



SBR3A40SA

3.0A SBR[®] SUPER BARRIER RECTIFIER SMA

Features

- Low Leakage Current
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- Lead Free Finish, RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- SBR3A40SAQ Qualified to AEC-Q101 standards for High Reliability.

Mechanical Data

- Case: SMA
- Case Material: Molded Plastic, "Green" Molding compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Lead Free Plating (Matte Tin Finish.) Solderable per MIL-STD-202, Method 208 63
- Polarity Indicator: Cathode Band
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.064 grams (approximate)





Top View

Bottom View

Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|---------------|------------|------|------------------|
| SBR3A40SA-13 | Commercial | SMA | 5000/Tape & Reel |
| SBR3A40SAQ-13 | Automotive | SMA | 5000/Tape & Reel |

Notes:

- 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- 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.
- 5. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.

Marking Information



SV 4 = Product Type Marking Code
JII = Manufacturers' code marking
YWW = Date Code Marking
Y = Last digit of year (ex: 7 for 2007)
WW = Week code 01 to 52

Notes: 6. Device has a cathode band (as shown above) and may also have a cathode notch.



Maximum Ratings (@ $T_A = +25^{\circ}C$, 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} | | |
| Working Peak Reverse Voltage | V _{RWM} | 40 | V |
| DC Blocking Voltage | V_{RM} | | |
| Maximum Voltage Rate of Change (Rated V _R) | dv/dt | 10,000 | V/µs |
| RMS Reverse Voltage | V _{R(RMS)} | 28 | V |
| Average Rectified Output Current | Io | 3 | Α |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 45 | А |

Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|--|------------------|------|
| Maximum Thermal Resistance Thermal Resistance Junction to Soldering (Note 7) Thermal Resistance Junction to Ambient (Note 8) Thermal Resistance Junction to Case (Note 8) | $egin{array}{l} {\sf R}_{	heta}{\sf JS} \ {\sf R}_{	heta}{\sf JC} \end{array}$ | 5 124 14.3 | °C/W |
| Power Dissipation (Note 8) $@T_A = +25^{\circ}C$ | P_{D} | 1.2 | W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

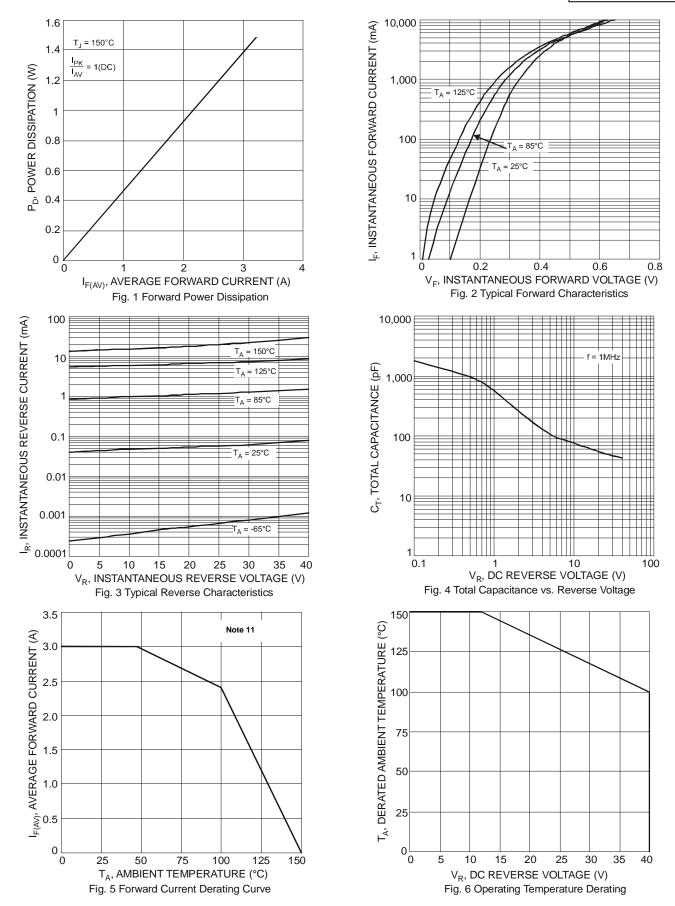
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Тур | Max | Unit | Test Condition |
|-------------------------------------|----------------|-------------|---------------------------|------------------------------|----------------|---|
| Reverse Breakdown Voltage (Note 10) | $V_{(BR)R}$ | 40 | _ | _ | V | $I_R = 0.4 \text{mA}$ |
| Forward Voltage Drop | V _F | - - - | 0.30 0.33 0.43 - | 0.35 0.38 0.50 0.48 | V | $\begin{split} I_F &= 0.5A, T_J = +25^{\circ}C \\ I_F &= 1.0A, T_J = +25^{\circ}C \\ I_F &= 3.0A, T_J = +25^{\circ}C \\ I_F &= 3.0A, T_J = +125^{\circ}C \end{split}$ |
| Leakage Current (Note 10) | I _R | _ | 45 80 9 | 250 400 40 | μΑ μΑ mA | $V_R = 5V$, $T_J = +25$ °C $V_R = 40V$, $T_J = +25$ °C $V_R = 40V$, $T_J = +125$ °C |

Notes:

- 7. Theoretical R_{0.05} calculated from the top center of the die straight down to the PCB cathode tab solder junction.
- FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
 Polymide PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
 Short duration pulse test used to minimize self-heating effect.
 FR-4 PCB, 2 oz. Copper, single side 16 x MRP, 1" x 1" PC Board.

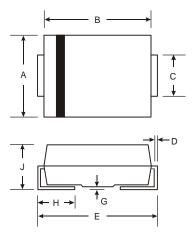






Package Outline Dimensions

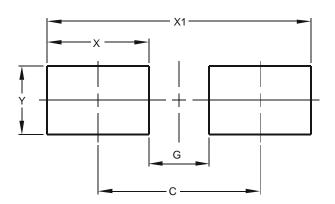
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



| SMA | | | | |
|----------------------|------|------|--|--|
| Dim | Min | Max | | |
| Α | 2.29 | 2.92 | | |
| В | 4.00 | 4.60 | | |
| C | 1.27 | 1.63 | | |
| D | 0.15 | 0.31 | | |
| Е | 4.80 | 5.59 | | |
| G | 0.05 | 0.20 | | |
| Η | 0.76 | 1.52 | | |
| 7 | 2.01 | 2.30 | | |
| 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) |
|------------|---------------|
| С | 4.00 |
| G | 1.50 |
| Х | 2.50 |
| X1 | 6.50 |
| Υ | 1.70 |



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