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[Diodes Incorporated](#)
[SBRT3M40SA-13](#)

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SBRT3M40SA

**3A TrenchSBR
TRENCH SUPER BARRIER RECTIFIER**

Product Summary

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C
40	3	0.53	0.07

Description and Applications

The SBRT3M40SA is a 3A 40V single rectifier packaged in the low profile SMA package. Providing low VF and excellent reverse leakage stability at high temperatures, this device is ideal for use in general rectification applications such as:

- Boost Diode
- Blocking Diode
- Recirculating Diode

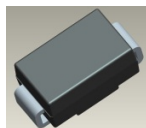
Features and Benefits

- Reduced 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.
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

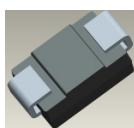
Mechanical Data

- Case: SMA
- 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: Cathode Band
- Weight: 0.064 grams (approximate)

SMA



Top View



Bottom View

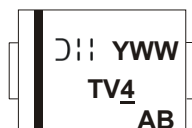


Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT3M40SA-13	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>.

Marking Information



TV4 = Product Type Marking Code
 YWW = Date Code Marking
 Y = Last digit of year (ex: 4 for 2014)
 WW = Week code 01 to 53
 AB = Foundry and Assembly Code

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}	40	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
Average Rectified Output Current	I _O	3	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	70	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	64	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	R _{θJC}	37	°C/W
Operating and Storage Temperature Range	T _J , 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	V _F	—	0.46	0.53	V	I _F = 3A, T _J = +25°C
		—	0.39	—		I _F = 3A, T _J = +125°C
Leakage Current (Note 6)	I _R	—	15	70	μA	V _R = 40V, T _J = +25°C
		—	—	20		mA

Notes: 5. Device mounted on FR-4 substrate, 0.4**0.5", 2oz, single-sided, PC boards with 0.2**0.25" copper pad.
6. Short duration pulse test used to minimize self-heating effect.

