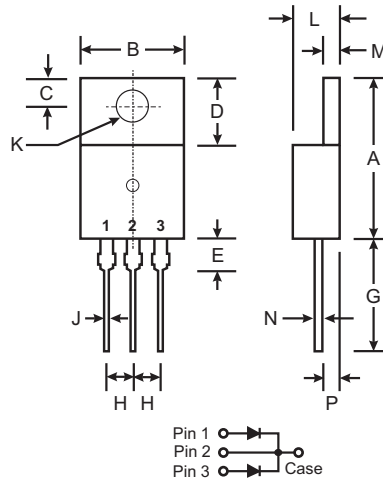


### Features

- Low Power Loss, High Efficiency
- Guard Ring for Transient Protection
- High Surge Capability
- Very Low Forward Voltage Drop
- For Use in High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish, RoHS Compliant (Note 1)**

### Mechanical Data

- Case: TO-220AB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Tin Finish. Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Diagram
- Marking: Type Number
- Ordering Information: See Sheet 3
- Weight: 2.24 grams (approximate)



TO-220AB		
Dim	Min	Max
A	14.22	15.88
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	—	6.35
G	12.70	14.73
H	2.29	2.79
J	0.51	1.14
K	3.53 $\varnothing$	4.09 $\varnothing$
L	3.56	4.83
M	1.14	1.40
N	0.30	0.64
P	2.03	2.92
All Dimensions in mm		

### 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>R</sub>	30	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	V
Average Rectified Output Current @ T <sub>C</sub> = 140°C	I <sub>O</sub>	30	A
Total Device Per Element		15	
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load Per Element	I <sub>FSM</sub>	260	A
Peak Repetitive Reverse Current Per Element at t <sub>p</sub> = 2 $\mu$ s, 1 KHz	I <sub>RRM</sub>	1.0	A
Voltage Rate of Change	dV/dt	10,000	V/ $\mu$ s
Typical Thermal Resistance Junction to Case (Note 2)	R <sub><math>\theta</math>JC</sub>	1.5	°C/W
Per Diode Total		0.8	
Operating Temperature Range	T <sub>J</sub>	-65 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 3)	V <sub>(BR)R</sub>	30	—	—	V	I <sub>R</sub> = 1.5mA
Forward Voltage Per Element	V <sub>F</sub>	—	—	0.46 0.38 0.57 0.50	V	@ I <sub>F</sub> = 15A, T <sub>J</sub> = 25°C @ I <sub>F</sub> = 15A, T <sub>J</sub> = 125°C @ I <sub>F</sub> = 30A, T <sub>J</sub> = 25°C @ I <sub>F</sub> = 30A, T <sub>J</sub> = 125°C
Peak Reverse Current Per Element (Note 3)	I <sub>R</sub>	—	—	1.0 300	mA mA	@ V <sub>R</sub> = 30V, T <sub>J</sub> = 25°C @ V <sub>R</sub> = 30V, T <sub>J</sub> = 125°C

- Notes:
1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex, Notes 5 and 7.
  2. Thermal Resistance Junction to Case: Device mounted on 200x200x5mm aluminum plate.
  3. Short duration test pulse used to minimize self-heating effect.

