

Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Low Capacitance
- Ultra-Small Surface Mount Package
- **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**

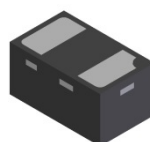
Mechanical Data

- 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: Cathode Dot
- Terminals: Finish—NiPdAu Annealed over Copper Leadframe.
Solderable per MIL-STD-202, Method 208 @4
- Weight: 0.001 grams (Approximate)

X1-DFN1006-2



Top View



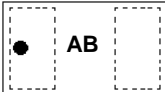
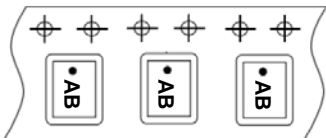
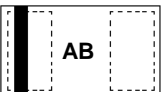
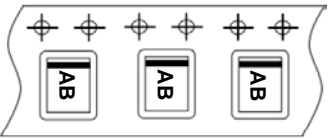
Bottom View

Ordering Information (Note 4)

| Device | Packaging | Shipping |
|--------------|--------------|------------------|
| SDM20U30LP-7 | X1-DFN1006-2 | 3000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 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 <http://www.diodes.com/products/packages.html>.

Marking Information

| | | |
|--------------|--|--|
| SDM20U30LP-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>  |
| | <p>AB = Product Type Marking Code AB = LM or $\bar{L}M$</p> | |

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

| Characteristic | Symbol | Value | Unit |
|---------------------------------|---------------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 30 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 21 | V |
| Maximum (Peak) Forward Current | I _{FM} | 200 | mA |
| Peak Forward Surge Current | I _{FSM} | 1.0 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|--|-----------------------------------|-------------|------|
| Power Dissipation | P _D | 250 | mW |
| Thermal Resistance, Junction to Ambient Air (Note 5) | R _{θJA} | 400 | °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 Conditions |
|------------------------------------|--------------------|-----|-----|------------|------|---|
| Reverse Breakdown Voltage (Note 6) | V _{(BR)R} | 30 | — | — | V | I _R = 150μA |
| Forward Voltage Drop | V _F | — | — | 350 575 | mV | I _F = 20mA I _F = 200mA |
| Peak Reverse Current (Note 6) | I _R | — | — | 150 30 | μA | V _R = 30V V _R = 10V |
| Total Capacitance | C _T | — | 20 | — | pF | V _R = 0V, f = 1.0MHz |
| Reverse Recovery Time | t _{rr} | — | 3 | — | nS | I _F = I _R = 10mA, I _{R(REC)} = 1mA, R _L = 100Ω |

Notes: 5. Device mounted on FR-4 substrate PCB, with minimum recommended pad layout.
6. Short duration pulse test used to minimize self-heating effect.

