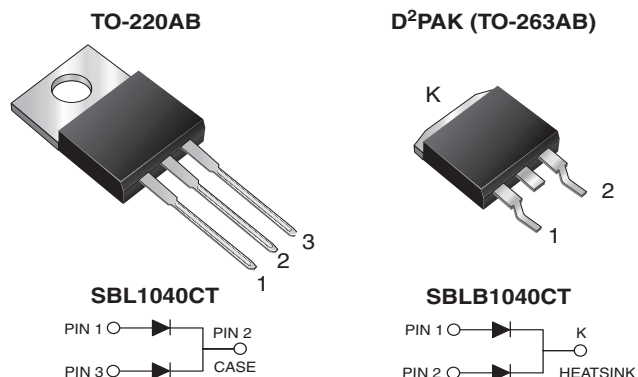


## Dual Common Cathode Schottky Rectifier



### 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 D<sup>2</sup>PAK (TO-263AB) package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB package)
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### 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, D<sup>2</sup>PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3\_X - RoHS-compliant, AEC-Q101 qualified  
("X" denotes revision code, e.g. A, B, ...)

**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 5 A                                 |
| $V_{RRM}$               | 40 V                                    |
| $I_{FSM}$               | 175 A                                   |
| $V_F$                   | 0.55 V                                  |
| $T_J$ max.              | 125 °C                                  |
| Package                 | TO-220AB, D <sup>2</sup> PAK (TO-263AB) |
| Diode variations        | Common cathode                          |

| MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)                               |                |             |      |
|----------------------------------------------------------------------------------------------|----------------|-------------|------|
| PARAMETER                                                                                    | SYMBOL         | SBL1040CT   | UNIT |
| Maximum repetitive peak reverse voltage                                                      | $V_{RRM}$      | 40          | V    |
| Working peak reverse voltage                                                                 | $V_{RWM}$      | 28          |      |
| Maximum DC blocking voltage                                                                  | $V_{DC}$       | 40          |      |
| Maximum average forward rectified current at $T_C = 107\text{ °C}$                           | $I_{F(AV)}$    | 10          | A    |
|                                                                                              |                | 5.0         |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 175         |      |
| Operating junction and storage temperature range                                             | $T_J, T_{STG}$ | -40 to +125 | °C   |

**ELECTRICAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                              | SYMBOL      | TEST CONDITIONS |                                     | VALUE | UNIT |
|------------------------------------------------------------------------|-------------|-----------------|-------------------------------------|-------|------|
| Maximum instantaneous forward voltage per diode                        | $V_F^{(1)}$ | 5.0 A           |                                     | 0.55  | V    |
| Maximum instantaneous reverse current at DC blocking voltage per diode | $I_R^{(2)}$ | Rated $V_R$     | $T_C = 25\text{ }^{\circ}\text{C}$  | 0.5   | mA   |
|                                                                        |             |                 | $T_C = 100\text{ }^{\circ}\text{C}$ | 50    |      |

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  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 | SBLB | UNIT                 |
|--------------------------------------|-----------------|-----|------|----------------------|
| Typical thermal resistance per diode | $R_{\theta JC}$ | 3.0 | 3.0  | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE  | PREFERRED P/N                    | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|----------------------------------|-----------------|--------------|---------------|---------------|
| TO-220AB | SBL1040CT-E3/45                  | 1.85            | 45           | 50/tube       | Tube          |
| TO-263AB | SBLB1040CT-E3/45                 | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB | SBLB1040CT-E3/81                 | 1.35            | 81           | 800/reel      | Tape and reel |
| TO-263AB | SBLB1040CTHE3_A/P <sup>(1)</sup> | 1.35            | P            | 50/tube       | Tube          |
| TO-263AB | SBLB1040CTHE3_A/I <sup>(1)</sup> | 1.35            | I            | 800/reel      | Tape and reel |

