

Product Summary

| V_R (V) | I_F (A) | $V_{F\ MAX}$ (V) @ +25°C | $I_{R\ MAX}$ (mA) @ +25°C |
|-----------|-----------|-----------------------------|------------------------------|
| 30 | 2.0 | 0.60 | 0.1 |

Features and Benefits

- Ultra-Small Surface Mount Package
- Guard Ring Die Construction for Transient Protection
- High Surge Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Description and Applications

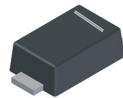
This Schottky Barrier Rectifier has been designed to meet the stringent requirements of Automotive Applications. It is ideally suited to use as:

- Polarity Protection Diode
- Re-circulating Diode
- Switching Diode

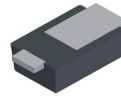
Mechanical Data

- Case: PowerDI®323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Band
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.006 grams (approximate)

POWERDI323



Top View



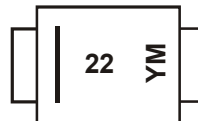
Bottom View

Ordering Information (Note 5)

| Part Number | Compliance | Case | Packaging |
|-------------|------------|-------------|------------------|
| PD3S230HQ-7 | Automotive | PowerDI®323 | 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/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



22 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: B = 2014)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | B | C | D | E | F | G | H | I | J | K | L | M | N |

| 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_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 Working Peak Reverse Voltage DC Blocking Voltage | V _{RRM} V _{RWM} V _R | 30 | V |
| Average Forward Current | I _{F(AV)} | 2.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 30 | A |

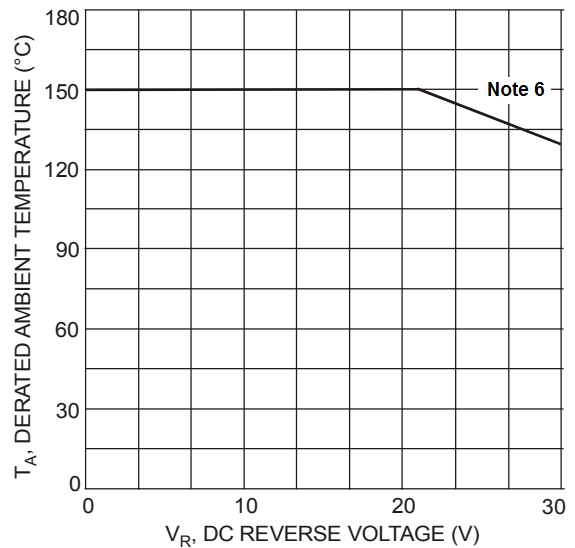
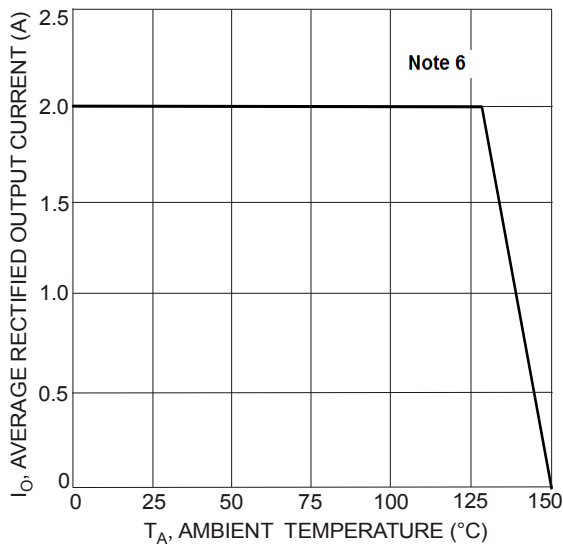
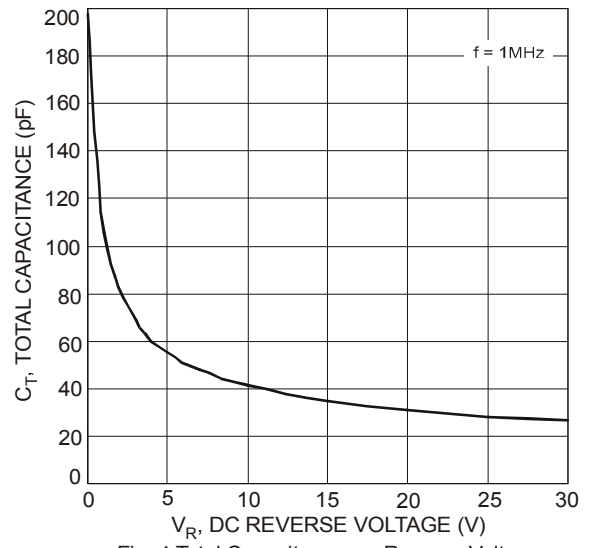
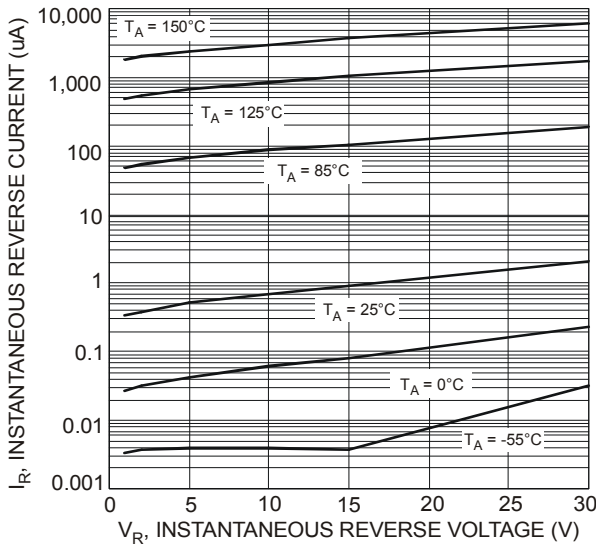
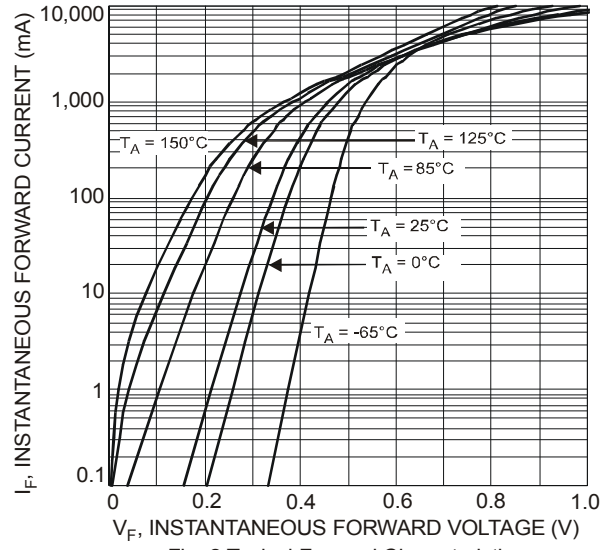
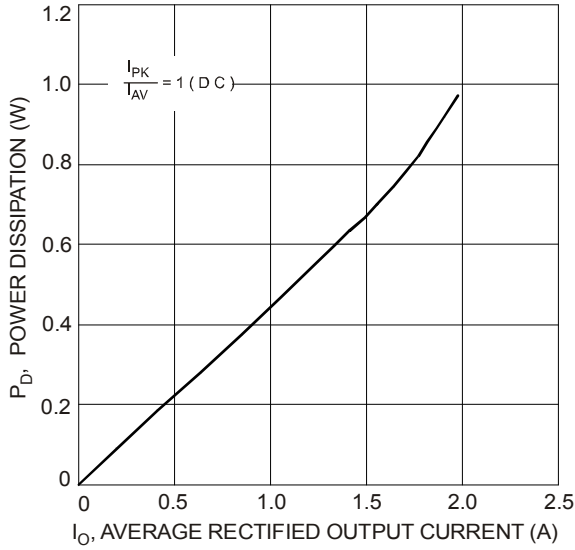
Thermal Characteristics

