

### Product Summary (@T<sub>A</sub> = +25°C)

| V <sub>RRM</sub> (V) | I <sub>o</sub> (A) | V <sub>F</sub> Max (V) | I <sub>R</sub> Max (μA) |
|----------------------|--------------------|------------------------|-------------------------|
| 100                  | 8                  | 0.85                   | 1.5                     |

### Description and Applications

The SDM8M100P5 is a single rectifier packaged in PowerDI<sup>®</sup>5, offering very low forward voltage drop (V<sub>F</sub>) and excellent low reverse leakage stability at high temperatures. It is ideally suited for use as:

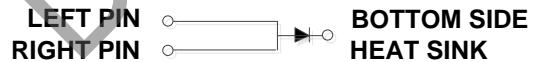
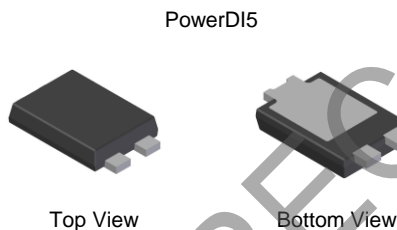
- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

### Features and Benefits

- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Soft, Fast Switching Capability
- +175°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q101, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative.**
- <https://www.diodes.com/quality/product-definitions/>

### Mechanical Data

- Case: PowerDI5
- 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
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.093 grams (Approximate)



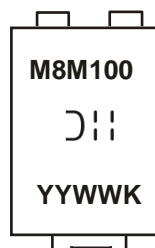
**Note: Pins Left & Right must be electrically connected at the printed circuit board.**

### Ordering Information (Note 4)

| Part Number   | Compliance | Case     | Packaging         |
|---------------|------------|----------|-------------------|
| SDM8M100P5-13 | Commercial | PowerDI5 | 5,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

### Marking Information



M8M100 = Product Type Marking Code  
 ⤴⤵ = Manufacturers' Marking  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 19 for 2019)  
 WW = Week Code (01 to 53)  
 K = Factory Designator

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic   | Symbol           | Value | Unit |
|--|------------------|-------|------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | V <sub>RRM</sub> | 100   | V    |
| Average Rectified Output Current   | I <sub>O</sub>   | 8     | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms  | I <sub>FSM</sub> | 160   | A    |
| Non-Repetitive Avalanche Energy at I <sub>AS</sub> = 3.0A, L = 50mH                    | E <sub>AS</sub>  | 210   | mJ   |

**Thermal Characteristics**

| Characteristic  | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Ambient (Note 5) | R <sub>θJA</sub>                  | 20          | °C/W |
| Typical Thermal Resistance Junction to Case (Note 5)    | R <sub>θJC</sub>                  | 3           | °C/W |
| Operating and Storage Temperature Range                 | T <sub>J</sub> , T <sub>STG</sub> | -55 to +175 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic           | Symbol         | Min | Typ  | Max  | Unit     | Test Condition                                 |
|--------------------------|----------------|-----|------|------|----------|--|
| Forward Voltage Drop     | V <sub>F</sub> | —   | 0.73 | —    | V        | I <sub>F</sub> = 4A, T <sub>J</sub> = +25°C    |
|                          |                | —   | 0.78 | 0.85 |          | I <sub>F</sub> = 8A, T <sub>J</sub> = +25°C    |
|                          |                | —   | 0.58 | —    |          | I <sub>F</sub> = 4A, T <sub>J</sub> = +125°C   |
|                          |                | —   | 0.64 | 0.74 |          | I <sub>F</sub> = 8A, T <sub>J</sub> = +125°C   |
| Leakage Current (Note 6) | I <sub>R</sub> | —   | 0.1  | 1.5  | μA<br>mA | V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C  |
|                          |                | —   | 0.15 | 2.0  |          | V <sub>R</sub> = 100V, T <sub>J</sub> = +125°C |
| Junction Capacitance     | C <sub>J</sub> | —   | 168  | —    | pF       | V <sub>R</sub> = 4V, T <sub>J</sub> = +25°C    |

Notes: 5. 2-inch sq. Al board.  
6. Short duration pulse test used to minimize self-heating effect.