**Note**

(1) AEC-Q101 qualified, available in D<sup>2</sup>PAK (TO-263AB) package only



**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

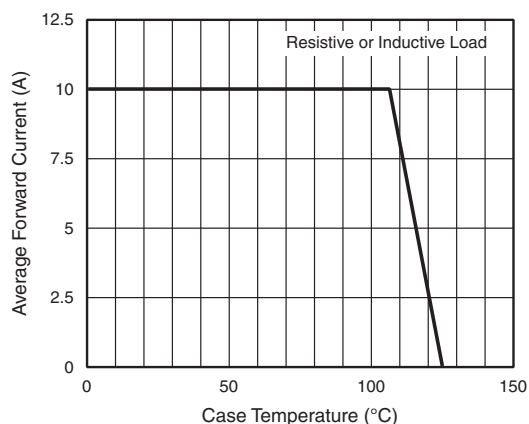


Fig. 1 - Forward Current Derating Curve

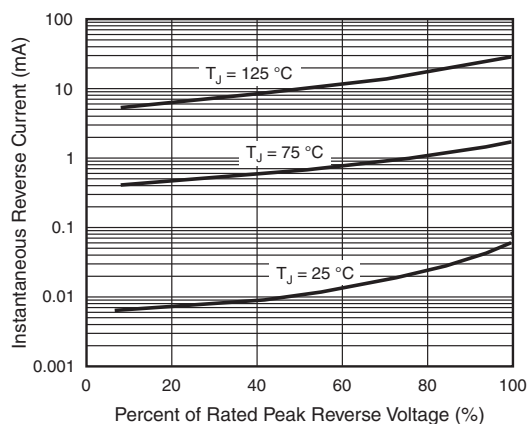


Fig. 4 - Typical Reverse Characteristics Per Diode

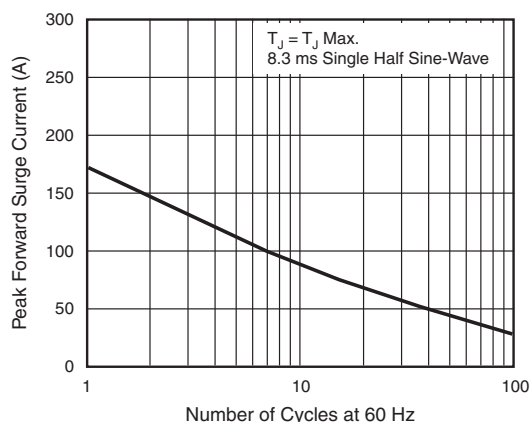


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

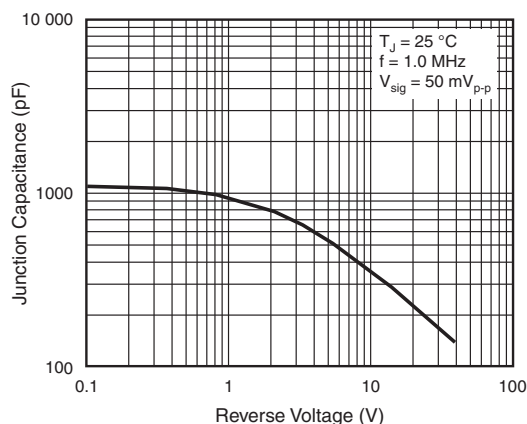


Fig. 5 - Typical Junction Capacitance Per Diode

