

Product Summary

| V_{RRM} (V) | I_o (A) | V_F (MAX) (V) @ +25°C | I_R (MAX) (mA) @ +25°C |
|---------------|-----------|----------------------------|-----------------------------|
| 40 | 0.2 | 0.59 | 0.01 |

Description and Applications

Packaged in X1-DFN1006-2 (SWP) (Type C) package, provides very low V_F and excellent reverse-leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

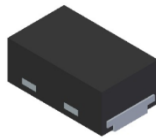
- DC-DC Converters
- AC-DC Adaptors

Features and Benefits

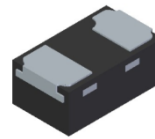
- Patented Trench Super Barrier Rectifier SBR[®] Technology
- With Visible And Solderable Side Pads
- Ultra-Low Forward Voltage Drop
- Superior Reverse Avalanche Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: X1-DFN1006-2 (SWP) (Type C)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.0854mg (Approximate)



Top View



Bottom View

Ordering Information (Note 4)

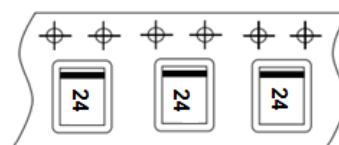
| Part Number | Case | Packaging |
|---------------|-----------------------------|--------------------|
| SBR0240LPW-7B | X1-DFN1006-2 (SWP) (Type C) | 10,000/Tape & Reel |

- 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/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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



24 = Product Type Marking Code
Bar Denotes Cathode



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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|--|------------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 40 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current (See Figure 1) | I _O | 200 | mA |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 5 | A |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Ambient T _A = +25°C (Note 5) | R _{θJA} | 320 | °C/W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 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 | — | 0.15 | 0.21 | V | I _F = 0.1mA, T _J = +25°C |
| | | — | 0.22 | 0.28 | | I _F = 1.0mA, T _J = +25°C |
| | | — | 0.29 | 0.35 | | I _F = 10mA, T _J = +25°C |
| | | — | 0.38 | 0.49 | | I _F = 100mA, T _J = +25°C |
| | | — | 0.45 | 0.59 | | I _F = 200mA, T _J = +25°C |
| | | — | 0.42 | 0.56 | | I _F = 200mA, T _J = +125°C |
| Leakage Current (Note 6) | I _R | — | 1.5 | — | μA | V _R = 25V, T _J = +25°C |
| | | — | 2.5 | 10 | | V _R = 40V, T _J = +25°C |
| | | — | 500 | — | | V _R = 40V, T _J = +125°C |
| Total Capacitance | C _T | — | 8 | — | pF | V _R = 5V, f = 1MHz |
| Reverse Recovery Time | t _{RR} | — | 3.8 | — | ns | I _F = 10mA, I _{RRM} = 0.1I _R , T _A = +25°C |

Notes: 5. 1*MRP FR-4 PC board 2oz. copper, minimum recommended pad layout per <http://www.diodes.com/package-outlines.html>.
6. Short duration pulse test used to minimize self-heating effect.