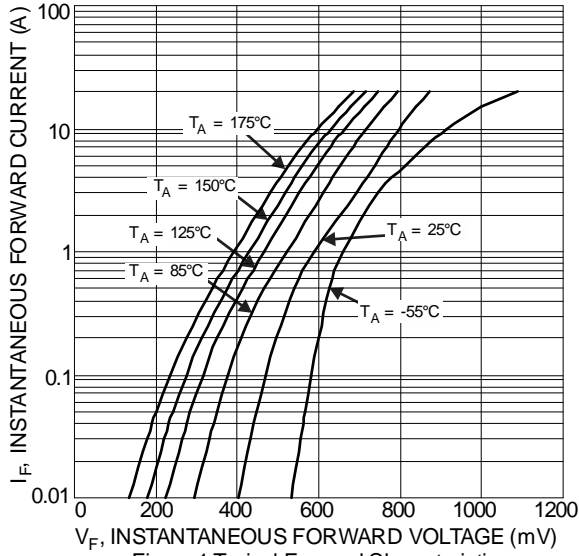


Figure 1 Typical Forward Characteristics

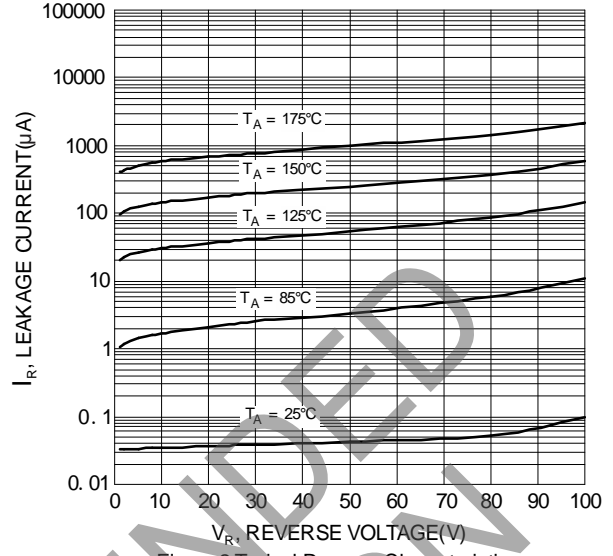


Figure 2 Typical Reverse Characteristics

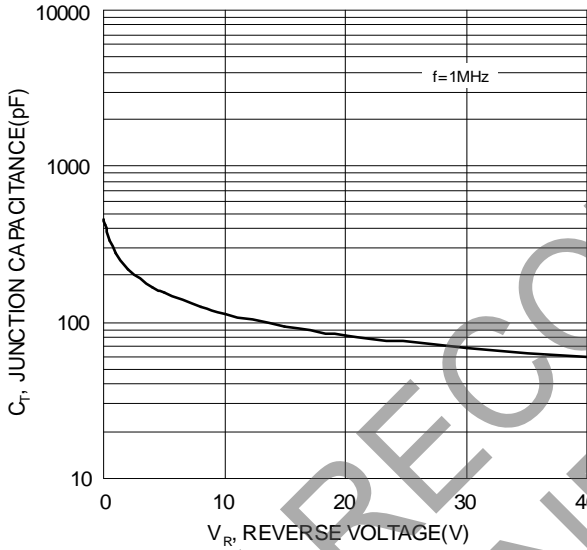


Figure 3 Typical Junction Capacitance

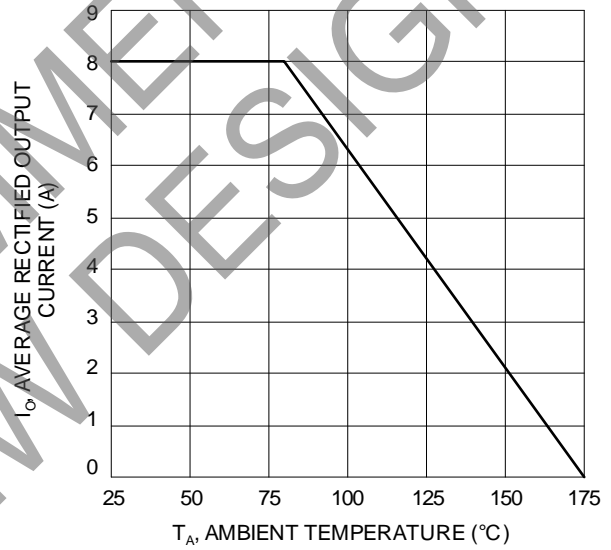


Figure 4 DC Forward Current Derating

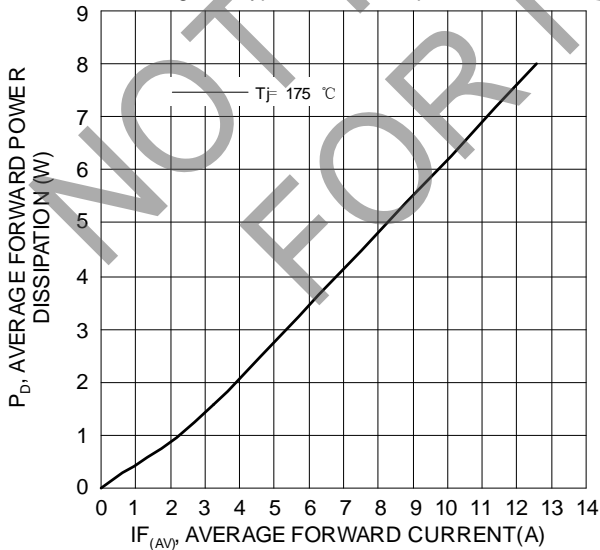
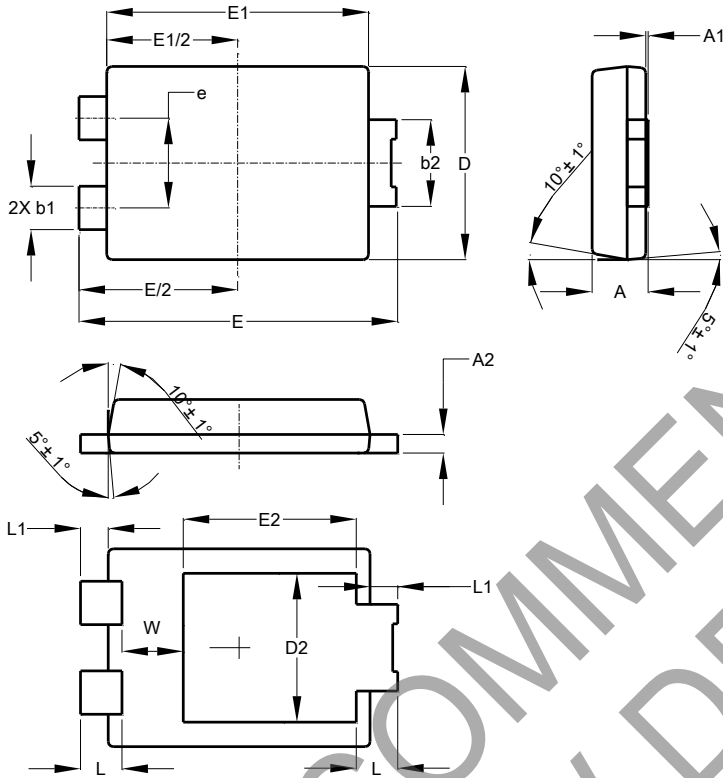


Figure 5 Forward Power Dissipation

**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**PowerDI5**

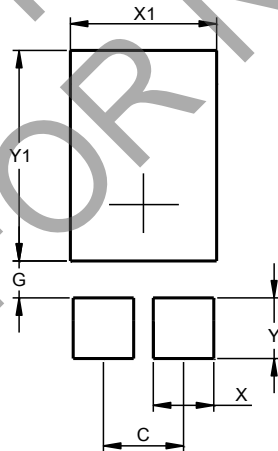


| PowerDI5             |      |      |       |
|----------------------|------|------|-------|
| Dim                  | Min  | Max  | Typ   |
| A                    | 1.05 | 1.15 | 1.10  |
| A1                   | 0.00 | 0.05 | --    |
| A2                   | 0.33 | 0.43 | 0.381 |
| b1                   | 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 <http://www.diodes.com/package-outlines.html> for the latest version.

**PowerDI5**



| 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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