

# SBR40U300CTB

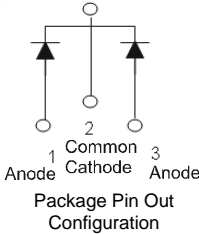
40A SBR<sup>®</sup>  
SUPER BARRIER RECTIFIER

## Features

- Ultra Low Forward Voltage Drop
- Low Leakage Current
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 175°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Also Available in Green Molding Compound (Note 2)**

## Mechanical Data

- Case: D<sup>2</sup>PAK
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 <sup>(3)</sup>
- Weight: 1.6 grams (approximate)



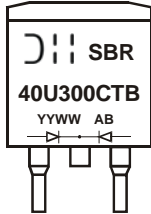
D<sup>2</sup>PAK

## Ordering Information (Notes 2 & 3)

Part Number	Case	Packaging
SBR40U300CTB	D <sup>2</sup> PAK	50 pieces/tube
SBR40U300CTB-G	D <sup>2</sup> PAK	50 pieces/tube
SBR40U300CTB-13	D <sup>2</sup> PAK	800 pieces/Tape & Reel
SBR40U300CTB-13-G	D <sup>2</sup> PAK	800 pieces/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes
  2. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR40U300CTB-G.
  3. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



SBR40U300CTB = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year (ex: 08 = 2008)  
WW = Week (01 - 53)

**Maximum Ratings (Per Leg)** @ $T_A = 25^\circ\text{C}$  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	$V_{RRM}$	300	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_{RM}$		
Average Rectified Output Current	$I_O$	20	A
Per Leg		40	
Total			
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	200	A

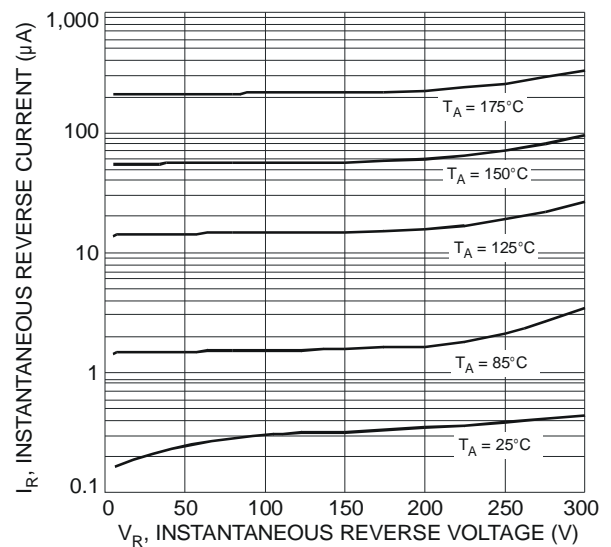
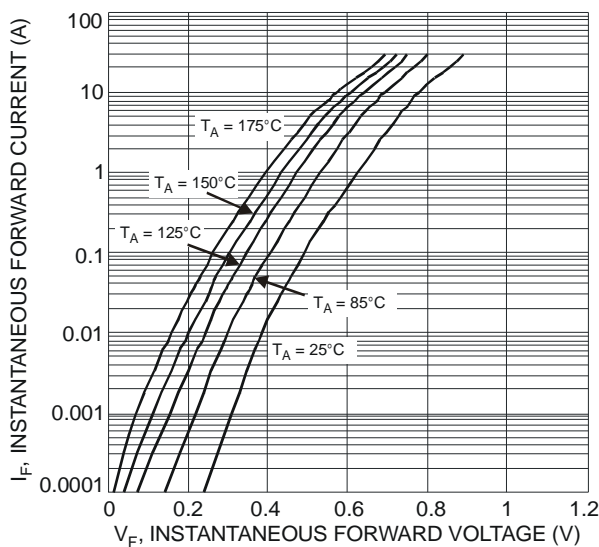
**Thermal Characteristics (Per Leg)**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance			
Thermal Resistance Junction to Case (Note 4)	$R_{\theta JC}$	2	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +175	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (per leg)	$V_F$	-	0.87	0.92	V	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$ $I_F = 20\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 5)	$I_R$	-	-	100	$\mu\text{A}$	$V_R = 300\text{V}, T_J = 25^\circ\text{C}$
		-	-	50	mA	$V_R = 300\text{V}, T_J = 125^\circ\text{C}$
Reverse Recovery Time	$t_{rr}$	-	32	50	ns	$I_F = 0.5\text{A}, I_R = 1\text{A}, I_{RR} = 0.25\text{A}$
		-	26	35		$I_F = 1\text{A}, V_R = 30\text{V}, di/dt = 100\text{A}/\mu\text{s}, T_J = 25^\circ\text{C}$

Notes: 4. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>  
5. Short duration pulse test used to minimize self-heating effect.



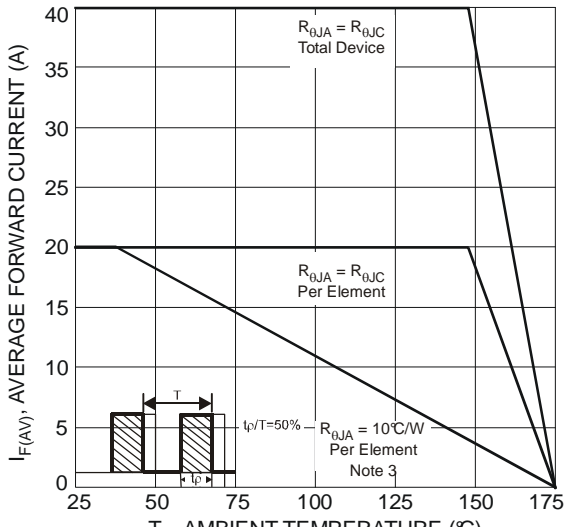
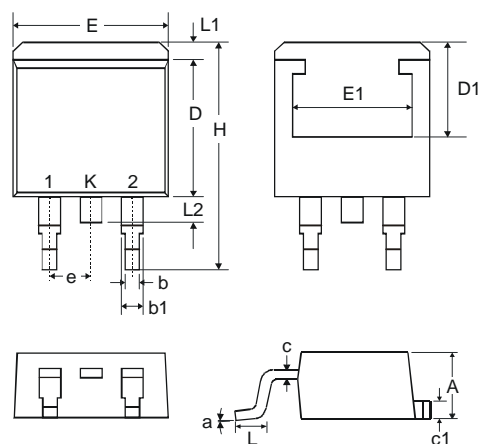


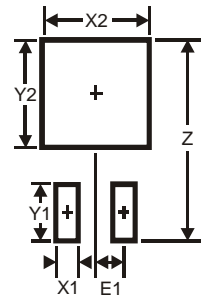
Fig. 3 Forward Current Derating Curve

**Package Outline Dimensions**



D <sup>2</sup> PAK		
Dim	Min	Max
A	4.07	4.82
b	0.51	0.99
b1	1.15	1.77
c	0.356	0.58
c1	1.143	1.65
D	8.39	9.65
D1	6.55	—
E	9.66	10.66
E1	6.23	—
e	2.54 Typ	
H	14.61	15.87
L	1.78	2.79
L1	—	1.67
L2	—	1.77
a	0°	8°
All Dimensions in mm		

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	16.9
X1	1.1
X2	10.8
Y1	3.5
Y2	7.01
E1	2.5

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