

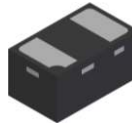
Features

- Low Forward Voltage Drop
- Guard Ring Die Construction for Transient Protection
- Low Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Marking Information
- Terminals: Finish — NiPdAu Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ⁽⁴⁾
- Weight: 0.001 grams (Approximate)

X1-DFN1006-2



Bottom View

Ordering Information (Note 4)

| Part Number | Case | Packaging |
|--------------|--------------|-------------------|
| SDM10U45LP-7 | X1-DFN1006-2 | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 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/products/packages.html>.

Marking Information

| | | |
|--------------|--|--|
| SDM10U45LP-7 | <p>Top View Dot Denotes Cathode Side</p> | <p>From date code 1527 (YYWW), this changed to:</p> <p>Top View Bar Denotes Cathode Side</p> |
| | | |

LJ = Product Type Marking Code

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|--|--------------|-------|------|
| Maximum Peak Reverse Voltage | V_{RM} | 45 | V |
| Reverse Voltage | V_R | 40 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 28 | V |
| Average Forward Current | I_O | 100 | mA |
| Maximum (Peak) Forward Current | I_{FM} | 300 | mA |
| Non-Repetitive Peak Forward Surge Current @ $t \leq 10\text{ms}$ | I_{FSM} | 1 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Power Dissipation | P_D | 250 | mW |
| Thermal Resistance, Junction to Ambient Air | $R_{\theta JA}$ | 400 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -40 to +125 | $^\circ\text{C}$ |

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|------------------------------------|-------------|-----|-----|-----|---------------|---------------------------------------|
| Reverse Breakdown Voltage (Note 5) | $V_{(BR)R}$ | 30 | — | — | V | $I_R = 100\mu\text{A}$ |
| Forward Voltage Drop | V_F | — | 280 | — | mV | $I_F = 1.0\text{mA}$ |
| | | | 360 | — | | $I_F = 15\text{mA}$ |
| | | | 470 | 550 | | $I_F = 50\text{mA}$ |
| | | | 580 | 800 | | $I_F = 100\text{mA}$ |
| Reverse Current (Note 5) | I_R | — | — | 1.0 | μA | $V_R = 25\text{V}$ |
| Total Capacitance | C_T | — | 7 | 15 | pF | $V_R = 10\text{V}, f = 1.0\text{MHz}$ |

Notes: 5. Short duration pulse test used to minimize self-heating effect.

