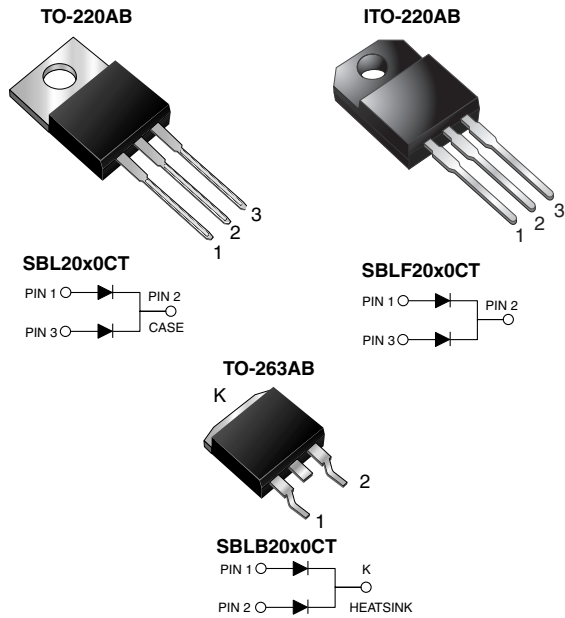


Dual Common Cathode Schottky Rectifier



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-220AB and ITO-220AB 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-220AB, ITO-220AB, 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 | |
|-------------------------|-------------------------------|
| $I_{F(AV)}$ | 2 x 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-220AB, ITO-220AB, TO-263AB |
| Diode variations | Common cathode |

| MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted) | | | | |
|--|---------------------------|---------------|-----------|------|
| PARAMETER | SYMBOL | SBL2030CT | SBL2040CT | 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 $T_C = 105\text{ °C}$ | total device per diode | 20 | | A |
| | | 10 | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 250 | | |
| Peak repetitive reverse surge current per diode at $t_p = 2.0\ \mu\text{s}$, 1 kHz | I_{RRM} | 1.0 | | |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 150 | | °C |
| Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1\text{ min}$ | V_{AC} | 1500 | | V |



| ELECTRICAL CHARACTERISTICS (T _C = 25 °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 per diode | I _R ⁽²⁾ | Rated V _R | T _C = 25 °C | 1.0 | mA |
| | | | T _C = 100 °C | 50 | |

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted) | | | | | |
|---|------------------|-----|------|------|------|
| PARAMETER | SYMBOL | SBL | SBLF | SBLB | UNIT |
| Typical thermal resistance from junction to case per diode | R _{θJC} | 2.0 | 4.0 | 2.0 | °C/W |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|---------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | SBL2030CT-E3/45 | 1.85 | 45 | 50/tube | Tube |
| ITO-220AB | SBLF2030CT-E3/45 | 1.99 | 45 | 50/tube | Tube |
| TO-263AB | SBLB2030CT-E3/45 | 1.35 | 45 | 50/tube | Tube |
| TO-263AB | SBLB2030CT-E3/81 | 1.33 | 81 | 800/reel | Tape and reel |
| TO-220AB | SBL2030CTHE3/45 ⁽¹⁾ | 1.85 | 45 | 50/tube | Tube |
| ITO-220AB | SBLF2030CTHE3/45 ⁽¹⁾ | 1.99 | 45 | 50/tube | Tube |
| TO-263AB | SBLB2030CTHE3/45 ⁽¹⁾ | 1.35 | 45 | 50/tube | Tube |
| TO-263AB | SBLB2030CTHE3/81 ⁽¹⁾ | 1.33 | 81 | 800/reel | Tape and reel |

