



**THE DATASHEET OF  
SBRT40M80CTB-13**



### Product Summary (Per Leg)

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F(MAX)</sub> (V) @ +25°C	I <sub>R(MAX)</sub> (µA) @ +25°C
80	20	0.72	65

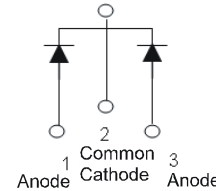
### Description and Applications

Packaged in the robust industry-standard TO263AB (D2PAK) package, the SBRT40M80CTB provides very low V<sub>F</sub> and excellent reverse leakage stability at high temperatures. They are ideal for use as a rectifier, freewheel diode or blocking diode in:

- SMPS
- DC-DC Converters
- AC-DC Adaptors



Top View



Package Pin Out Configuration

### Features and Benefits

- Reduced low forward voltage drop (V<sub>F</sub>); better efficiency and cooler operation.
- Reduced high temperature reverse leakage; Increased reliability against thermal runaway failure in high temperature operation.
- Patented Trench Super Barrier Rectifier SBR<sup>®</sup> Technology.
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### Mechanical Data

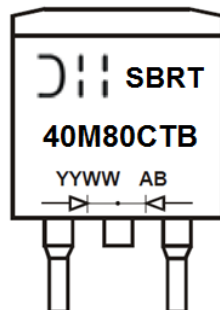
- Case: TO263AB (D2PAK)
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Below
- Weight: 1.6 grams (Approximate)

### Ordering Information (Note 4)

Part Number	Case	Packaging
SBRT40M80CTB	TO263AB (D2PAK)	50 Pieces/Tube
SBRT40M80CTB-13	TO263AB (D2PAK)	800/Tape & Reel, 13-inch

- 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](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



⌋⌋⌋ = Manufacturers' Code Marking  
 SBRT40M80CTB = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 16 = 2016)  
 WW = Week (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +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 <sub>R</sub> RM	80	V
Working Peak Reverse Voltage	V <sub>R</sub> WM		
DC Blocking Voltage	V <sub>R</sub> M		
Average Rectified Output Current (Per Leg) (Total)	I <sub>O</sub>	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Per Leg)	I <sub>FSM</sub>	230	A

**Thermal Characteristics (Per Leg)**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5)	R <sub>θ</sub> JC	12	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θ</sub> JA	1.5	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics (Per Leg)** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V <sub>F</sub>	—	0.51	0.59	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C
			0.63	0.72		I <sub>F</sub> = 20A, T <sub>J</sub> = +25°C
			—	0.63		I <sub>F</sub> = 20A, T <sub>J</sub> = +125°C
Leakage Current (Note 6)	I <sub>R</sub>	—	10	65	μA mA	V <sub>R</sub> = 80V, T <sub>J</sub> = +25°C
			—	40		V <sub>R</sub> = 80V, T <sub>J</sub> = +125°C

Notes: 5. With 2inchx2inch Al board + 50mmx50mmx23mm Al heatsink.  
6. Short duration pulse test used to minimize self-heating effect.

