

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}	30	V
Working Peak Reverse Voltage	V_{RWM}		
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 μs , 25°C)	P_{ARM}	9800	W
Maximum Thermal Resistance			
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	17	$^\circ\text{C/W}$
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	0.45	V	$I_F = 15\text{A}$, $T_J = 25^\circ\text{C}$
			0.50	0.54		$I_F = 30\text{A}$, $T_J = 25^\circ\text{C}$
			0.34	0.37		$I_F = 15\text{A}$, $T_J = 125^\circ\text{C}$
			—	0.5		$I_F = 30\text{A}$, $T_J = 125^\circ\text{C}$
Leakage Current (Note 2)	I_R	-	0.33	1.5	mA	$V_R = 30\text{V}$, $T_J = 25^\circ\text{C}$
			40	100		$V_R = 30\text{V}$, $T_J = 125^\circ\text{C}$

Notes:

1. Test Device on Heatsink (Black Aluminum, 45mm * 20mm * 12mm)
2. Short duration pulse test used to minimize self-heating effect.
3. RoHS revision 13.2.2003. High temperature solder exemption applied, see *EU Directive Annex Note 7*.

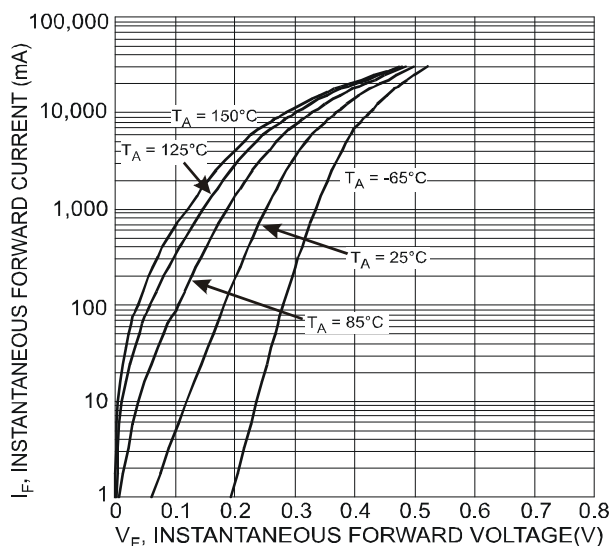


Fig. 1 Typical Forward Characteristics, Per Element

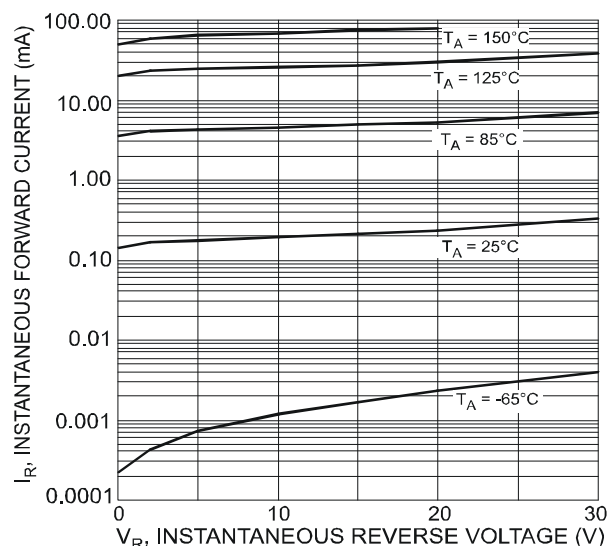


Fig. 2 Typical Reverse Characteristics, Per Element

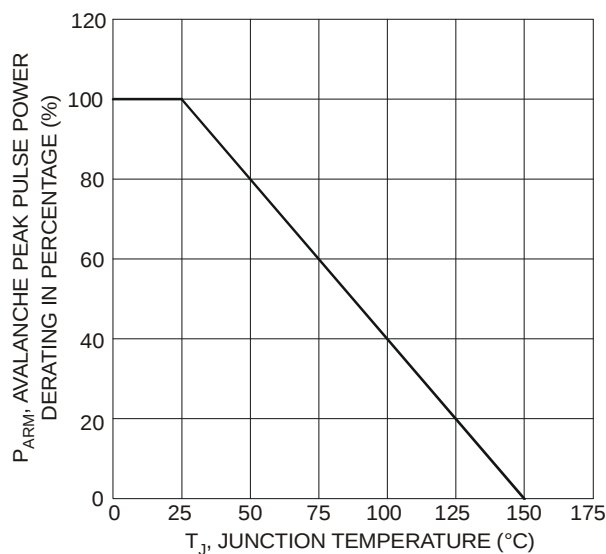


Fig. 3 Pulse Derating Curve, Per Element

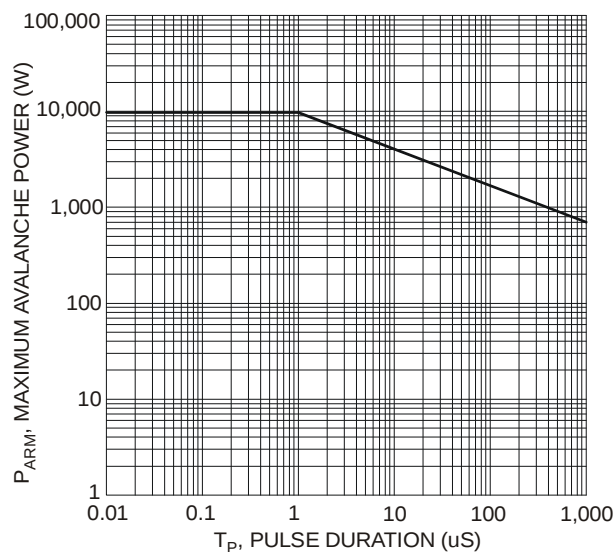


Fig. 4 Maximum Avalanche Power Curve, Per Element

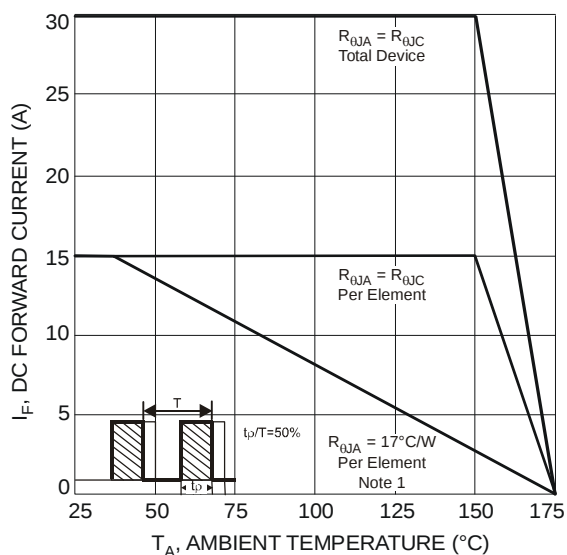


Fig. 5 DC Forward Current Derating

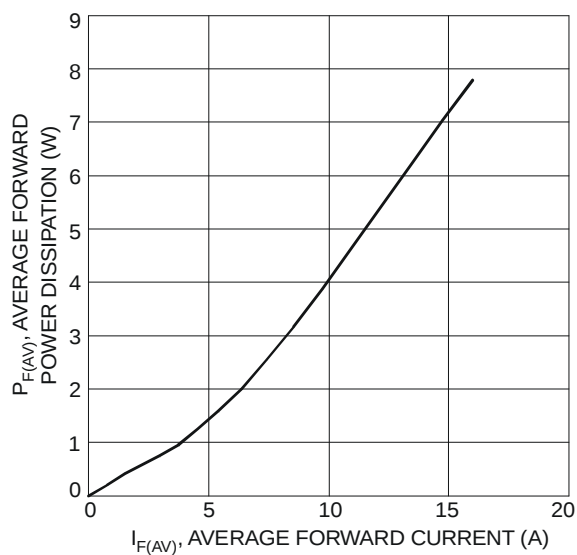
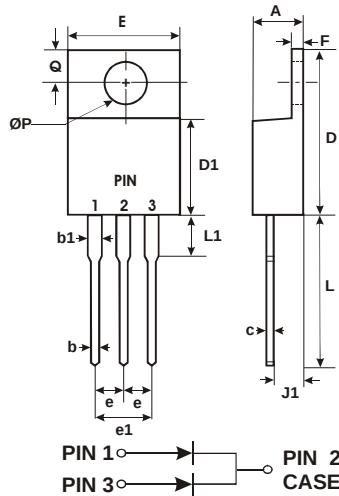


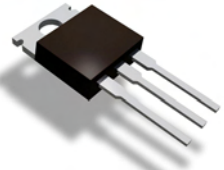
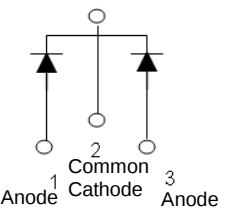
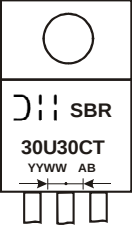
Fig. 6 Forward Power Dissipation

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 & Ordering Information

SBR30U30CT	Case Style	Polarity	Marking	Weight
	 TO-220AB			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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