



# THE DATASHEET OF SBL1650

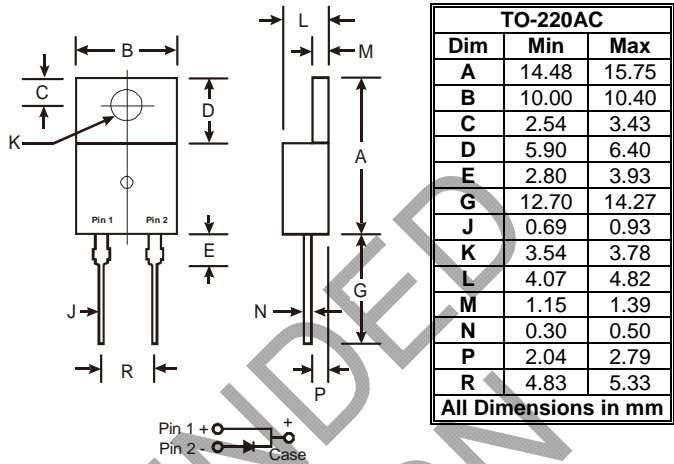


### Features

- Schottky Barrier Chip
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish, RoHS Compliant (Note 3)**

### Mechanical Data

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



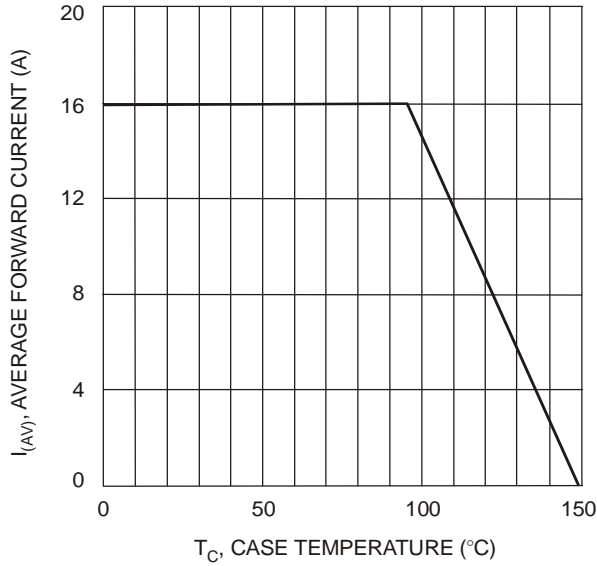
### Maximum Ratings and Electrical Characteristics

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

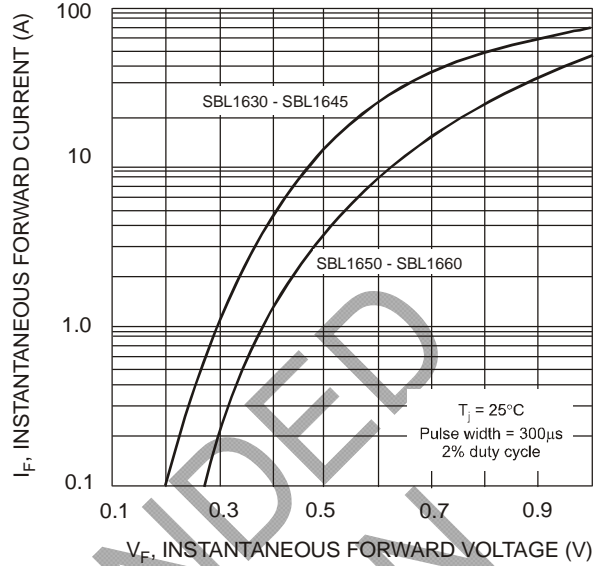
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	SBL 1630	SBL 1635	SBL 1640	SBL 1645	SBL 1650	SBL 1660	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	35	40	45	50	60	V
Working Peak Reverse Voltage	V <sub>RWM</sub>							
DC Blocking Voltage	V <sub>R</sub>							
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	24.5	28	31.5	35	42	V
Average Rectified Output Current (Note 1)	I <sub>O</sub>	16						A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	275						A
Forward Voltage Drop @ I <sub>F</sub> = 16A, T <sub>C</sub> = 25°C	V <sub>FM</sub>	0.57				0.75		V
Peak Reverse Current @ T <sub>C</sub> = 25°C at Rated DC Blocking Voltage @ T <sub>C</sub> = 100°C	I <sub>RM</sub>	1.0				50		mA
Typical Junction Capacitance (Note 2)	C <sub>j</sub>	700						pF
Thermal Resistance Junction to Case (Note 1)	R <sub>θJC</sub>	3.5						°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-65 to +150						°C

