

**30A SBR®**  
**Super Barrier Rectifier**
**Features**

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Superior Reverse Avalanche Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- Plastic TO-220AB package
- Lead Free Finish, RoHS Compliant (Note 3)**

**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 leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Marking Information: See Page 3
- Ordering Information: See Page 3

**Maximum Ratings** @  $T_A = 25^\circ\text{C}$  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	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWPM}$	30	V
DC Blocking Voltage	$V_{RM}$		
RMS Reverse Voltage	$V_{R(RMS)}$	21	V
Average Rectified Output Current @ $T_C = 140^\circ\text{C}$	$I_O$	30	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	280	A
Non-Repetitive Avalanche Energy ( $T_J = 25^\circ\text{C}$ , $I_{AS} = 20\text{A}$ , $L = 8.5\text{ mH}$ )	$E_{AS}$	800	mJ
Repetitive Peak Avalanche Power (1 $\mu\text{s}$ , 25°C)	$P_{ARM}$	9800	W
Maximum Thermal Resistance			
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	17	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Case	$R_{\theta JC}$	2	
Operating and Storage Temperature Range	$T_j, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 2)	$V_{(BR)R}$	30	-	-	V	$I_R = 1.5\text{mA}$
Forward Voltage Drop (per leg)	$V_F$	-	0.41 0.50 0.34 —	0.45 0.54 0.37 0.5	V	$I_F = 15\text{A}$ , $T_j = 25^\circ\text{C}$ $I_F = 30\text{A}$ , $T_j = 25^\circ\text{C}$ $I_F = 15\text{A}$ , $T_j = 125^\circ\text{C}$ $I_F = 30\text{A}$ , $T_j = 125^\circ\text{C}$
Leakage Current (Note 2)	$I_R$	-	0.33 40	1.5 100	mA	$V_R = 30\text{V}$ , $T_j = 25^\circ\text{C}$ $V_R = 30\text{V}$ , $T_j = 125^\circ\text{C}$

Notes:

- Test Device on Heatsink (Black Aluminum, 45mm \* 20mm \* 12mm)
- 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*.

