



THE DATASHEET OF SBRT40M80CTB



Product Summary (Per Leg)

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V) @ +25°C	I _{R(MAX)} (µA) @ +25°C
80	20	0.72	65

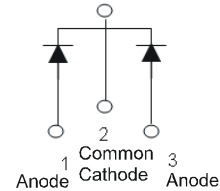
Description and Applications

Packaged in the robust industry-standard TO263AB (D2PAK) package, the SBRT40M80CTB provides very low V_F 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_F); 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[®] Technology.
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

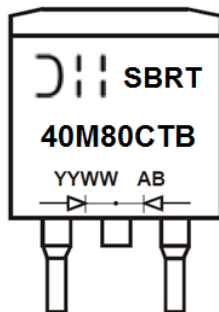
- Case: TO263AB (D2PAK)
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: See Below
- Weight: 1.6 grams (Approximate)

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 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 (@ $T_A = +25^\circ\text{C}$, 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_{RRM}	80	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current (Per Leg) (Total)	I_O	20 40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Per Leg)	I_{FSM}	230	A

Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case (Note 5)	$R_{\theta JC}$	12	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	1.5	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Per Leg) (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V_F	—	0.51	0.59	V	$I_F = 10\text{A}, T_J = +25^\circ\text{C}$
			0.63	0.72		$I_F = 20\text{A}, T_J = +25^\circ\text{C}$
			—	0.63		$I_F = 20\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 6)	I_R	—	10	65	μA mA	$V_R = 80\text{V}, T_J = +25^\circ\text{C}$
			—	40		$V_R = 80\text{V}, T_J = +125^\circ\text{C}$