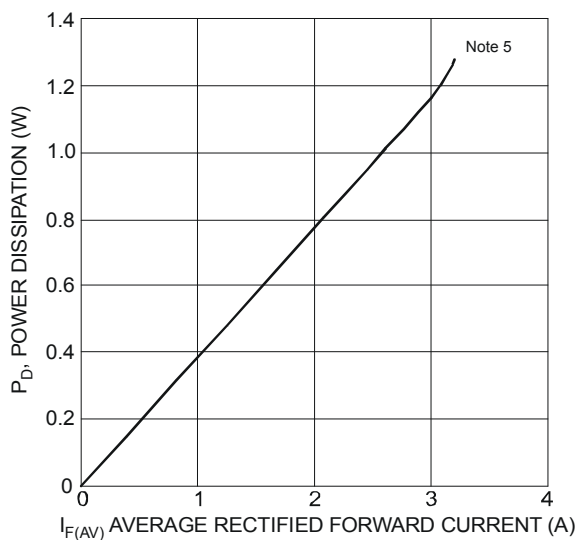


Figure 1 Forward Power Dissipation

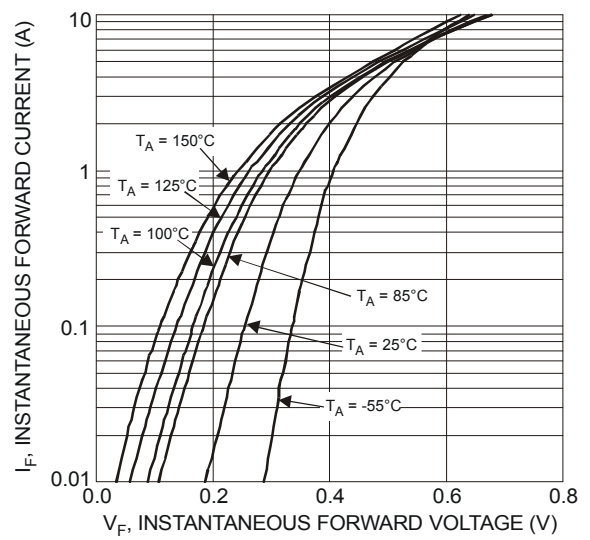


Figure 2 Typical Forward Characteristics

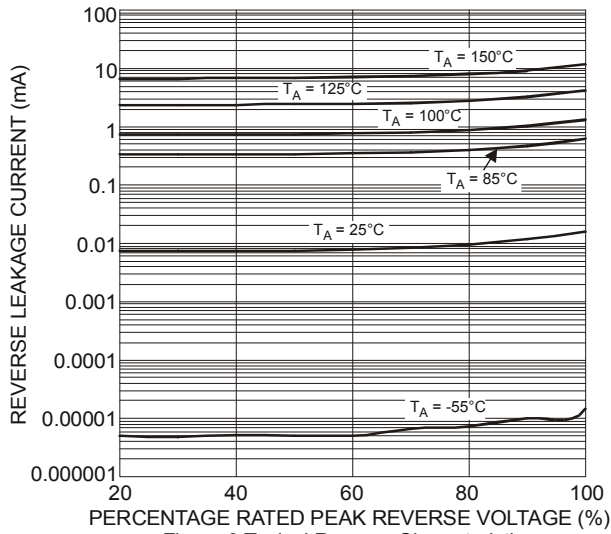


Figure 3 Typical Reverse Characteristics

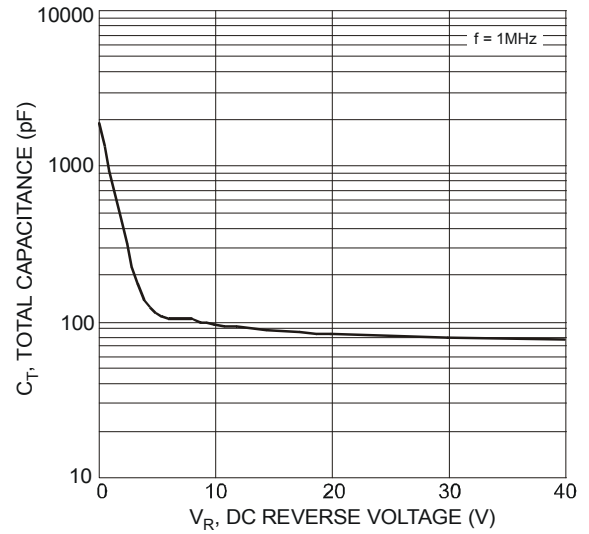


Figure 4 Total Capacitance vs. Reverse Voltage

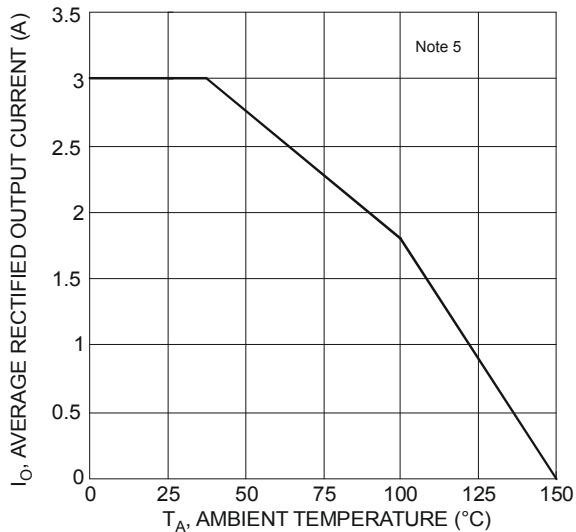
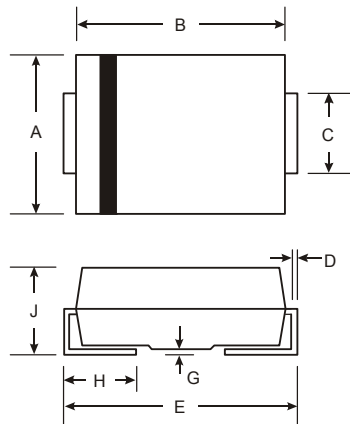


Figure 5 Forward Current Derating Curve

Package Outline Dimensions

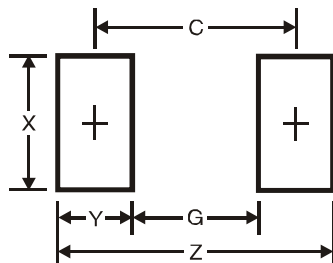
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	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)
Z	6.5
G	1.5
X	1.7
Y	2.5
C	4.0

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