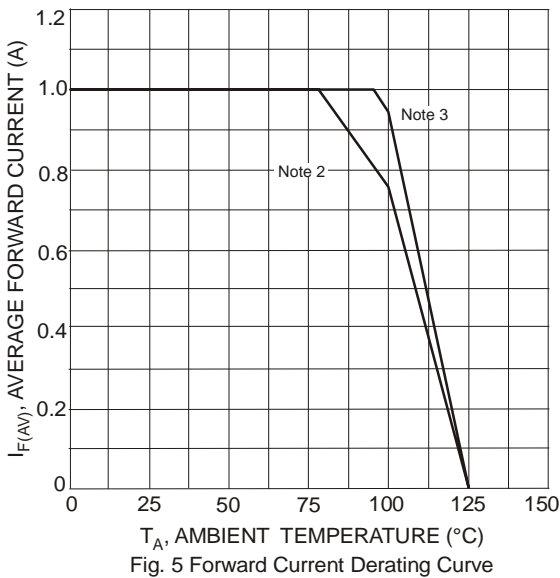
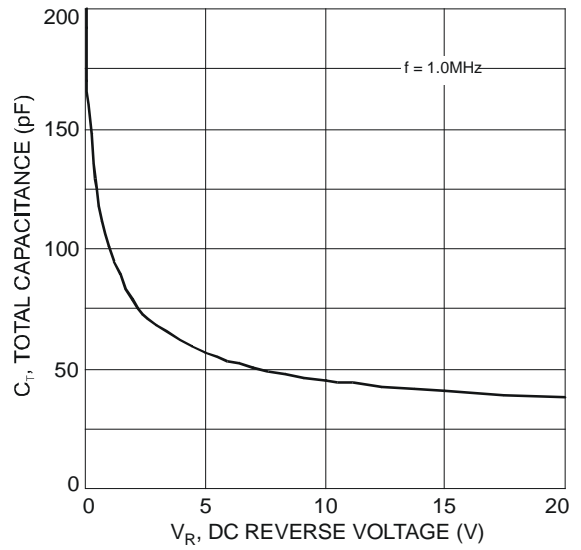
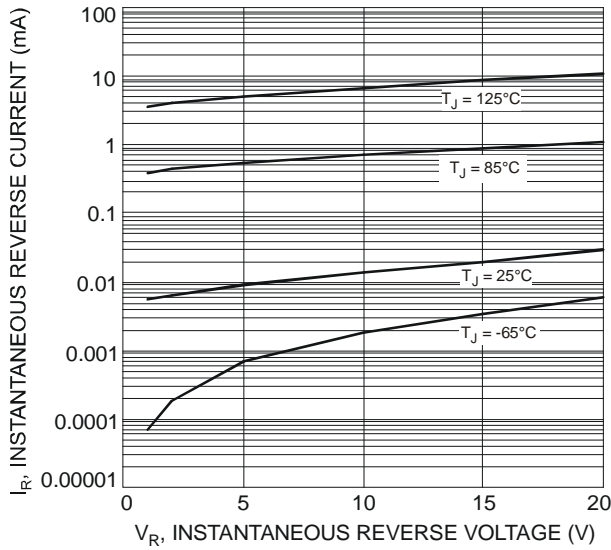
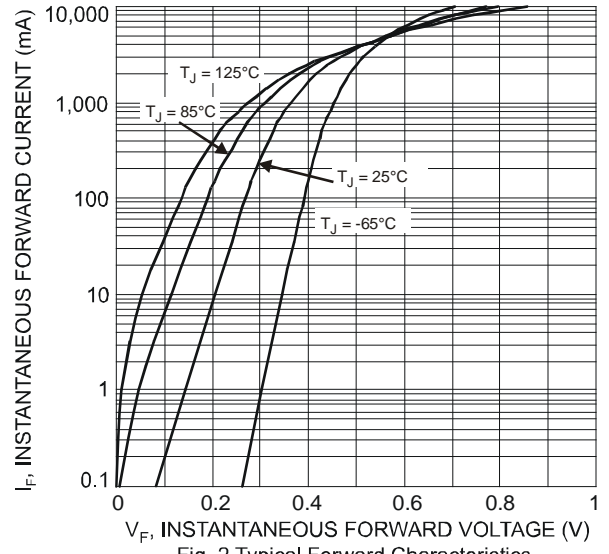
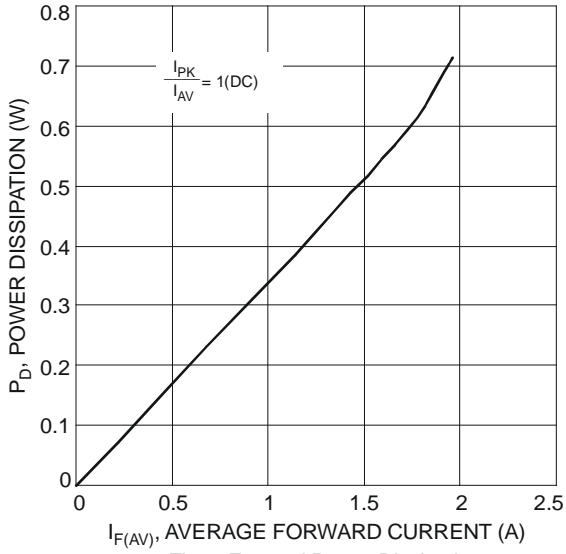
| Characteristic | Symbol | Typ | Max | Unit |
|---|-----------------------------------|-------------|-----|------|
| Thermal Resistance Junction to Soldering Point | R _{θJS} | — | 6 | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 2) | R _{θJA} | 170 | — | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 3) | R _{θJA} | 144 | — | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +125 | | °C |