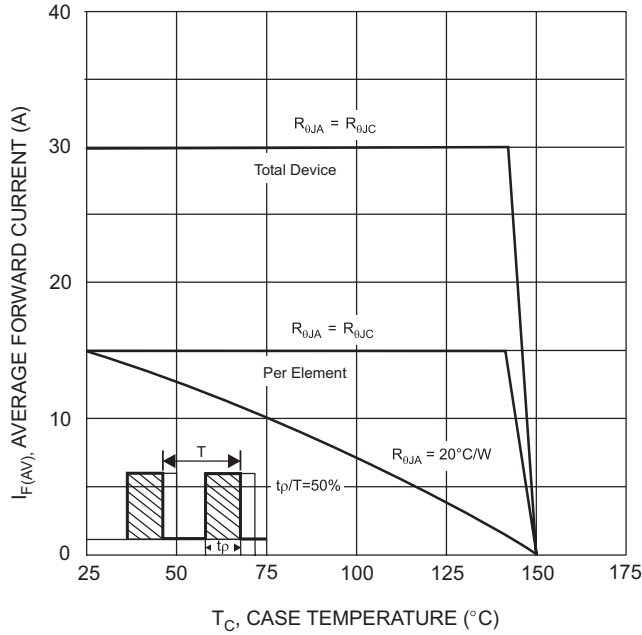


Fig. 1 Forward Current Derating Curve

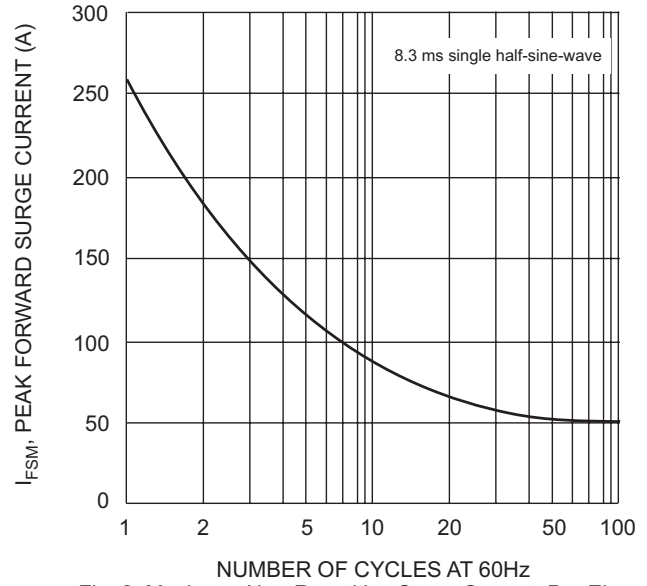


Fig. 2 Maximum Non-Repetitive Surge Current, Per Element

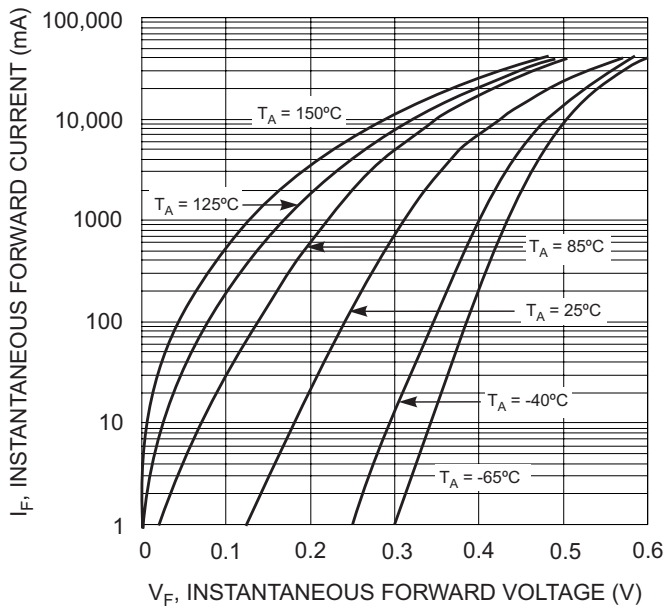


Fig. 3 Typical Forward Characteristics, Per Element

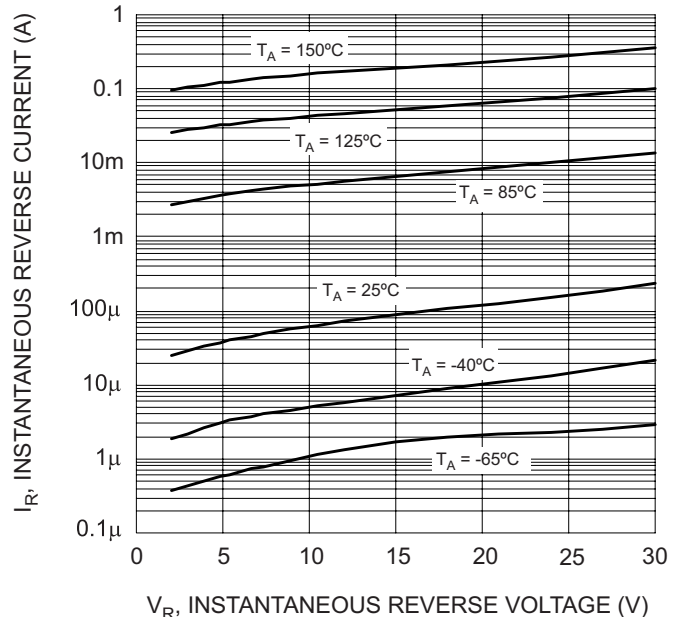


Fig. 4 Typical Reverse Characteristics, Per Element

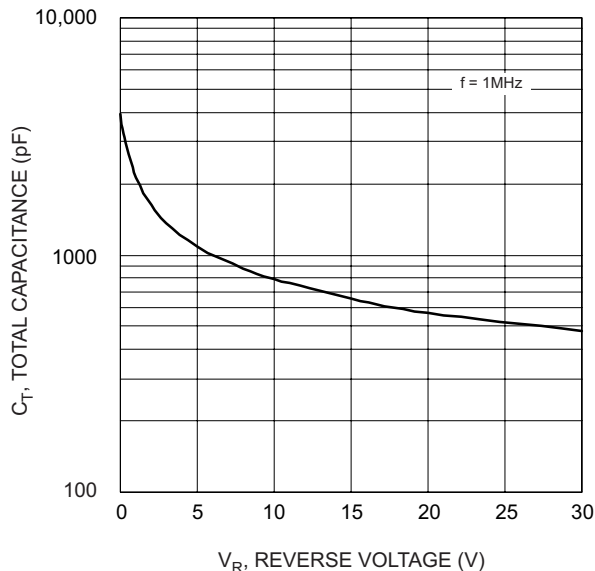


Fig. 5 Typical Total Capacitance, Per Element

**Ordering Information** (Note 4)

Device	Packaging	Shipping
SBL30L30CT	TO-220AB	50/Tube

Notes: 4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

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