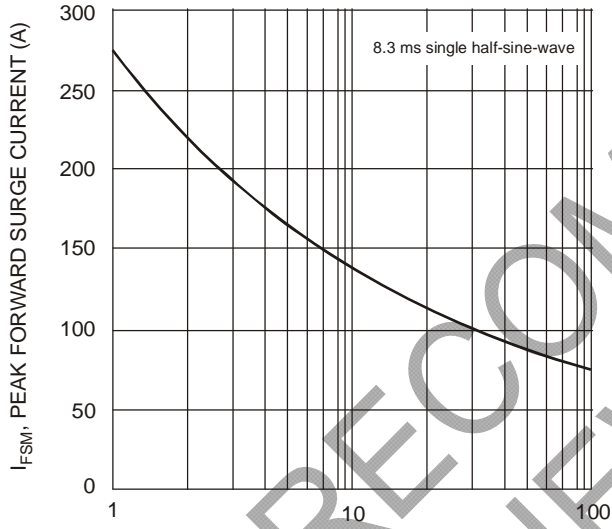
- Notes:
1. Thermal resistance junction to case mounted on heatsink.
  2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  3. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see EU Directive Annex Notes 5 and 7.



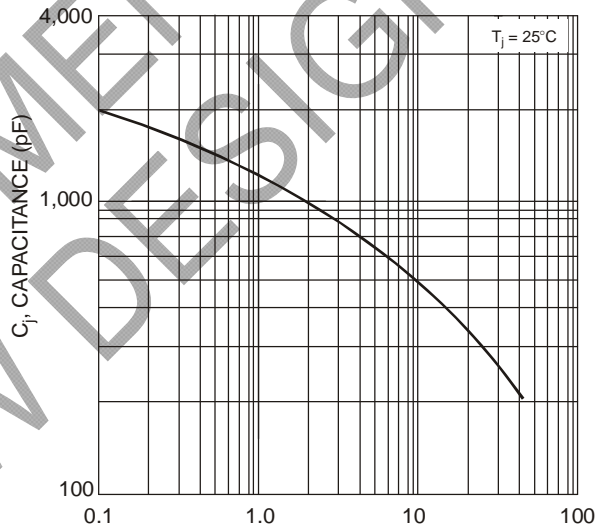
$T_C$ , CASE TEMPERATURE (°C)  
Fig. 1 Forward Current Derating Curve



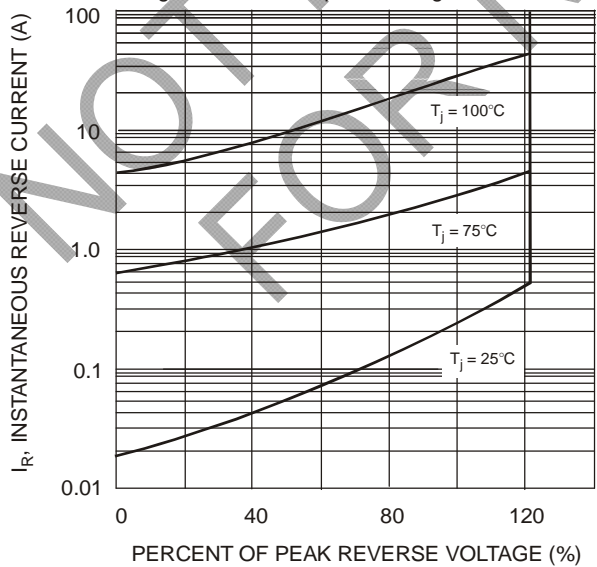
$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 2 Typical Forward Characteristics



NUMBER OF CYCLES AT 60Hz  
Fig. 3 Max Non-Repetitive Surge Current



$V_R$ , REVERSE VOLTAGE (V)  
Fig. 4 Typical Junction Capacitance



PERCENT OF PEAK REVERSE VOLTAGE (%)  
Fig. 5 Typical Reverse Characteristics

**Ordering Information** (Note 4)

Device	Packaging	Shipping
SBL16xx*	TO-220AC	50/Tube

\* xx = Device type, e.g. SBL1645

Notes: 4. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02008.pdf>.

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