

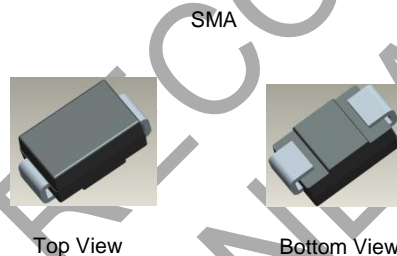
Product Summary

V _{RRM} (V)	I _o (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (mA) @ +25°C
45	3	0.48	0.15

Description and Applications

The SBRT3U45SAQ is a 3A 45V single rectifier packaged in the low profile SMA package. Providing very low V_F 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 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.
- Patented Super Barrier Rectifier Technology (SBR[®])
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SBRT3U45SAQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

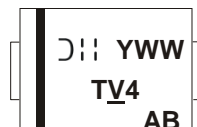
- Case: SMA
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: Cathode Band
- Weight: 0.064 grams (Approximate)

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
SBRT3U45SAQ-13	Automotive	SMA	5000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



DII = Manufacturer's Marking
 TV4 = Product Type Marking Code
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 1 for 2021)
 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 capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _R RM	45	V
Working Peak Reverse Voltage	V _R WM		
DC Blocking Voltage	V _R 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 _F SM	50	A

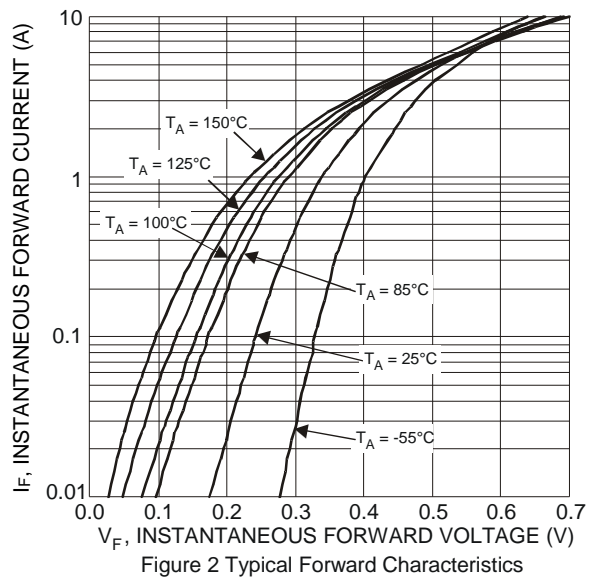
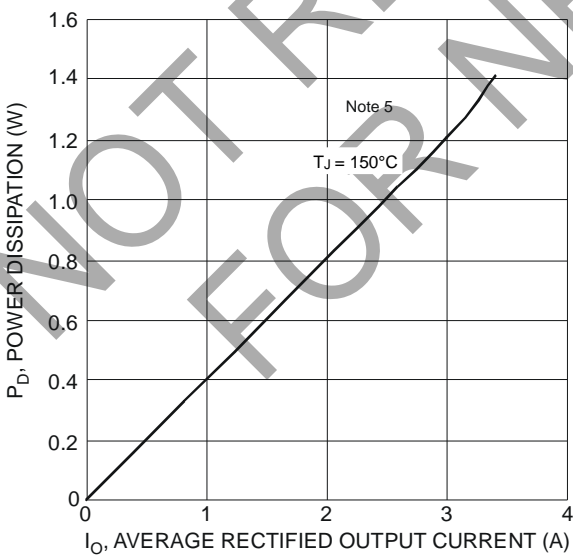
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _θ JA	66	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	R _θ JC	30	°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	—	0.42	0.48 0.46	V	I _F = 3A, T _J = +25°C I _F = 3A, T _J = +125°C
Leakage Current (Note 6)	I _R	—	30	150 40	μA mA	V _R = 45V, T _J = +25°C V _R = 45V, T _J = +125°C

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.



