

## 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
- Molded Plastic TO-220AB package
- **Lead Free Finish, RoHS Compliant (Note 2)**

### Mechanical Data

- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Matte Tin Finish annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity: As Marked on Body
- Ordering Information: See Page 3
- Marking Information: See Page 3

### 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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>RM</sub>	300	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	212	V
Average Rectified Output Current @ T <sub>C</sub> = 140°C	I <sub>O</sub>	40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	235	A
Maximum Thermal Resistance (per leg)	R <sub>θJA</sub>	52	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-65 to +175	°C

### Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	300	-	-	V	I <sub>R</sub> = 0.04 mA
Forward Voltage Drop (per leg)	V <sub>F</sub>	-	0.84 0.73	0.89 0.78	V	I <sub>F</sub> = 20A, T <sub>j</sub> = 25°C I <sub>F</sub> = 20A, T <sub>j</sub> = 125°C
Leakage Current (Note 1)	I <sub>R</sub>	-	5 2	100 10	μA mA	V <sub>R</sub> = 300V, T <sub>j</sub> = 25 °C V <sub>R</sub> = 300V, T <sub>j</sub> = 125 °C
Reverse Recovery Time	T <sub>RR</sub>	-	-	50	nS	I <sub>F</sub> = 0.5A, I <sub>RR</sub> = 0.25A, I <sub>R</sub> = 1A

- Notes: 1. Short duration pulse test used to minimize self-heating effect.  
2. RoHS revision 13.2.2003. High temperature solder exemption applied, see *EU Directive Annex Note 7*.

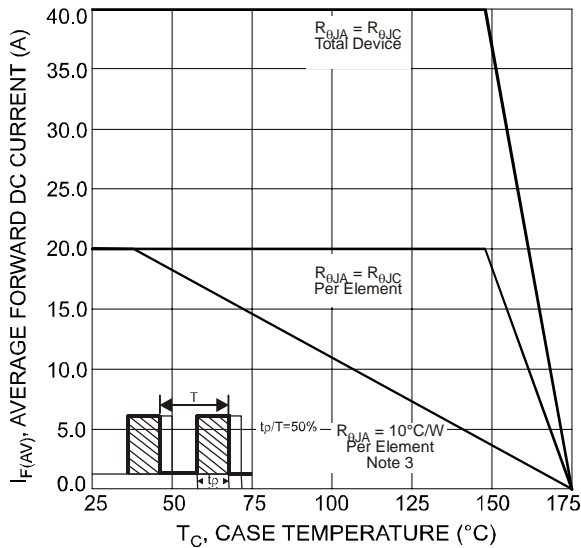
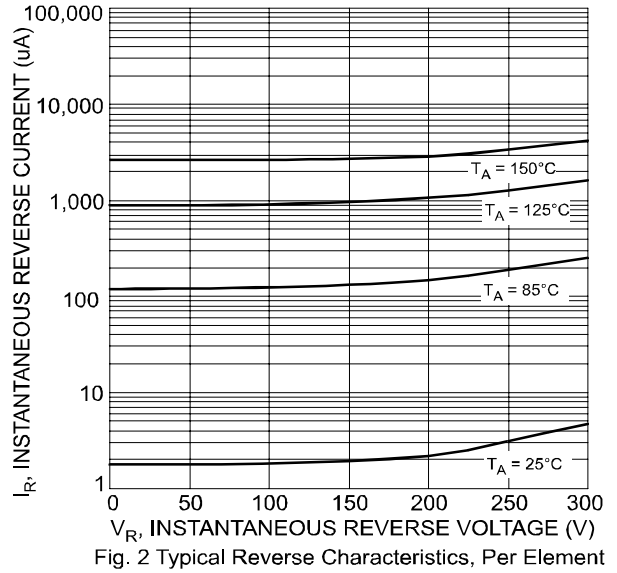
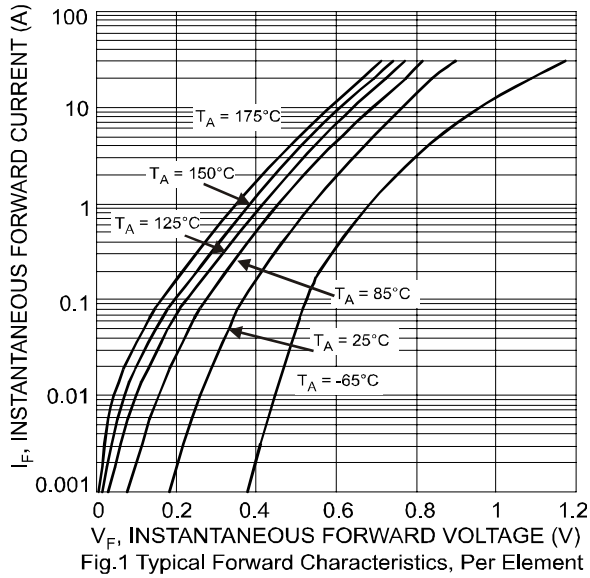
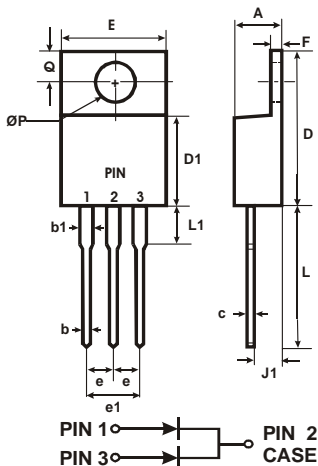


Fig. 3 DC Forward Current Derating Curve

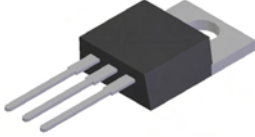
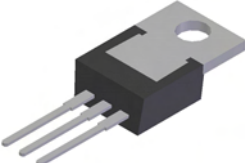
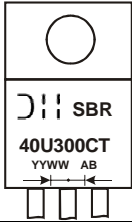
Notes: 3. Black Aluminium Heatsink; length 37mm, width 15mm, height 50mm

**Package Outline Drawing**



TO-220AB		
DIM.	MIN.	MAX.
A	4.47	4.67
b	0.71	0.91
b1	1.17	1.37
c	0.31	0.53
D	14.65	15.35
D1	8.50	8.90
E	10.01	10.31
e	2.54 typ	
e1	4.98	5.18
F	1.17	1.37
J1	2.52	2.82
L	13.40	13.80
L1	3.56	3.96
ØP	3.735	3.935
Q	2.59	2.89
All Dimensions in mm		

**Marking, Polarity, Weight & Ordering Information**

	Case Style - Top	Case Style - Bottom	Marking	Weight
SBR40U300CT				2.1 grams (approximate)

Ordering Information	Date Code	Other Marking Information
SBR40U300CT 50 pieces/tube	YY = Last two digits of year, ex = 07 = 2007 WW = Week (01-52)	A = Foundry Code B = Assembly Code

**IMPORTANT NOTICE**

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

**LIFE SUPPORT**

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.