

Product Summary

| V_{RRM} (V) | I_o (A) | $V_F(MAX)$ (V) @ +25°C | $I_R(MAX)$ (mA) @ +25°C |
|---------------|-----------|---------------------------|----------------------------|
| 10 | 2 | 0.4 | 0.25 |

Description and Applications

The SBRT2M10LP provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as bypass and rectifier, freewheel diode or blocking diode in applications such as:

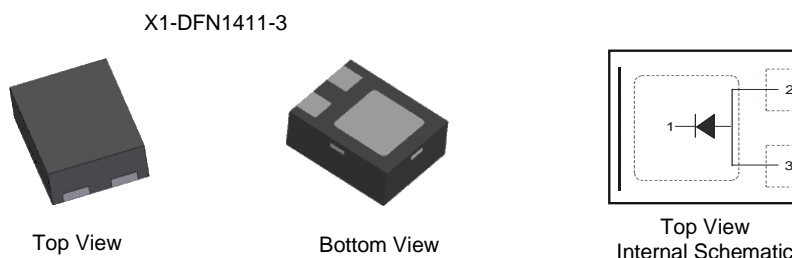
- Solar Panels
- Blocking Diodes
- Bypass Diodes
- Boost Diodes
- Recirculating Diodes

Features and Benefits

- Patented TrenchSBR technology provides superior avalanche capability versus schottky diodes, ensuring more rugged and reliable end applications.
- Reduced ultra-low forward voltage drop (V_F); Better efficiency and cooler operation.
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation.
- **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-DFN1411-3
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe; Solderable per MIL-STD-202, Method 208@3
- Polarity: See Below
- Weight: 2.35 mg (Approximate)

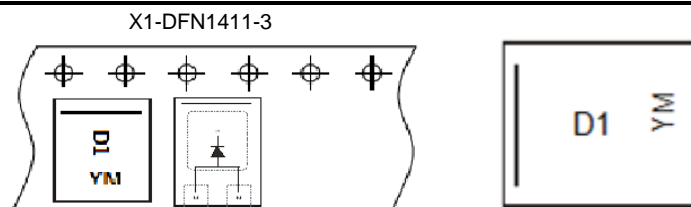


Ordering Information (Note 4)

| Part Number | Case | Packaging |
|--------------|--------------|-------------------|
| SBRT2M10LP-7 | X1-DFN1411-3 | 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/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>.

Marking Information



D1 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: C = 2015)
 M = Month (ex: 6 = June)
 Bar=Cathode

Date Code Key

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|------|------|------|------|------|------|------|------|------|------|
| Code | B | C | D | E | F | G | H | I | J |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

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

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

| Characteristic | Symbol | Value | Unit |
|--|------------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 10 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current | I _O | 2 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 25 | A |

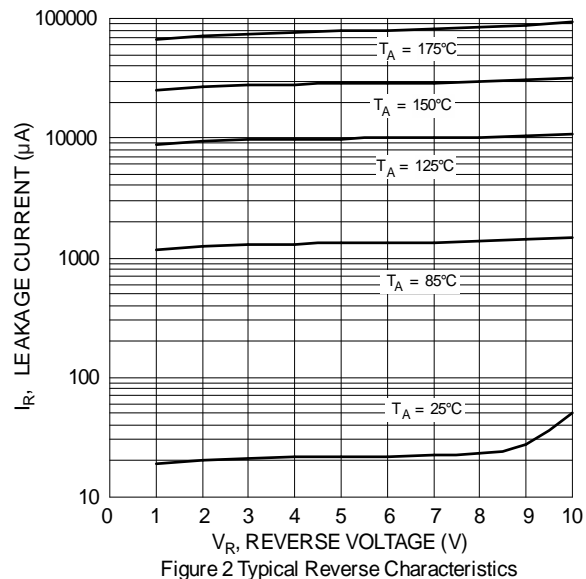
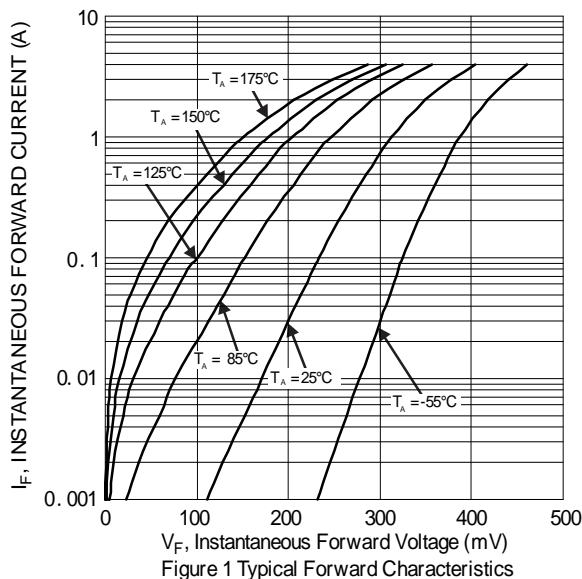
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---------------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case (Note 5) | R _{θJC} | 25 | °C/W |
| Typical Thermal Resistance Junction to Ambient (Note 5) | R _{θJA} | 100 | °C/W |
| Operating Temperature Range | V _R ≤ 80% V _{RRM} | -55 to +150 | °C |
| | V _R ≤ 50% V _{RRM} | ≤ +175 | |
| | DC Forward Mode (Note 7) | ≤ +200 | |
| Storage Temperature Range | 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 (Note 6) | V _F | — | — | 0.4 | V | I _F = 2A, T _J = +25°C |
| Leakage Current (Note 6) | I _R | — | — | 250 | μA | V _R = 10V, T _J = +25°C |
| | | — | 10.8 | — | mA | |

