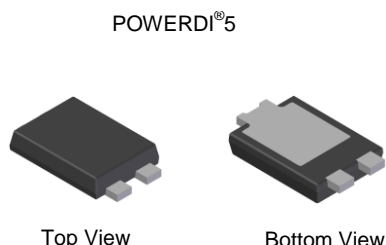


Product Summary

| V_{RRM} (V) | I_O (A) | V_F (MAX) (V) @+25°C | I_R (MAX) (mA) @+25°C |
|---------------|-----------|---------------------------|----------------------------|
| 80 | 20 | 0.66 | 0.2 |

Description and Applications

Packaged in the compact thermally efficient POWERDI[®]5 package, the SBRT20M80SP5 provides very low V_F and provides excellent reverse leakage stability at high temperatures. It is ideal for use as a rectification, freewheeling or polarity protection diode.

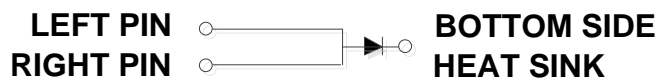


Features and Benefits

- Ultra Low Forward Voltage Drop (V_F) Helps – Minimizes Power Losses
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure in High Temperature Operation
- Patented Trench Super Barrier Rectifier SBR[®] Technology
- Thermally Efficient Package For Cooler Running Applications
- Less Than 1.1mm Package Profile Ideal for Thin Applications
- **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: POWERDI[®]5
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Weight: 0.093 grams (Approximate)



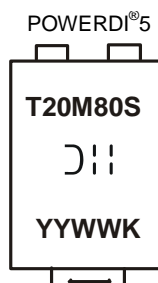
Note: Pins Left & Right must be electrically connected at the printed circuit board.

Ordering Information (Note 4)

| Part Number | Case | Packaging |
|--------------------------|------------------------|-------------------|
| SBRT20M80SP5-13 | POWERDI [®] 5 | 5,000/Tape & Reel |
| SBRT20M80SP5-13D(Note 5) | POWERDI [®] 5 | 5,000/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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.
 5. POWERDI[®]5 available in 5K quantity on 13-inch reel & 12mm tape, part number suffix "13D".

Marking Information



T20M80S = Product Type Marking Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 16 = 2016)
 K = Factory Designator

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|--|------------------|-------|------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V _{RRM} | 80 | V |
| Average Rectified Output Current | I _O | 20 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms | I _{FSM} | 350 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Ambient (Note 6) | R _{θJA} | 41 | °C/W |
| Typical Thermal Resistance Junction to Lead (Note 6) | R _{θJL} | 9 | °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 |
|--------------------------|----------------|-----|-----|------|------|---|
| Forward Voltage Drop | V _F | — | — | 0.53 | V | I _F = 5A, T _J = +25°C |
| | | — | — | 0.60 | | I _F = 10A, T _J = +25°C |
| | | — | — | 0.66 | | I _F = 20A, T _J = +25°C |
| | | — | — | 0.62 | | I _F = 20A, T _J = +125°C |
| Leakage Current (Note 7) | I _R | — | — | 200 | μA | V _R = 80V, T _J = +25°C |
| | | — | — | 60 | mA | V _R = 80V, T _J = +125°C |

Notes: 6. Device mounted on FR-4 substrate, single-sided, PC boards, with 1inch square pad size.
7. Short duration pulse test used to minimize self-heating effect.

