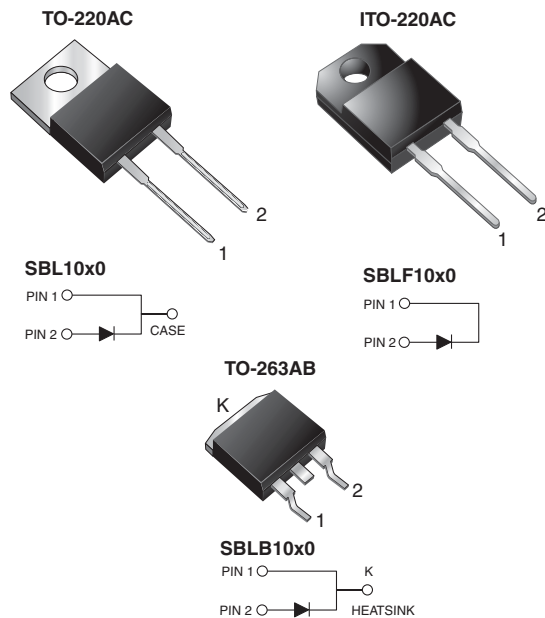




**THE DATASHEET OF
SBLB1030HE3/45**



Schottky Barrier Rectifier



FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, and polarity protection application.

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, TO-263AB

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

| PRIMARY CHARACTERISTICS | |
|-------------------------|-------------------------------|
| $I_{F(AV)}$ | 10 A |
| V_{RRM} | 30 V to 40 V |
| I_{FSM} | 250 A |
| V_F | 0.60 V |
| T_J max. | 150 °C |
| Package | TO-220AC, ITO-220AC, TO-263AB |
| Diode variations | Single |

| MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|---------------|---------|------|
| PARAMETER | SYMBOL | SBL1030 | SBL1040 | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 30 | 40 | V |
| Working peak reverse voltage | V_{RWM} | 21 | 28 | |
| Maximum DC blocking voltage | V_{DC} | 30 | 40 | |
| Maximum average forward rectified current at $T_C = 110\text{ °C}$ | $I_{F(AV)}$ | 10 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 250 | | |
| Operating junction and storage temperature range | T_J, T_{STG} | - 40 to + 125 | | °C |
| Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1\text{ min}$ | V_{AC} | 1500 | | V |



| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|-------------|-----------------|-----------------------------------|-------|------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUE | UNIT |
| Maximum instantaneous forward voltage per diode | $V_F^{(1)}$ | 10 A | | 0.6 | V |
| Maximum instantaneous reverse current at DC blocking voltage | $I_R^{(2)}$ | Rated V_R | $T_J = 25\text{ }^\circ\text{C}$ | 1.0 | mA |
| | | | $T_J = 100\text{ }^\circ\text{C}$ | 50 | |

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|-----------------|-----|------|------|--------------------|
| PARAMETER | SYMBOL | SBL | SBLF | SBLB | UNIT |
| Typical thermal resistance from junction to case per leg | $R_{\theta JC}$ | 2.0 | 5.0 | 2.0 | $^\circ\text{C/W}$ |

| ORDERING INFORMATION (Example) | | | | | |
|---------------------------------------|-------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AC | SBL1030-E3/45 | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | SBLF1030-E3/45 | 1.94 | 45 | 50/tube | Tube |
| TO-263AB | SBLB1030-E3/45 | 1.33 | 45 | 50/tube | Tube |
| TO-263AB | SBLB1030-E3/81 | 1.33 | 81 | 800/reel | Tape and reel |
| TO-220AC | SBL1030HE3/45 ⁽¹⁾ | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | SBLF1030HE3/45 ⁽¹⁾ | 1.94 | 45 | 50/tube | Tube |
| TO-263AB | SBLB1030HE3/45 ⁽¹⁾ | 1.33 | 45 | 50/tube | Tube |
| TO-263AB | SBLB1030HE3/81 ⁽¹⁾ | 1.33 | 81 | 800/reel | Tape and reel |