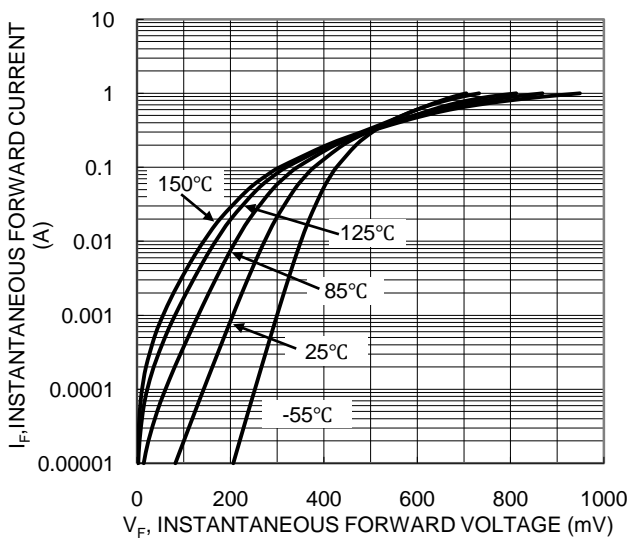


Fig. 1 Typical Forward Characteristics

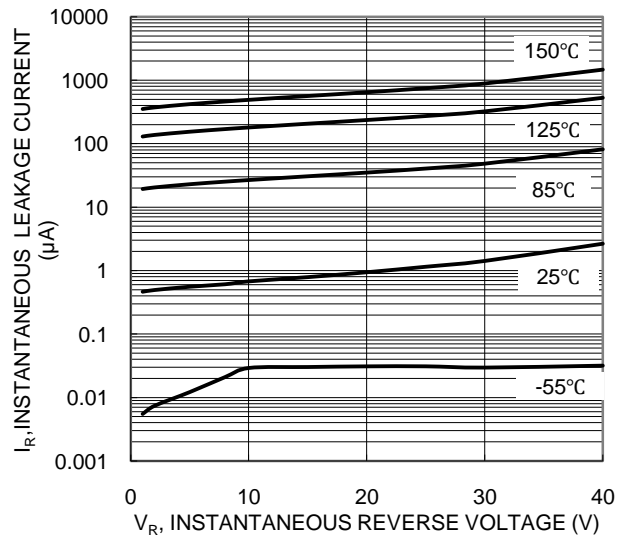


Fig. 2 Typical Reverse Characteristics

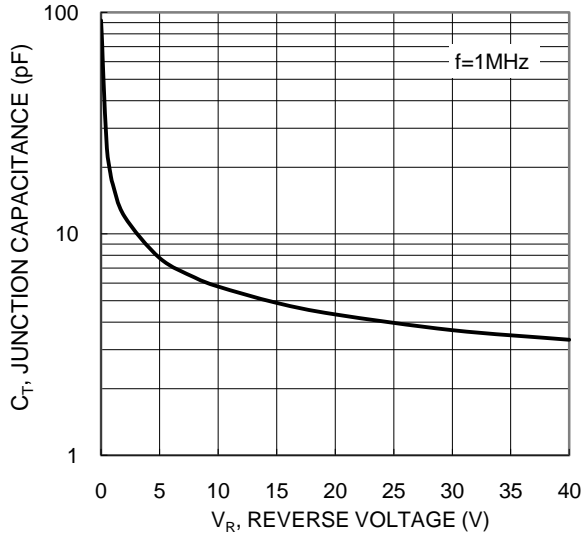


Fig. 3 Typical Junction Capacitance

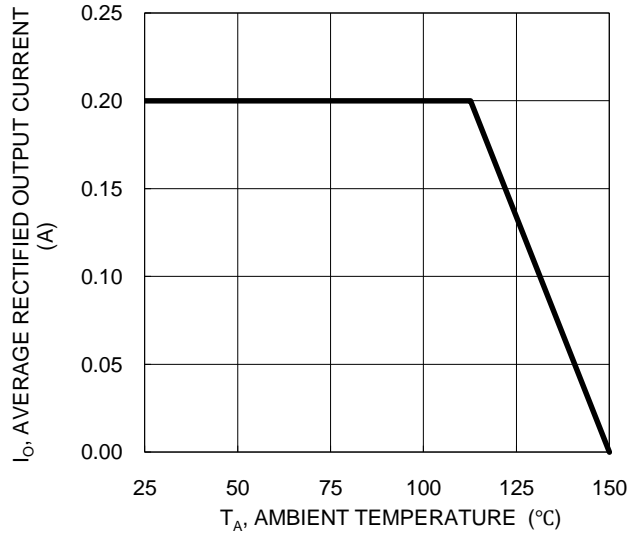


Fig. 4 DC Forward Current Derating

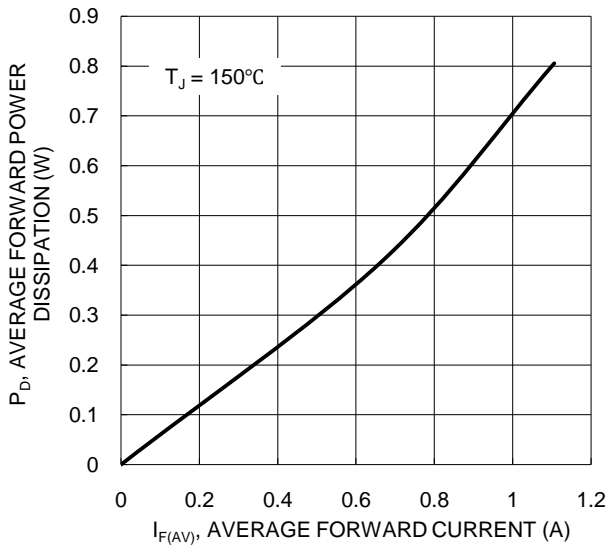
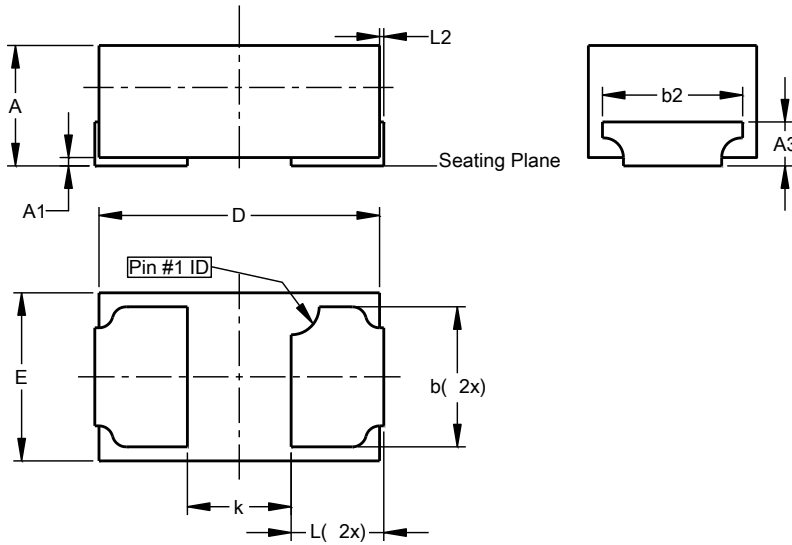


Fig. 5 Forward Power Dissipation

Package Outline Dimensions

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

X1-DFN1006-2 (SWP) (Type C)

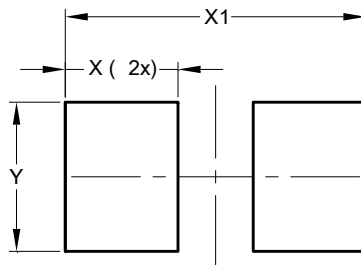


| X1-DFN1006-2 (SWP) (Type C) | | | |
|--------------------------------|----------|------|------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.47 | 0.42 |
| A1 | 0.00 | 0.05 | 0.03 |
| A3 | 0.17 REF | | |
| b | 0.47 | 0.57 | 0.52 |
| b2 | 0.55 REF | | |
| D | 0.95 | 1.05 | 1.00 |
| E | 0.55 | 0.65 | 0.60 |
| k | 0.37 REF | | |
| L | 0.28 | 0.38 | 0.33 |
| L2 | 0.15 REF | | |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

X1-DFN1006-2 (SWP) (Type C)



| Dimensions | Value (in mm) |
|------------|------------------|
| X | 0.45 |
| X1 | 1.20 |
| Y | 0.60 |

NEW PRODUCT

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