| Characteristic | Symbol | Typ | Max | Unit |
|---|-----------------------------------|-------------|-----|------|
| Thermal Resistance Junction to Soldering Point | R _{θJS} | — | 6 | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 6) | R _{θJA} | 177 | — | °C/W |
| Thermal Resistance Junction to Ambient Air (Note 7) | R _{θJA} | 128 | — | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

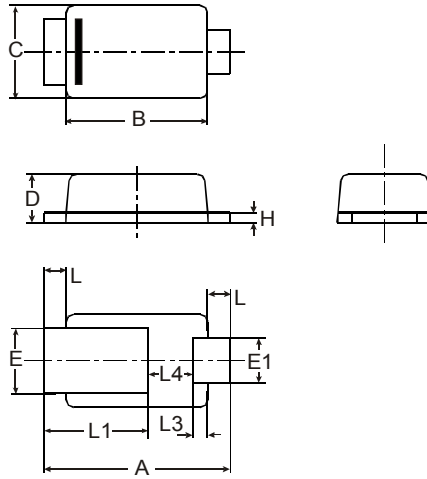
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|-----------|--------------|------|---|
| Reverse Breakdown Voltage (Note 8) | V _{(BR)R} | 30 | — | — | V | I _R = 100μA |
| Forward Voltage | V _F | — | — 0.50 | 0.60 0.55 | V | I _F = 2.0A, T _A = +25°C I _F = 2.0A, T _A = +125°C |
| Leakage Current (Note 8) | I _R | — | 0.7 10 | — 100 | μA | V _R = 5V, T _A = +25°C V _R = 30V, T _A = +25°C |
| Total Capacitance | C _T | — | 40 | — | pF | V _R = 10V, f = 1.0MHz |

- Notes:
6. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 7. Polyimide PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.
 8. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

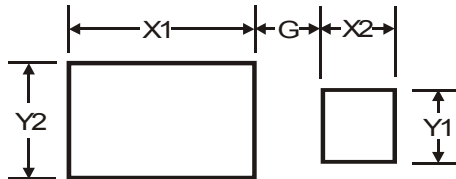
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| 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

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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