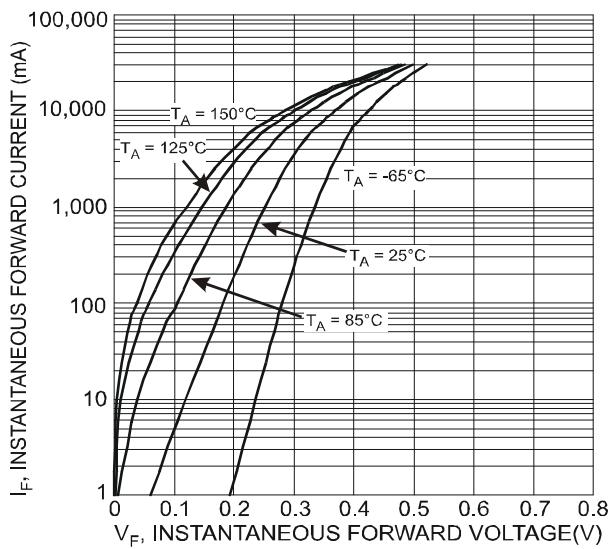


Fig. 1 Typical Forward Characteristics, Per Element

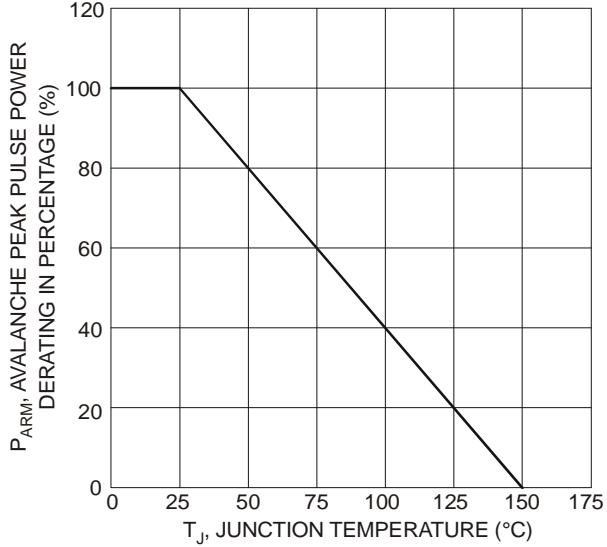


Fig. 3 Pulse Derating Curve, Per Element

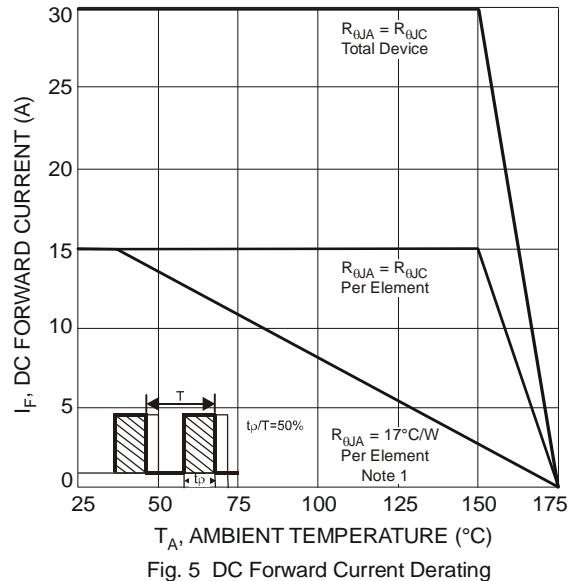


Fig. 5 DC Forward Current Derating

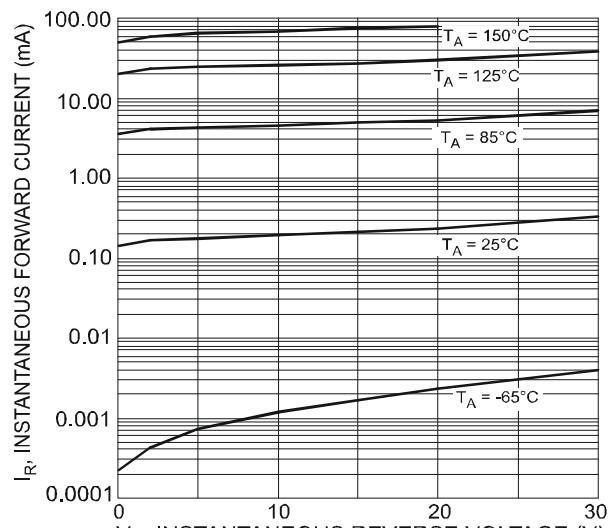


Fig. 2 Typical Reverse Characteristics, Per Element

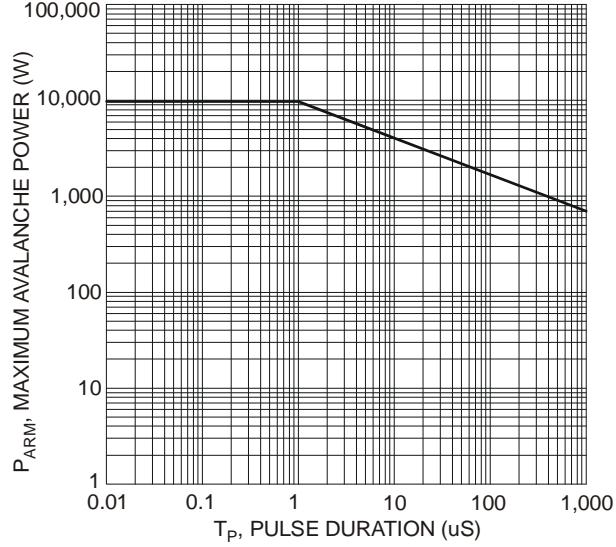


Fig. 4 Maximum Avalanche Power Curve, Per Element

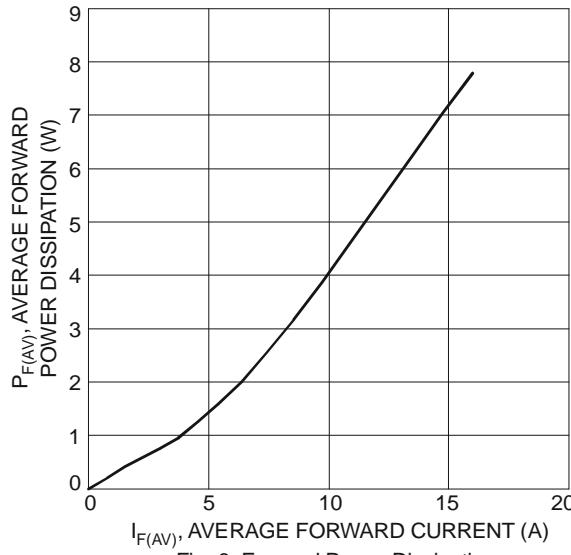
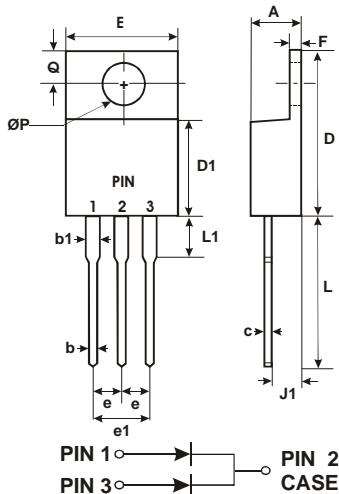


Fig. 6 Forward Power Dissipation

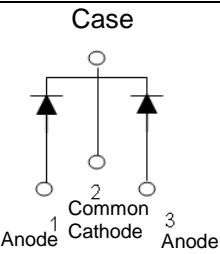
## Package Outline Drawing



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 Millimeters

## Marking, Polarity, Weight &amp; Ordering Information

	Case Style	Polarity	Marking	Weight
SBR30U30CT	TO-220AB	Case  Anode 1 Common Cathode 2 Anode 3		2.1g

Ordering Information	Date Code	Other Marking Information
SBR30U30CT 50 pieces/tube	YY = Last two digits of year, ex = 07 = 2007 WW = Week (01-52)	A = Foundry Code B = Assembly Code

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