Note

- (1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

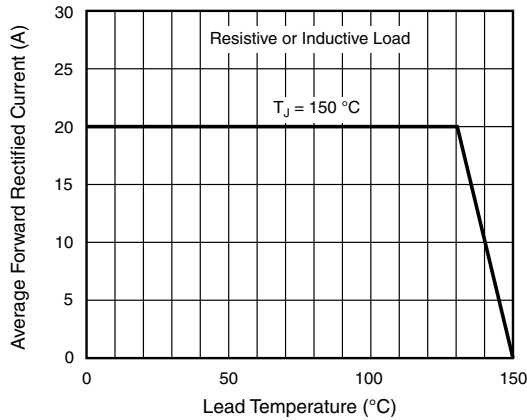


Fig. 1 - Forward Current Derating Curve

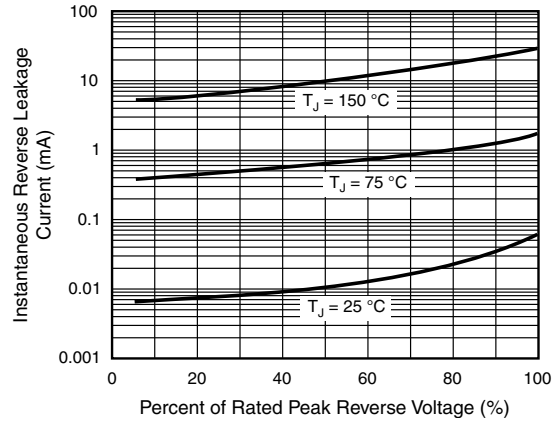


Fig. 4 - Typical Reverse Characteristics Per Diode

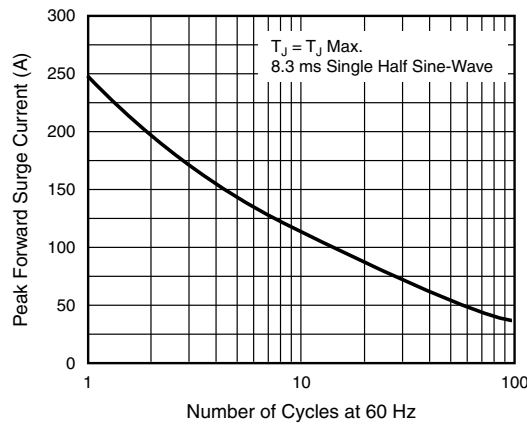


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

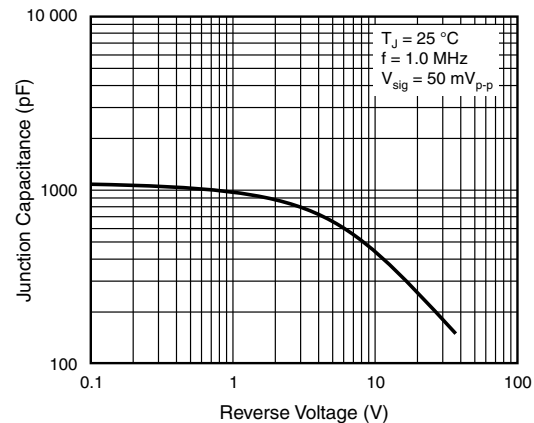


Fig. 5 - Typical Junction Capacitance Per Diode

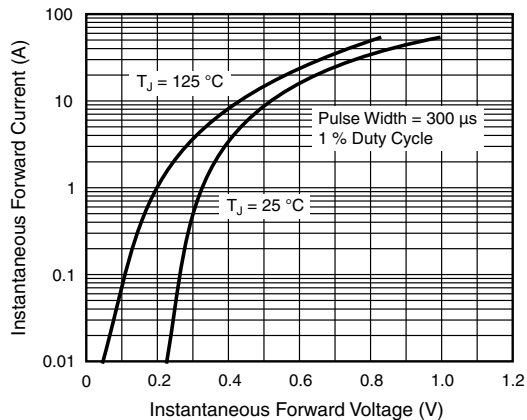