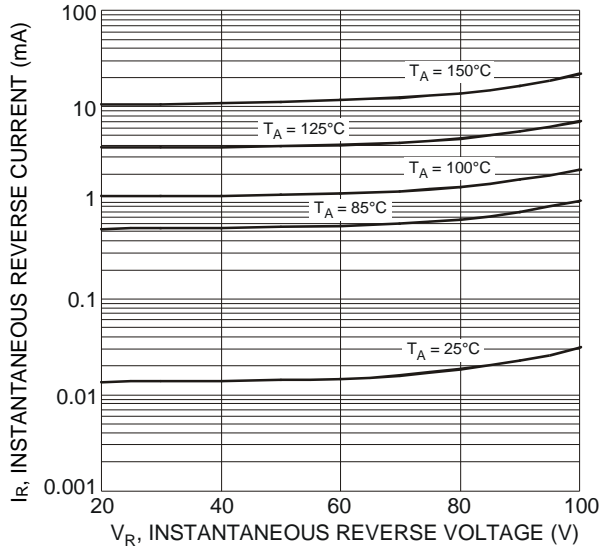


Figure 3 Typical Reverse Characteristics

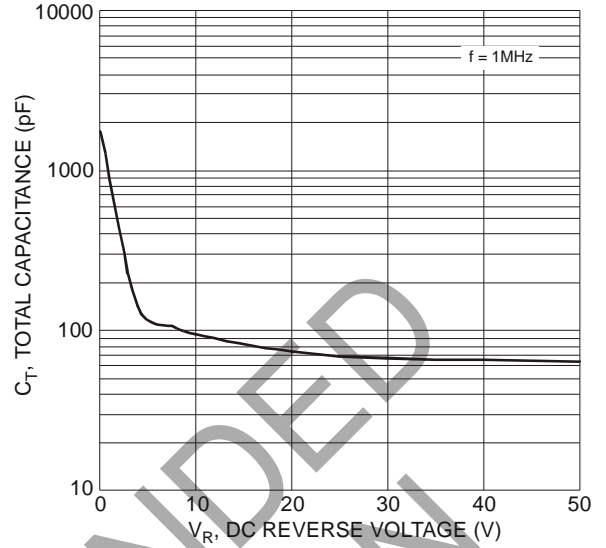


Figure 4 Total Capacitance vs. Reverse Voltage

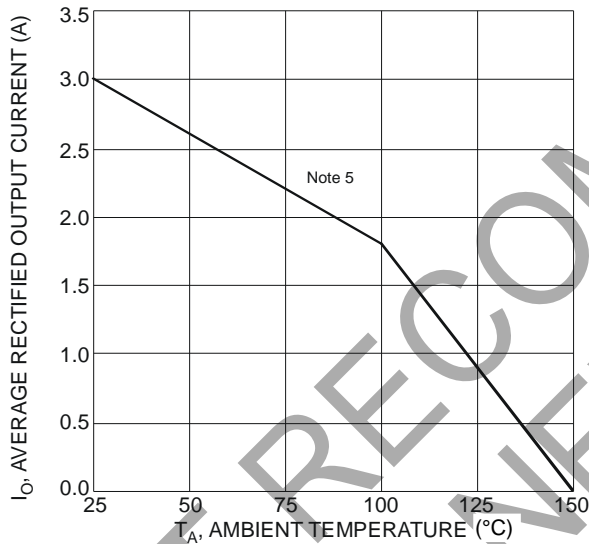
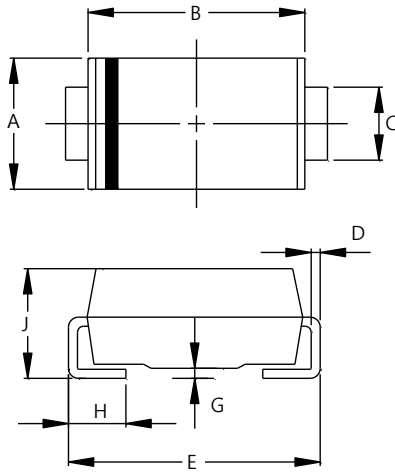


Figure 5 Forward Current Derating Curve

Package Outline Dimensions

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

SMA

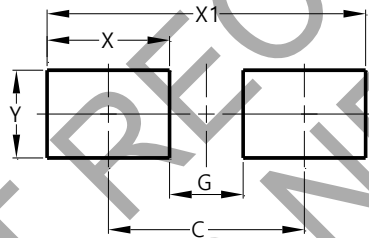


SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	1.96	2.40
All Dimensions in mm		

Suggested Pad Layout

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

SMA



Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

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