Note

(1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

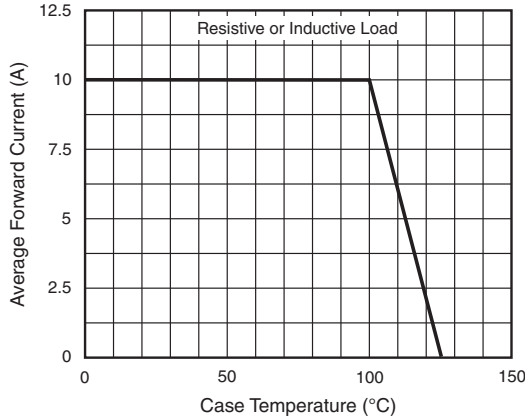


Fig. 1 - Forward Current Derating Curve

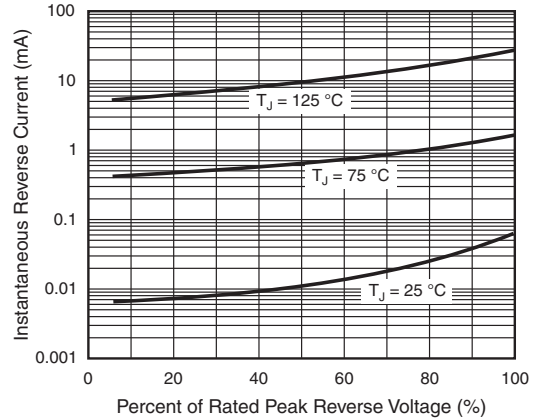


Fig. 4 - Typical Reverse Characteristics

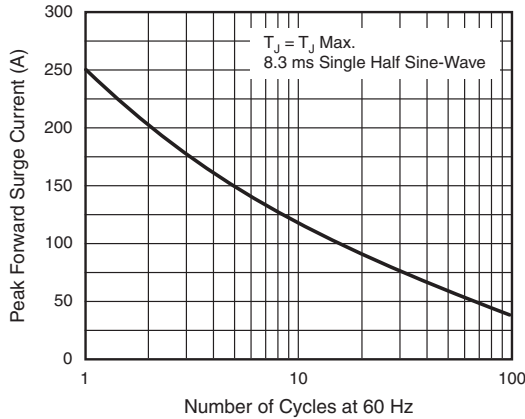


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

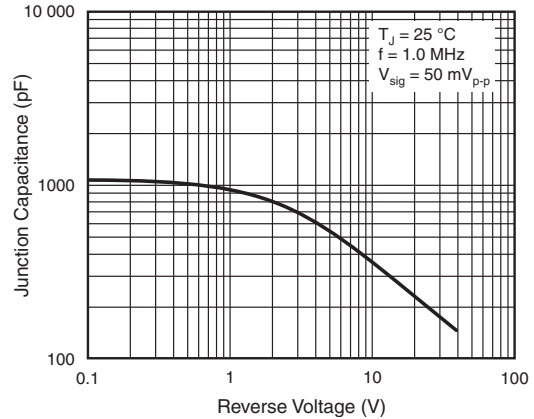


Fig. 5 - Typical Junction Capacitance

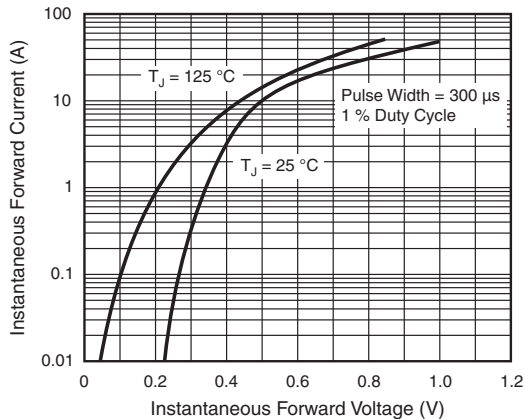