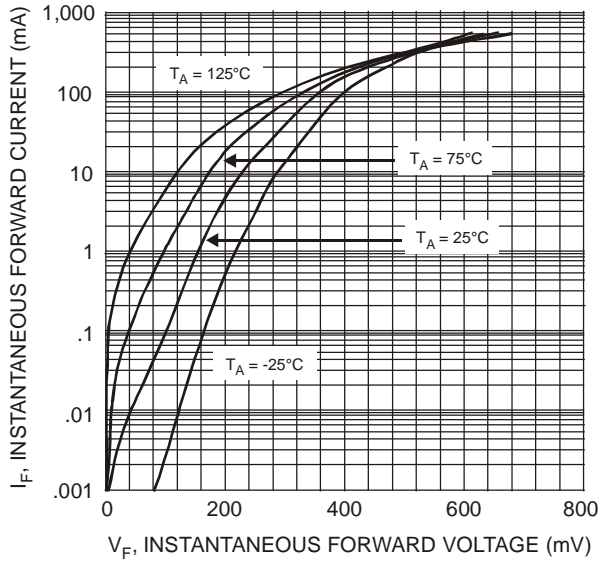


Fig. 1 Typical Forward Characteristics

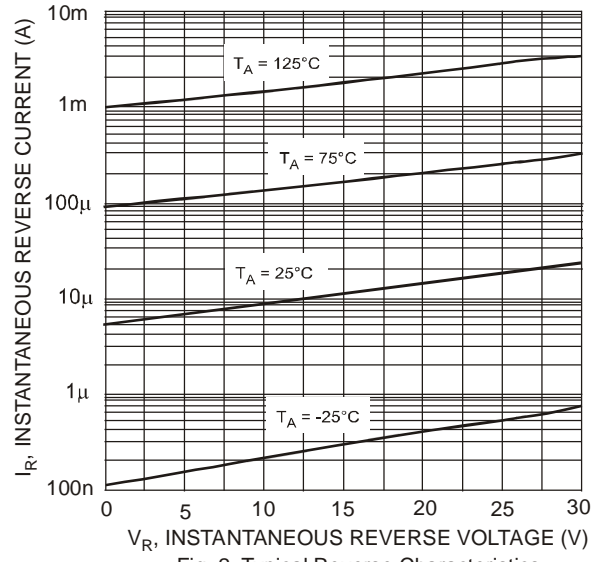


Fig. 2 Typical Reverse Characteristics

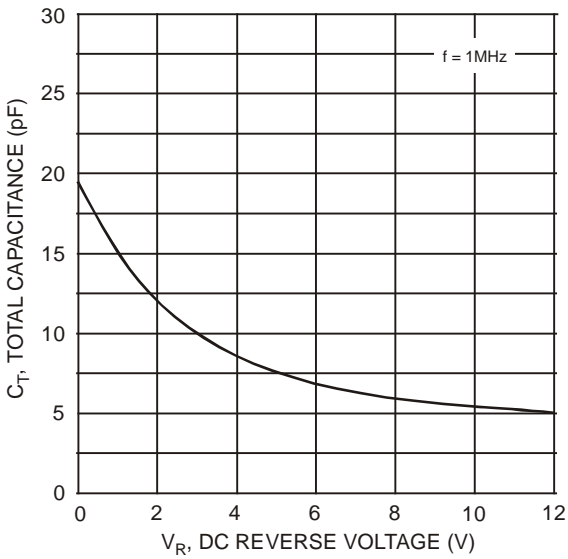


Fig. 3 Total Capacitance vs. Reverse Voltage

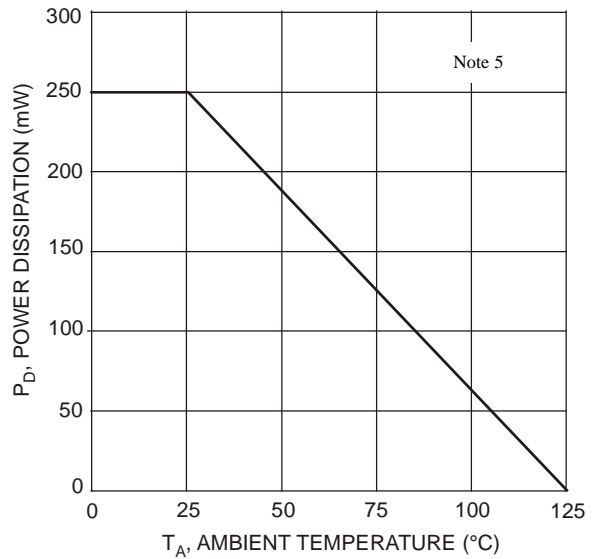
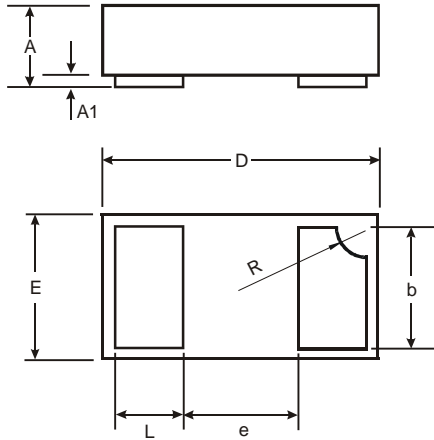


Fig. 4 Power Derating Curve

Package Outline Dimensions

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

X1-DFN1006-2

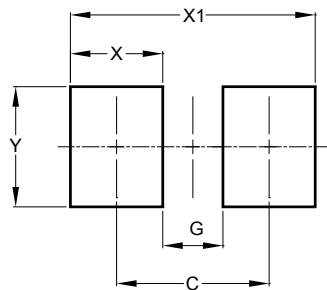


| X1-DFN1006-2 | | | |
|-----------------------------|------|-------|------|
| Dim | Min | Max | Typ |
| A | 0.47 | 0.53 | 0.50 |
| A1 | 0 | 0.05 | 0.03 |
| b | 0.45 | 0.55 | 0.50 |
| D | 0.95 | 1.075 | 1.00 |
| E | 0.55 | 0.675 | 0.60 |
| e | - | - | 0.40 |
| L | 0.20 | 0.30 | 0.25 |
| R | 0.05 | 0.15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

Suggested Pad Layout

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

X1-DFN1006-2



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

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