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

NEW PRODUCT

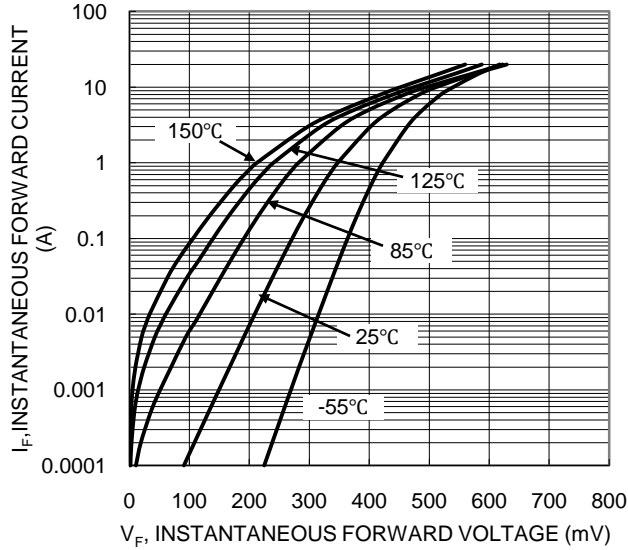


Figure 1. Typical Forward Characteristics

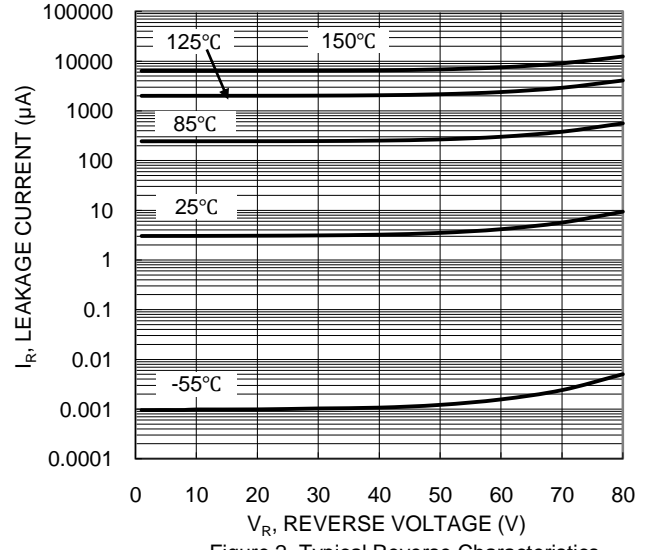


Figure 2. Typical Reverse Characteristics

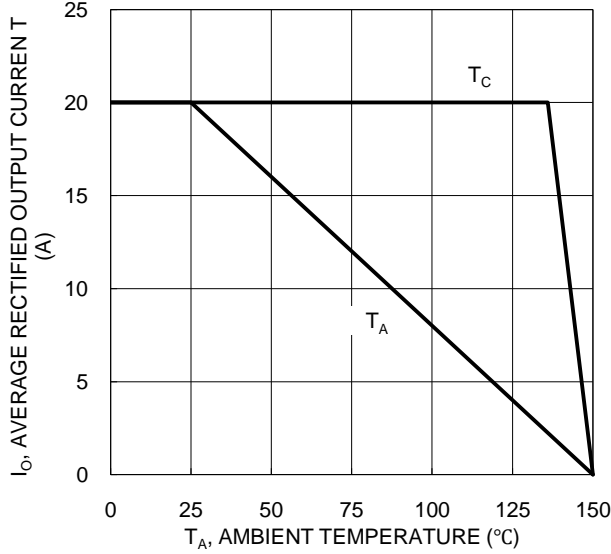


Figure 3. DC Forward Current Derating

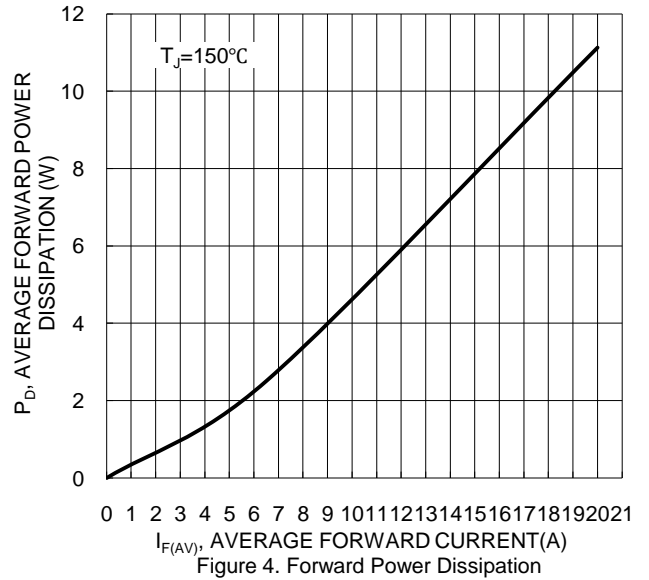


Figure 4. Forward Power Dissipation

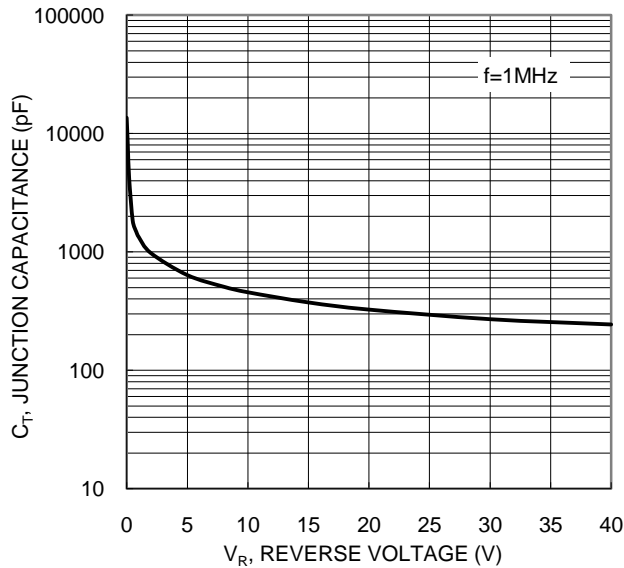
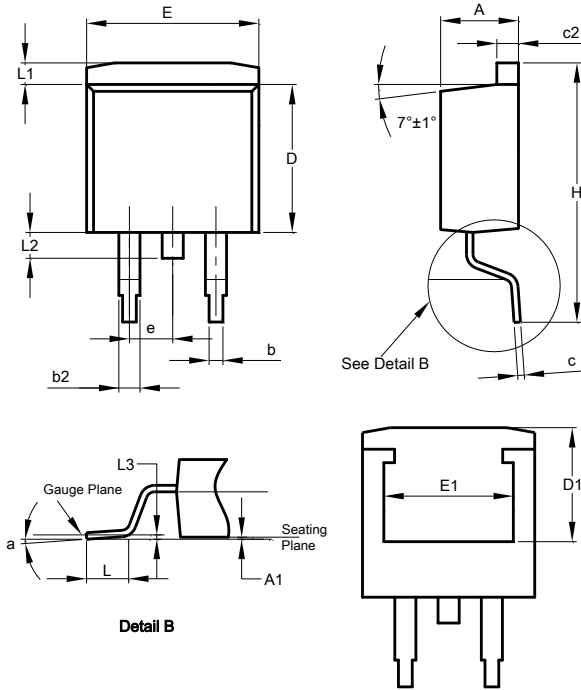


Figure 5. Typical Junction Capacitance

Package Outline Dimensions

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

TO263AB (D2PAK)

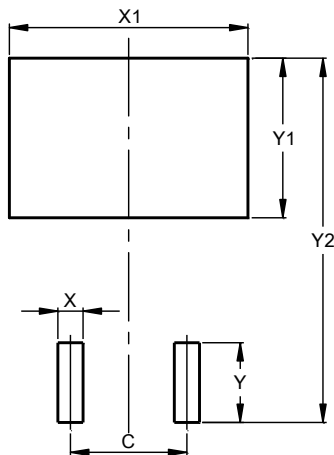


TO263AB (D2PAK)			
Dim	Min	Max	Typ
A	4.07	4.82	-
A1	0.00	0.25	-
b	0.51	0.99	-
b2	1.15	1.77	-
c	0.356	0.73	-
c2	1.143	1.65	-
D	8.39	9.65	-
D1	6.55	6.95	-
e	2.54 TYP		
E	9.66	10.66	-
E1	6.23	8.23	-
H	14.61	15.87	-
L	1.78	2.79	-
L1	-	1.67	-
L2	-	1.77	-
L3	-	-	0.254
a	0°	8°	-
All Dimensions in mm			

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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