NEW PRODUCT

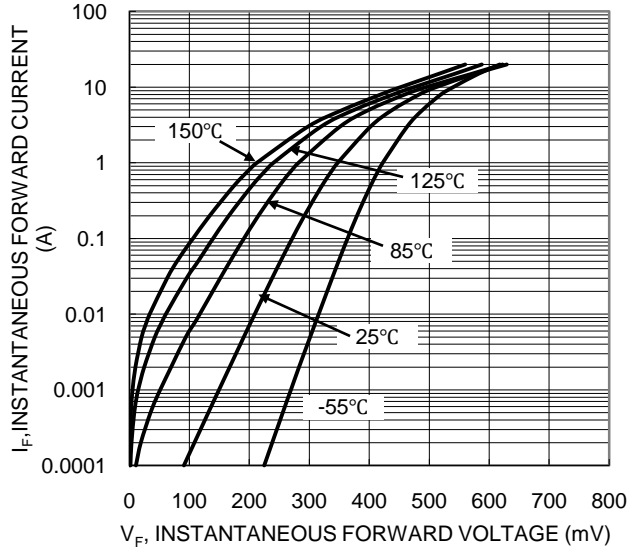


Figure 1. Typical Forward Characteristics

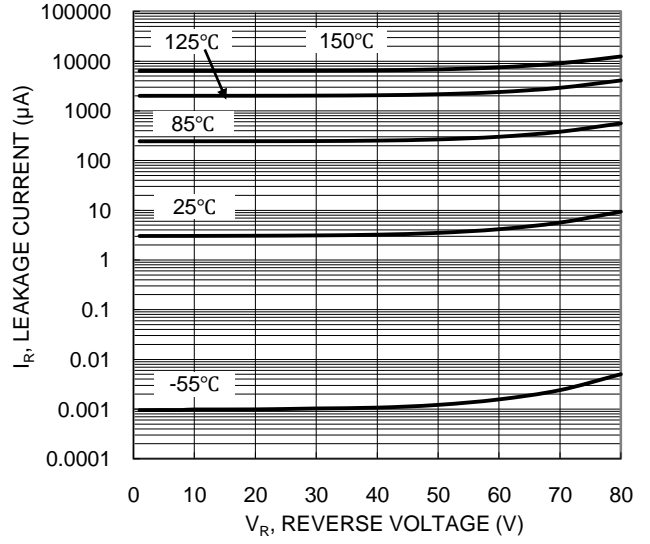


Figure 2. Typical Reverse Characteristics

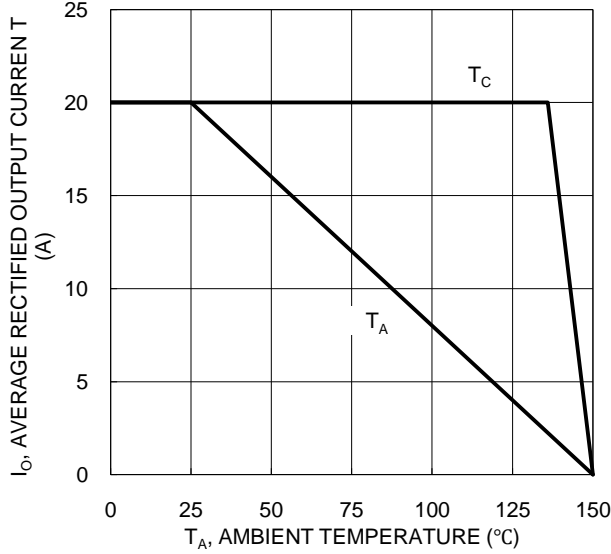


Figure 3. DC Forward Current Derating

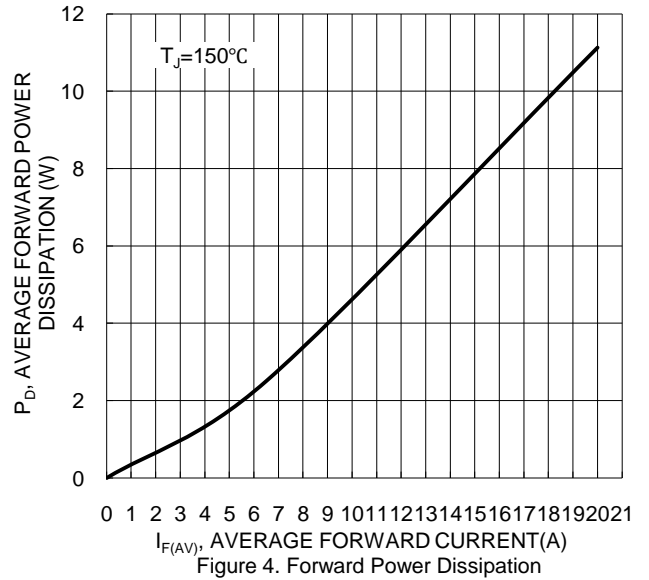


Figure 4. Forward Power Dissipation

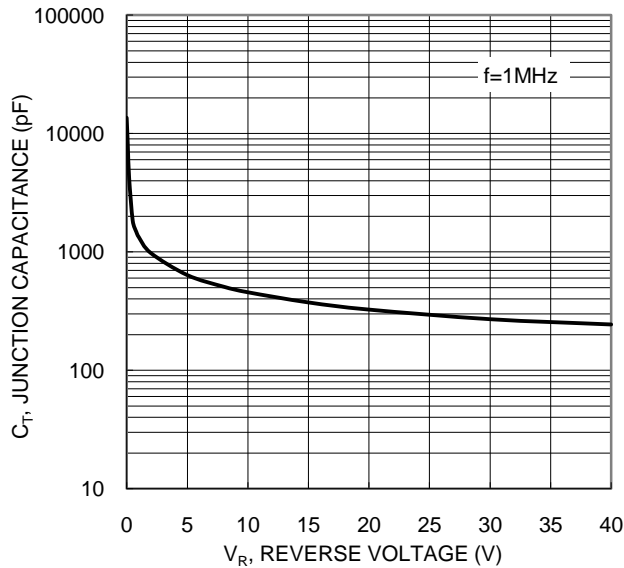
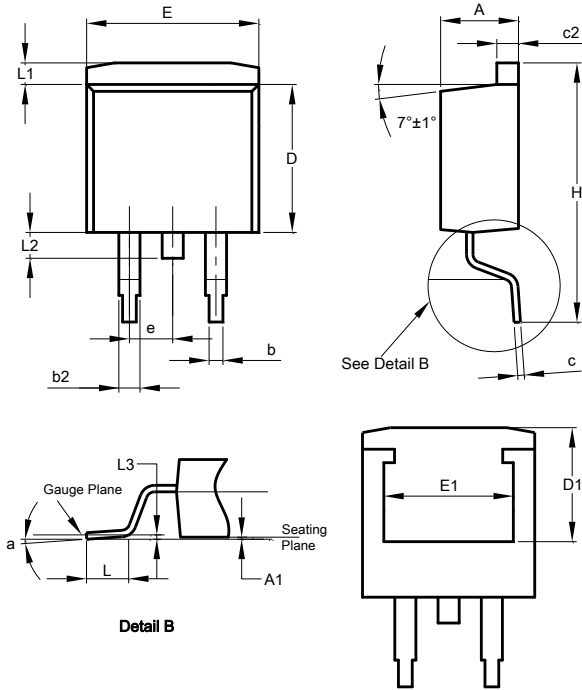


Figure 5. Typical Junction Capacitance

**Package Outline Dimensions**

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