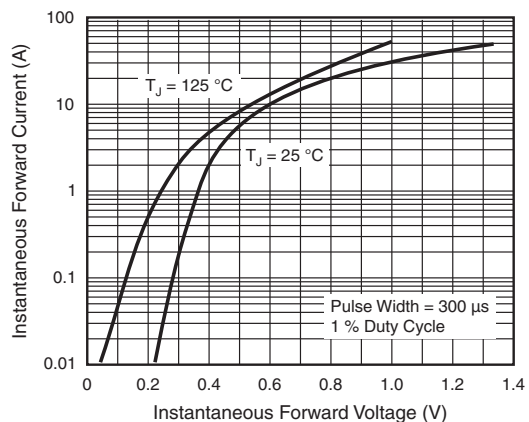


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

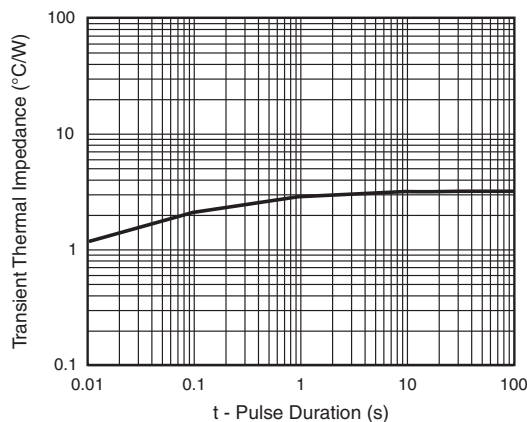
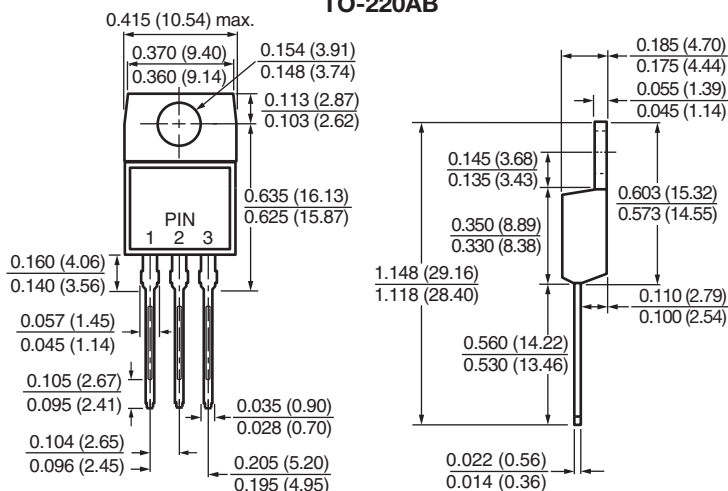


Fig. 6 - Typical Transient Thermal Impedance Per Diode

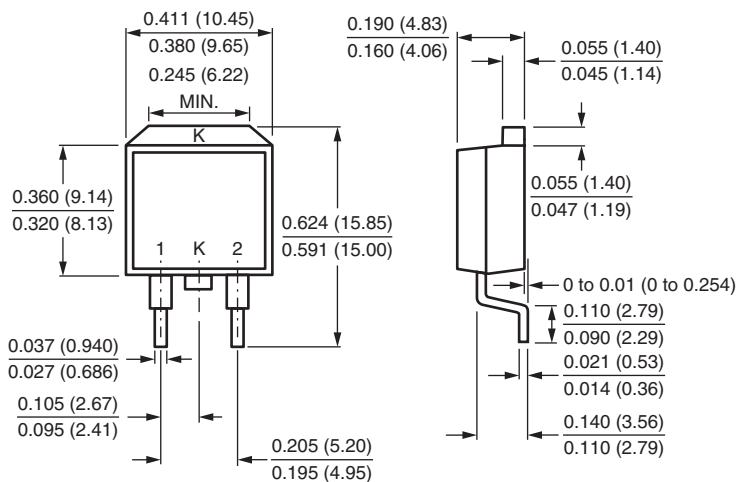


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

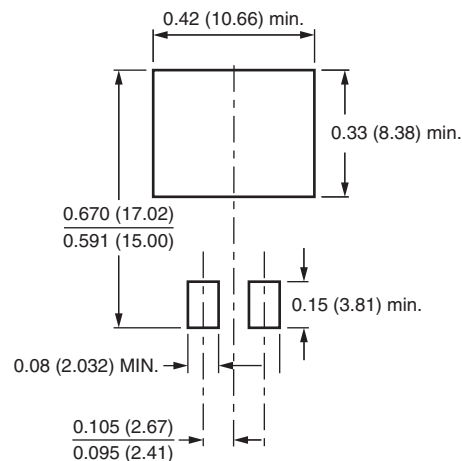
TO-220AB



D<sup>2</sup>PAK (TO-263AB)



Mounting Pad Layout





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