40A SBR®
SUPER BARRIER RECTIFIER

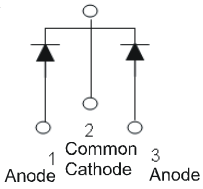
Features

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

Mechanical Data

- Case: D^2PAK
- 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 e3
- Weight: 1.6 grams (approximate)

D^2PAK



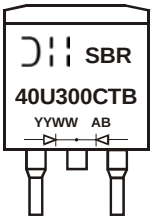
Package Pin Out Configuration

Ordering Information (Notes 2 & 3)

Part Number	Case	Packaging
SBR40U300CTB	D^2PAK	50 pieces/tube
SBR40U300CTB-G	D^2PAK	50 pieces/tube
SBR40U300CTB-13	D^2PAK	800 pieces/Tape & Reel
SBR40U300CTB-13-G	D^2PAK	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°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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	300	V
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	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	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +175	ºC

Electrical Characteristics (Per Leg) @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (per leg)	V_F	- -	0.87 -	0.92 0.81	V	I_F = 20A, T_J = 25ºC I_F = 20A, T_J = 125ºC
Leakage Current (Note 5)	I_R	- -	- -	100 50	µA mA	V_R = 300V, T_J = 25ºC V_R = 300V, T_J = 125ºC
Reverse Recovery Time	t_{rr}	-	32	50	ns	I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A
		-	26	35		I_F = 1A, V_R = 30V, di/dt = 100A/µs, T_J = 25ºC

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.

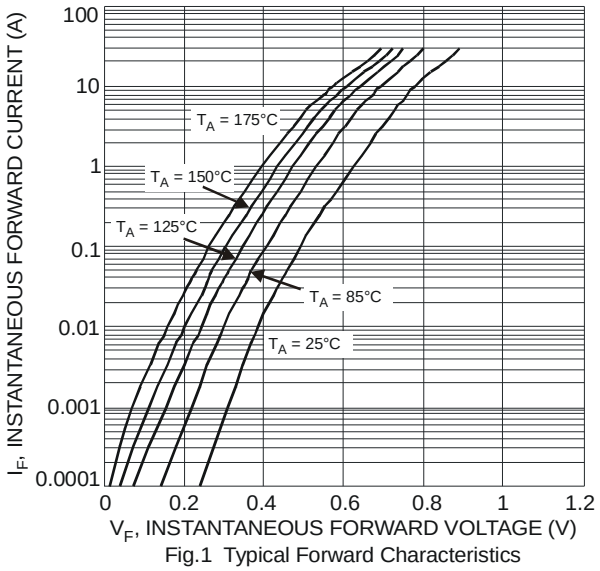


Fig.1 Typical Forward Characteristics

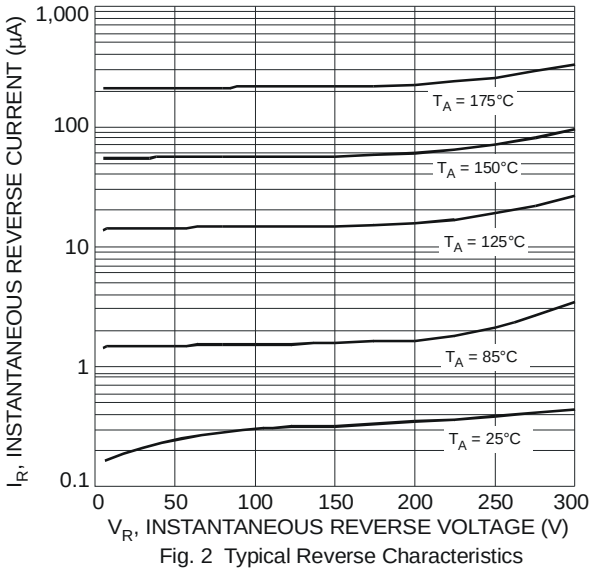


Fig. 2 Typical Reverse Characteristics

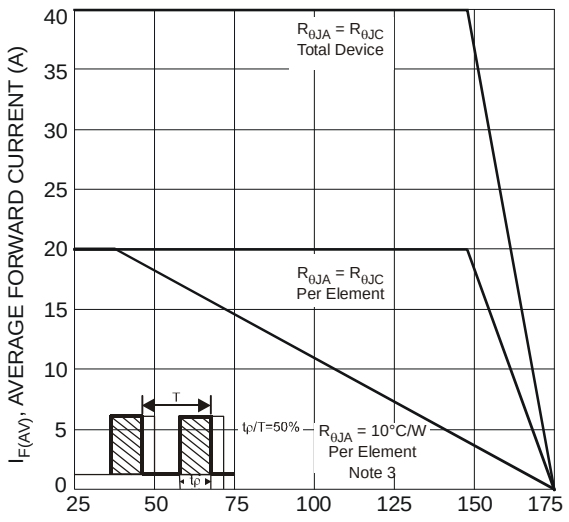
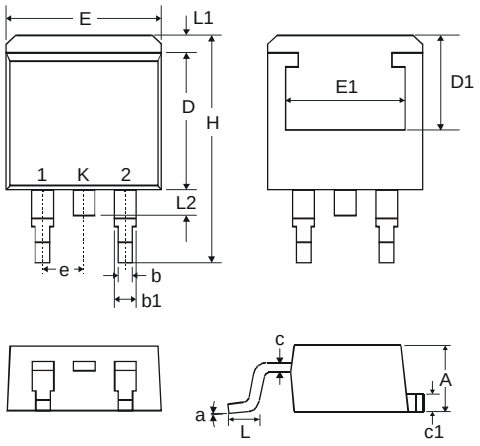


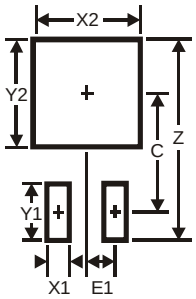
Fig. 3 Forward Current Derating Curve

Package Outline Dimensions



D^2PAK		
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	11.4
C	9.5
E1	2.5

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