**TO263AB (D2PAK)**

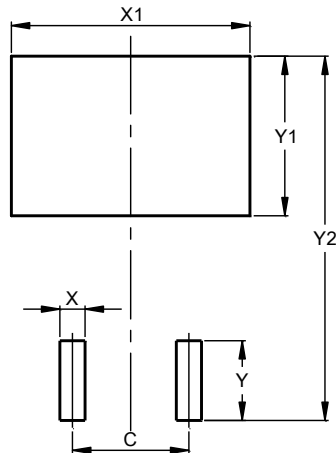


TO263AB (D2PAK)			
Dim	Min	Max	Typ
A	4.07	4.82	-
A1	0.00	0.25	-
b	0.51	0.99	-
b2	1.15	1.77	-
c	0.356	0.73	-
c2	1.143	1.65	-
D	8.39	9.65	-
D1	6.55	6.95	-
e	2.54 TYP		
E	9.66	10.66	-
E1	6.23	8.23	-
H	14.61	15.87	-
L	1.78	2.79	-
L1	-	1.67	-
L2	-	1.77	-
L3	-	-	0.254
a	0°	8°	-
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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

**TO263AB (D2PAK)**



Dimensions	Value (in mm)
C	5.08
X	1.10
X1	10.41
Y	3.50
Y1	7.01
Y2	15.99

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