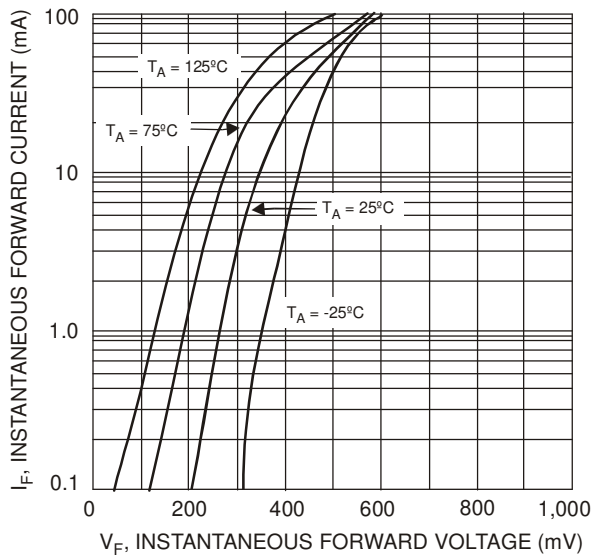


Fig. 1 Typical Forward Characteristics

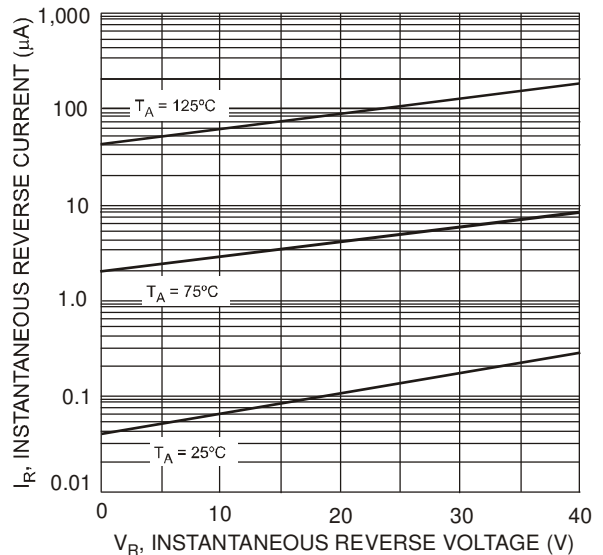


Fig. 2 Typical Reverse Characteristics

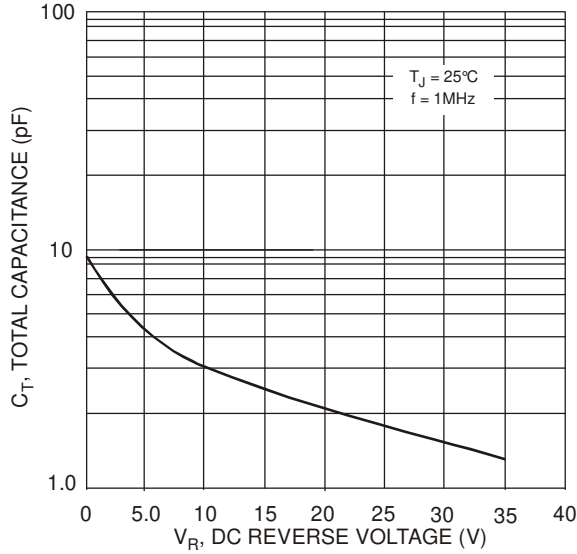


Fig. 3 Total Capacitance vs. Reverse Voltage

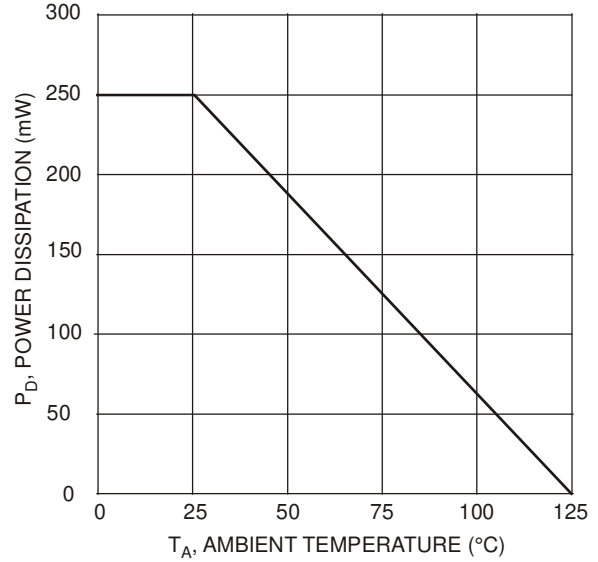
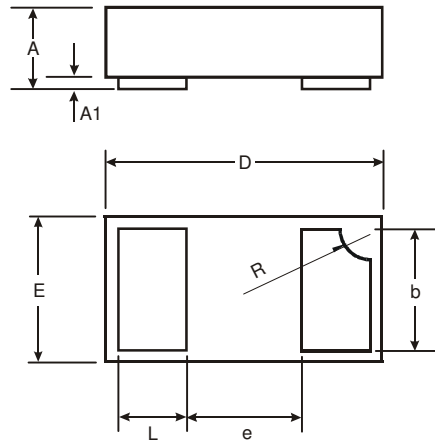


Fig. 4 Power Derating Curve

Package Outline Dimensions

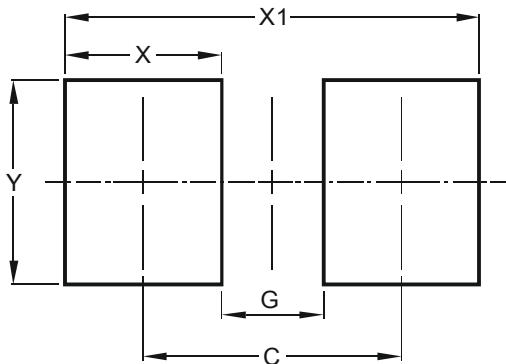
Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.



| X1-DFN1006-2 | | | |
|----------------------|------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.47 | 0.53 | 0.50 |
| A1 | 0 | 0.05 | 0.03 |
| b | 0.45 | 0.55 | 0.50 |
| D | 0.95 | 1.075 | 1.00 |
| E | 0.55 | 0.675 | 0.60 |
| e | - | - | 0.40 |
| L | 0.20 | 0.30 | 0.25 |
| R | 0.05 | 0.15 | 0.10 |
| All Dimensions in mm | | | |

Suggested Pad Layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 0.70 |
| G | 0.30 |
| X | 0.40 |
| X1 | 1.10 |
| Y | 0.70 |

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