

#### 40A SBR® **SUPER BARRIER RECTIFIER**

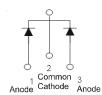
### **Features**

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



### **Mechanical Data**

- Case: TO-220AB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208 @3
- Polarity: As Marked on Body Marking Information: See Page 2 Ordering Information: See Page 2 Weight: 2.1 grams (approximate)



Package Pin Out Configuration

## **Maximum Ratings** @T<sub>A</sub> = 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	V <sub>RRM</sub>	200	\ <u>\</u>
Working Peak Reverse Voltage DC Blocking Voltage	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	lo	40	А
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	235	А

### **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance (per leg)	$R_{\theta JA}$	52	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175	°C

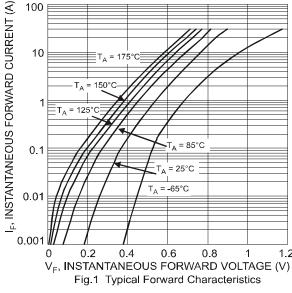
## **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

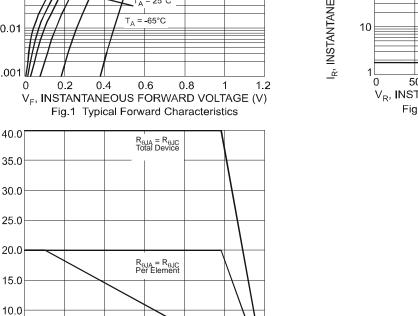
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	300	-	-	V	I <sub>R</sub> = 0.04mA
Forward Voltage Drop (per leg)	V <sub>F</sub>	-	0.84 0.73	0.89 0.78	V	I <sub>F</sub> = 20A, T <sub>J</sub> = 25°C I <sub>F</sub> = 20A, T <sub>J</sub> = 125°C
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
	t <sub>rr</sub>	-	32	50	ns	I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1A, I <sub>RR</sub> = 0.25A
Reverse Recovery Time		-	26	35		$I_F = 1A$ , $V_R = 30V$ di/dt = 100A/ $\mu$ s, $T_J = 25$ °C

Notes:

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







100,000 IR, INSTANTANEOUS REVERSE CURRENT (uA) 10,000 T<sub>A</sub> = 150°C 1,000 T<sub>A</sub> = 125°C T<sub>A</sub> = 85°C 100 T<sub>A</sub> = 25°C 250 50 100 150 200 300 V<sub>R</sub>, INSTANTANEOUS REVERSE VOLTAGE (V) Fig. 2 Typical Reverse Characteristics

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

75

100

T<sub>A</sub>, AMBIENT TEMPERATURE (°C) Fig. 3 Forward Current Derating Curve

### Ordering Information (Note 3)

50

Ī	Part Number	Case	Packaging	
	SBR40U300CT	TO-200AB	50 pieces/tube	

Notes: 3. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

R<sub>AJA</sub> = 10°C/W Per Element

125

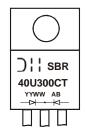
150

# **Marking Information**

I<sub>F(AV)</sub>, AVERAGE FORWARD CURRENT (A)

5.0

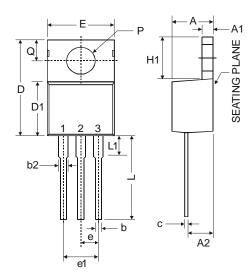
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SBR40U300CT = Product Type Marking Code AB = Foundry and Assembly Code YYWW = Date Code Marking YY = Last two digits of year, ex: 07 = 2007 WW = Week (01-52)



# **Package Outline Dimensions**



	TO-220AB					
Dim	Min	Тур	Max			
Α	3.56	1	4.82			
A1	0.51	1	1.39			
A2	2.04	1	2.92			
b	0.39	0.81	1.01			
С	0.356	1	0.61			
D	14.22	-	16.51			
D1	8.39	-	9.01			
е	2.54 5.08					
e1						
E	9.66	1	10.66			
H1	5.85	1	6.85			
L	12.70	-	14.73			
L1	-	-	6.35			
Р	3.54	-	4.08			
Q	2.54	-	3.42			
All C	All Dimensions in mm					

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