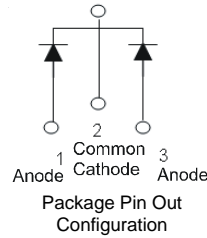


Features

- 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: D²PAK
- 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
- Weight: 1.6 grams (approximate)

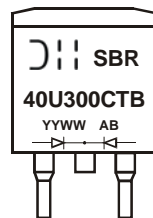


Ordering Information (Notes 2 & 3)

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

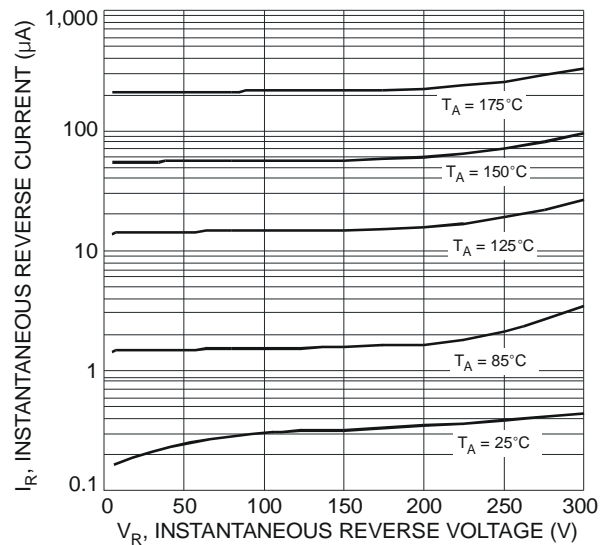
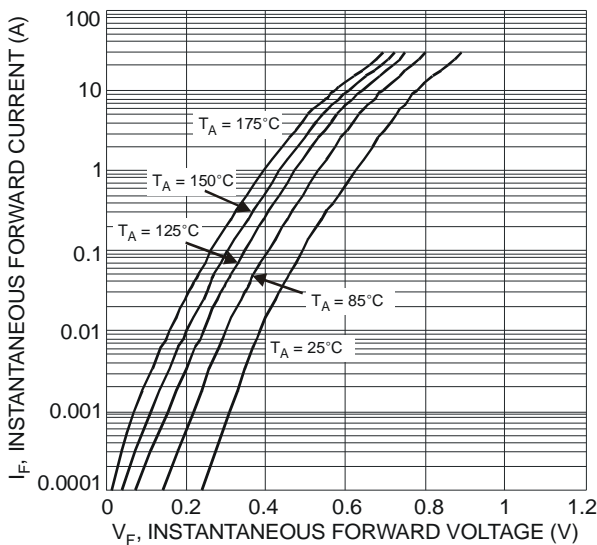
Thermal Characteristics (Per Leg)

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	μA	$V_R = 300\text{V}, T_J = 25^\circ\text{C}$
		-	-	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.



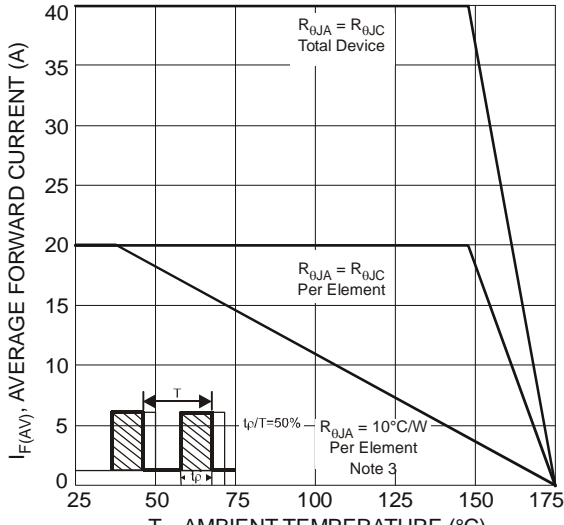
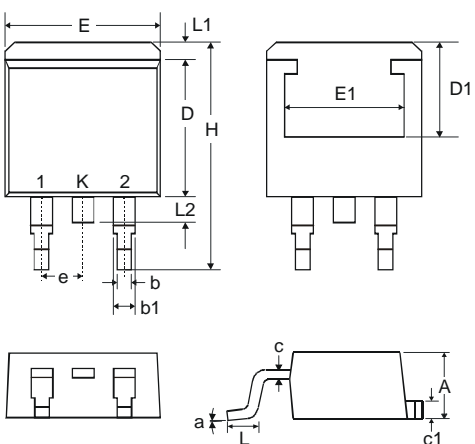


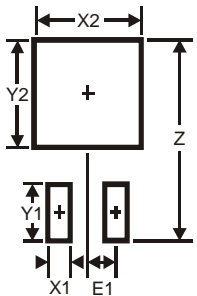
Fig. 3 Forward Current Derating Curve

Package Outline Dimensions



D ² 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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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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