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

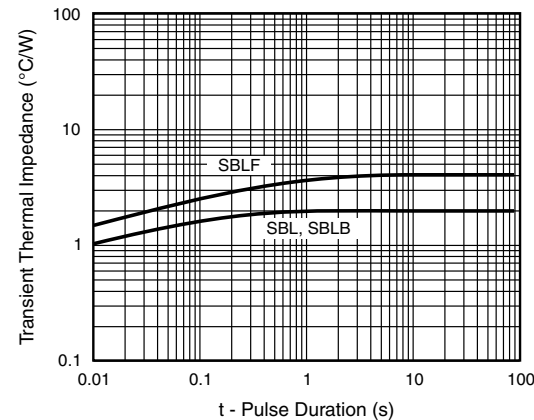
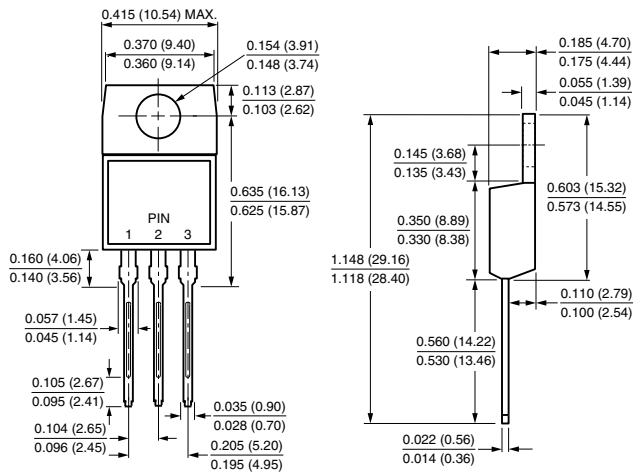


Fig. 6 - Typical Transient Thermal Impedance Per Diode

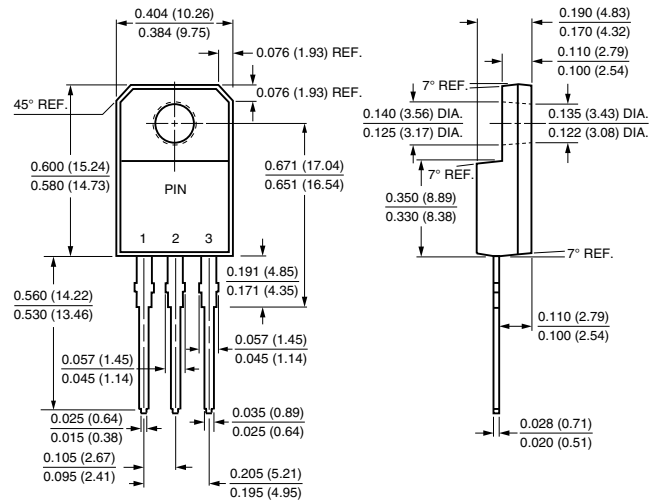


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

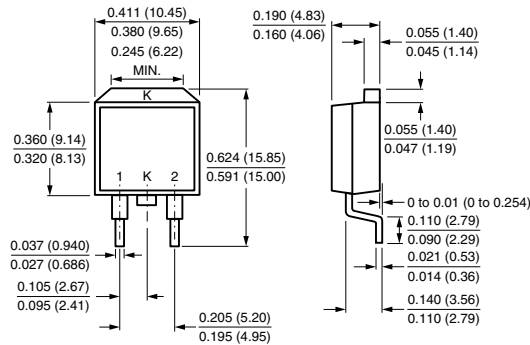
TO-220AB



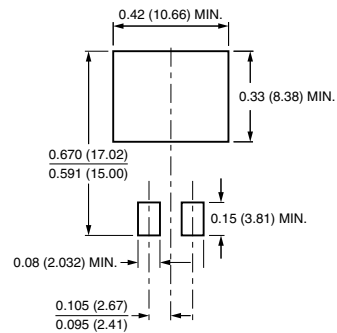
ITO-220AB



TO-263AB



Mounting Pad Layout





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