Electrical Characteristics @T_A = 25°C unless otherwise specified

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|------|------|------|---|
| Reverse Breakdown Voltage (Note 4) | V _{(BR)R} | 20 | — | — | V | I _R = 100μA |
| Forward Voltage | V _F | — | 0.27 | 0.31 | V | I _F = 0.1A, T _A = 25°C |
| | | — | 0.34 | 0.38 | | I _F = 0.7A, T _A = 25°C |
| | | — | 0.36 | 0.42 | | I _F = 1.0A, T _A = 25°C |
| | | — | 0.27 | 0.30 | | I _F = 1.0A, T _A = 125°C |
| Leakage Current (Note 4) | I _R | — | 10 | 50 | μA | V _R = 5V, T _A = 25°C |
| | | — | 13 | 60 | μA | V _R = 10V, T _A = 25°C |
| | | — | 30 | 160 | μA | V _R = 20V, T _A = 25°C |
| | | — | 11 | 30 | mA | V _R = 20V, T _A = 125°C |
| Total Capacitance | C _T | — | 46 | — | pF | V _R = 10V, f = 1.0MHz |

- Notes:
1. EU Directive **2002/95/EC** (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
 2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 3. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 4. Short duration pulse test to minimize self-heating effect.

PowerDI is a registered trademark of Diodes Incorporated.



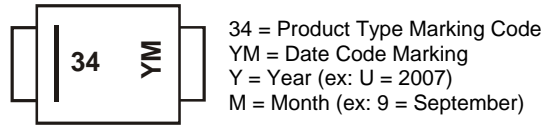
PowerDI is a registered trademark of Diodes Incorporated.

Ordering Information (Note 5)

| Part Number | Case | Packaging |
|-------------|--------------------------|------------------|
| PD3S120L-7 | PowerDI [®] 323 | 3000/Tape & Reel |

Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information

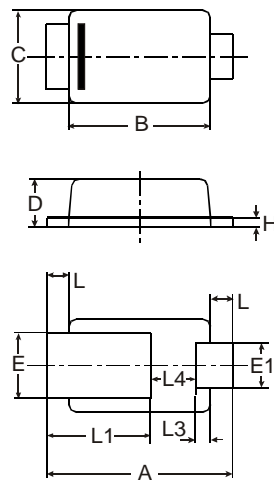


Date Code Key

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|
| Code | T | U | V | W | X | Y | Z |

| 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 |

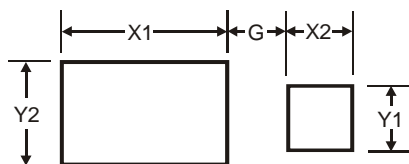
Package Outline Dimensions



| 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 |
| 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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