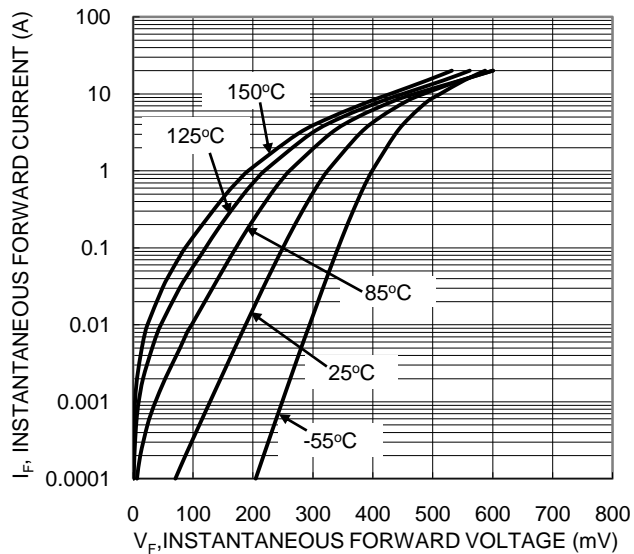


Figure 1. Typical Forward Characteristics

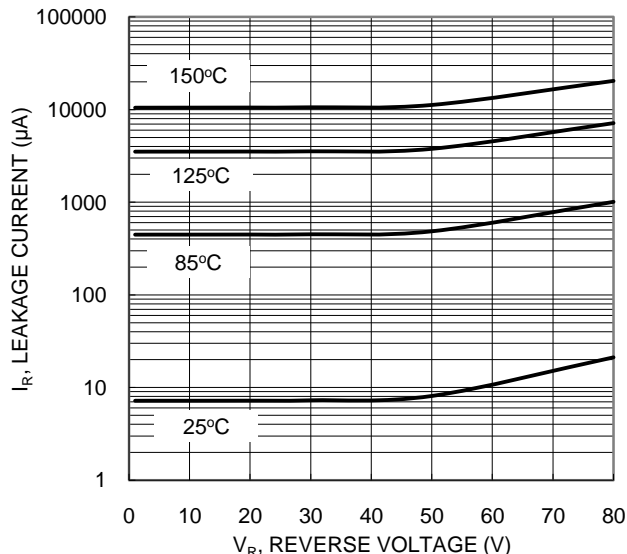


Figure 2. Typical Reverse Characteristics

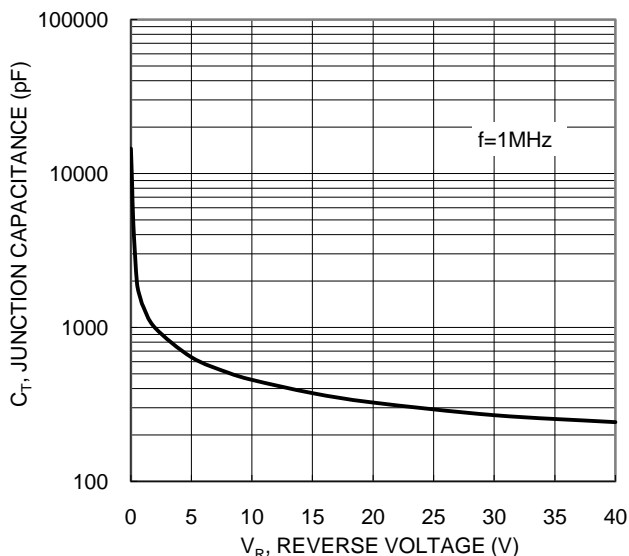


Figure 3. Typical Junction Capacitance

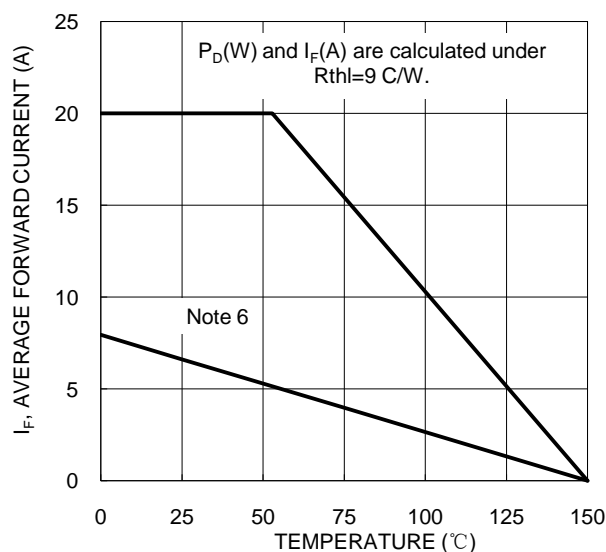


Figure 4. Forward Current Derating

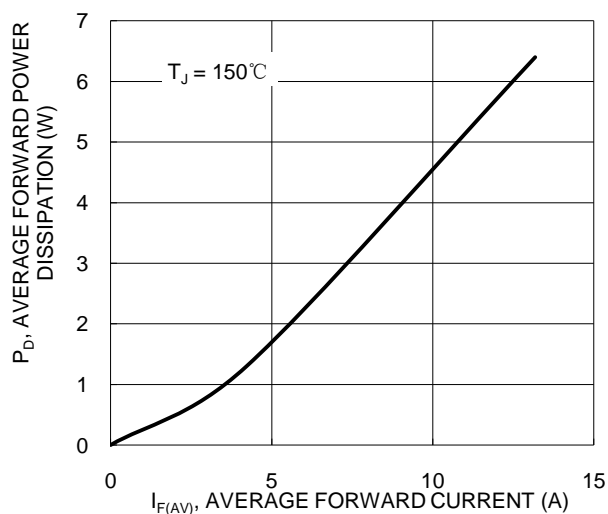
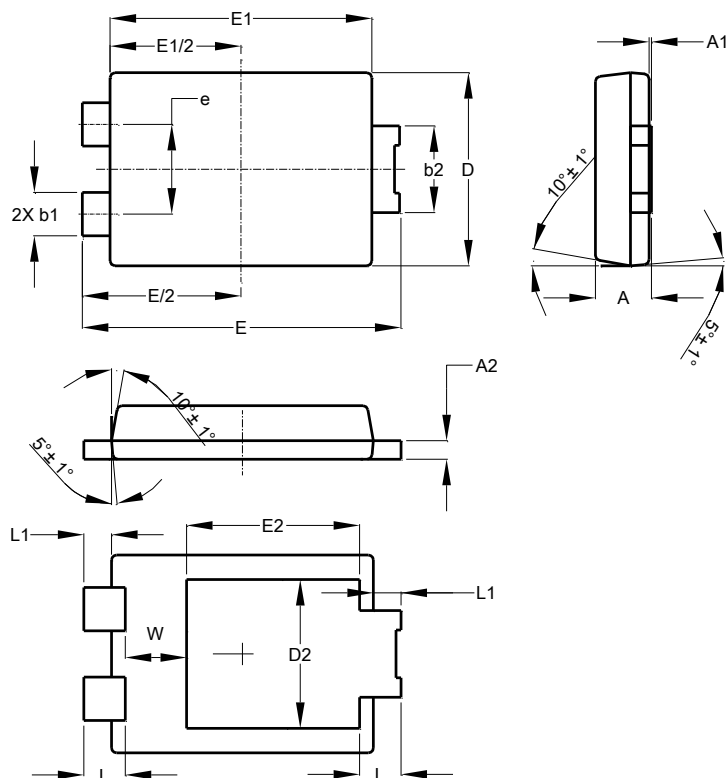


Figure 5. Forward Power Dissipation

Package Outline Dimensions

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

POWERDI®5

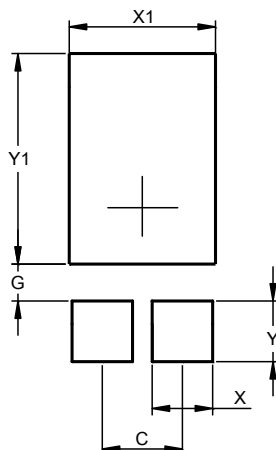


| POWERDI®5 | | | |
|----------------------|------|------|-------|
| Dim | Min | Max | Typ |
| A | 1.05 | 1.15 | 1.10 |
| A1 | 0.00 | 0.05 | -- |
| A2 | 0.33 | 0.43 | 0.381 |
| b1 | 0.80 | 0.99 | 0.89 |
| b2 | 1.70 | 1.88 | 1.78 |
| D | 3.90 | 4.05 | 3.966 |
| D2 | -- | -- | 3.054 |
| E | 6.40 | 6.60 | 6.504 |
| e | -- | -- | 1.84 |
| E1 | 5.30 | 5.45 | 5.37 |
| E2 | -- | -- | 3.549 |
| L | 0.75 | 0.95 | 0.85 |
| L1 | 0.50 | 0.65 | 0.57 |
| W | 1.10 | 1.41 | 1.255 |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

POWERDI®5



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 1.840 |
| G | 0.852 |
| X | 1.390 |
| X1 | 3.360 |
| Y | 1.400 |
| Y1 | 4.860 |

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