Fig. 3 - Typical Instantaneous Forward Characteristics

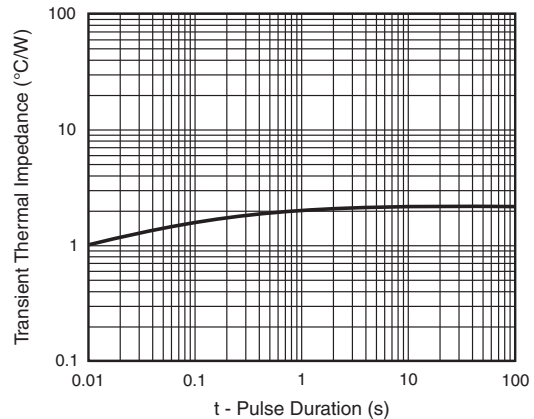
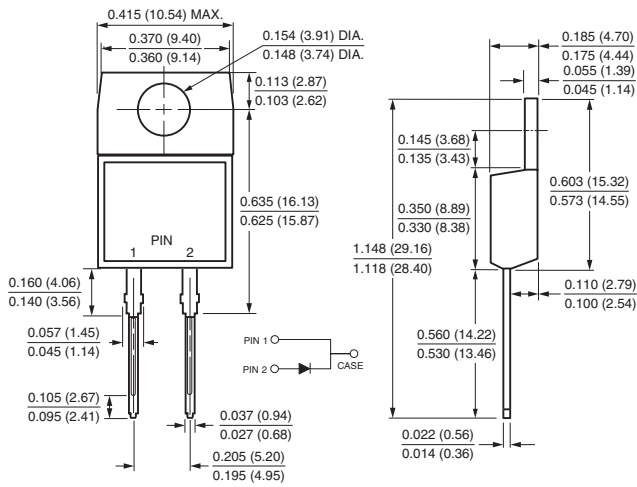


Fig. 6 - Typical Transient Thermal Impedance

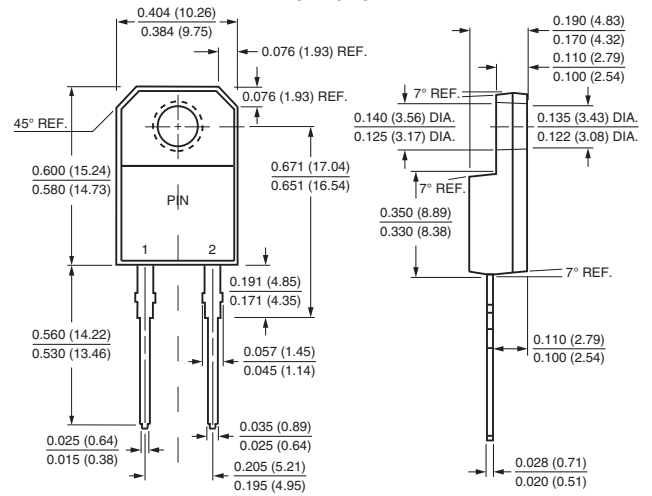


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

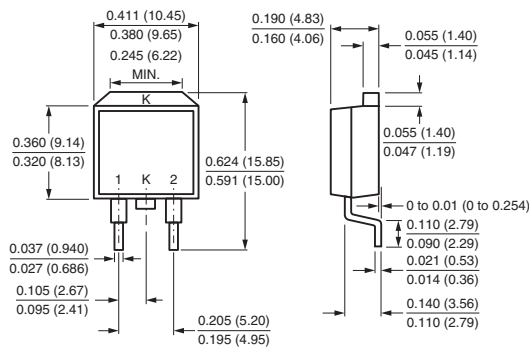
TO-220AC



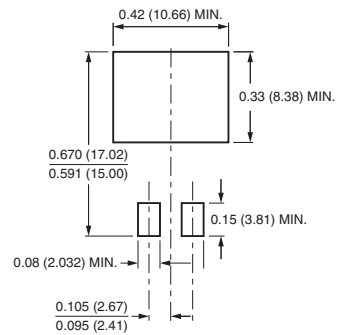
ITO-220AC



TO-263AB



Mounting Pad Layout





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