Notes: 5. Device mounted on FR-4 PCB pad layout 1inch 2oz copper.
 6. Short duration pulse test used to minimize self-heating effect.
 7. Maximum junction temperature guaranteed for two hours.



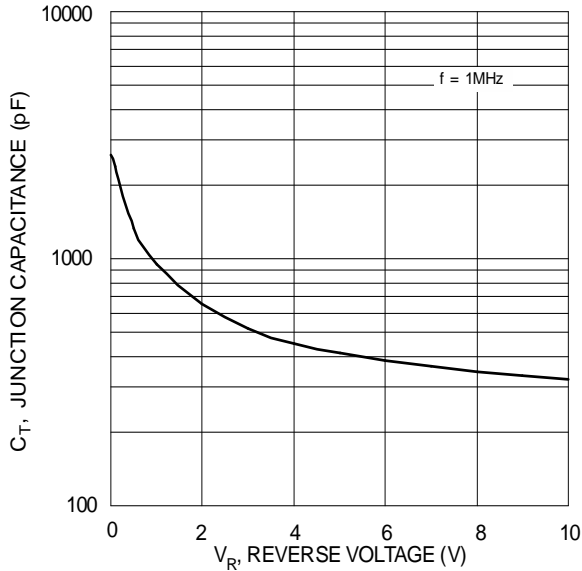


Figure 3 Typical Junction Capacitance

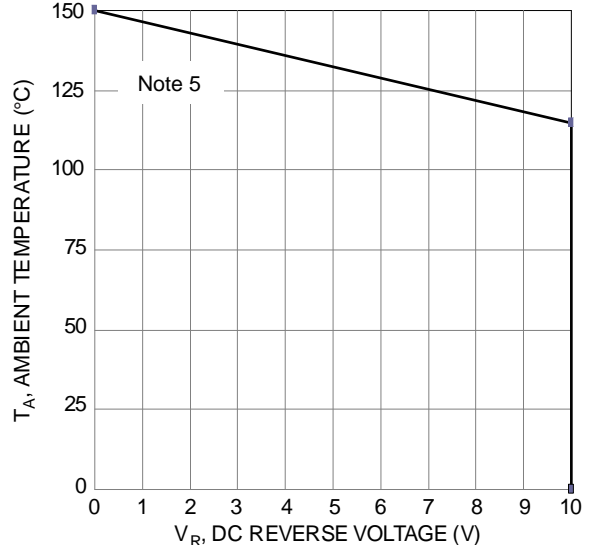


Figure 4 Operating Temperature Derating

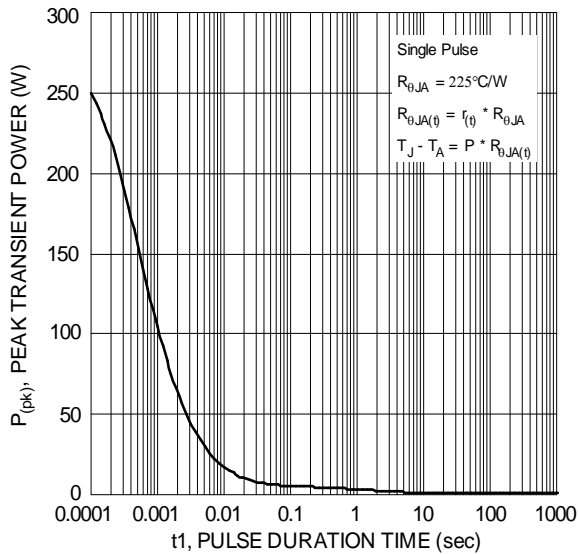


Figure 5 Single Pulse Maximum Power Dissipation

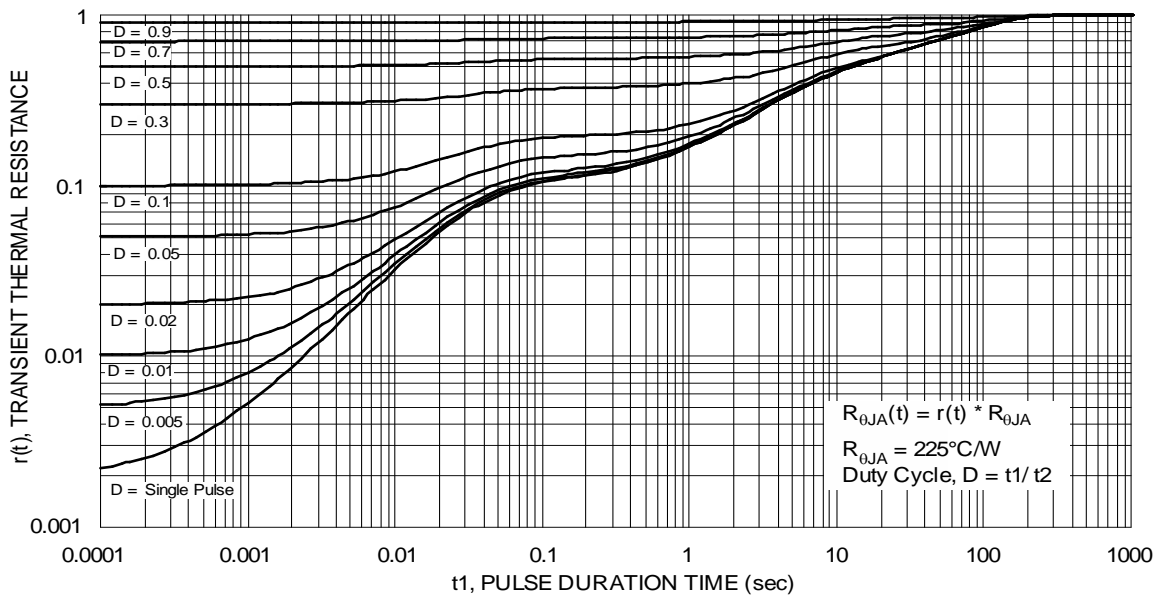
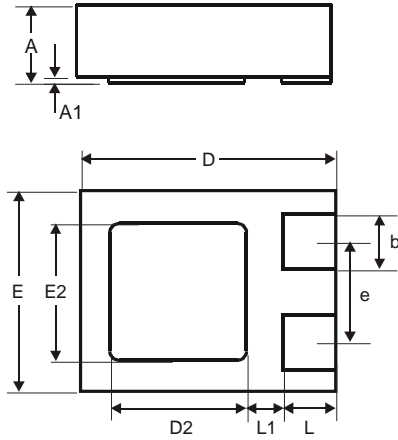


Figure 6 Transient Thermal Resistance

Package Outline Dimensions

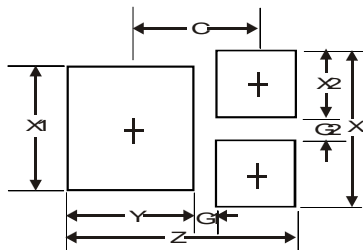
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| X1-DFN1411-3 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.47 | 0.53 | 0.50 |
| A1 | 0.00 | 0.05 | 0.02 |
| b | 0.25 | 0.35 | 0.30 |
| D | 1.35 | 1.475 | 1.40 |
| D2 | 0.65 | 0.85 | 0.75 |
| E | 1.05 | 1.175 | 1.10 |
| E2 | 0.65 | 0.85 | 0.75 |
| e | — | — | 0.55 |
| L | 0.225 | 0.325 | 0.275 |
| L1 | — | — | 0.20 |
| All Dimensions in mm | | | |

Suggested Pad Layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 1.38 |
| G1 | 0.15 |
| G2 | 0.15 |
| X | 0.95 |
| X1 | 0.75 |
| X2 | 0.40 |
| Y | 0.75 |
| C | 0.76 |

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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331