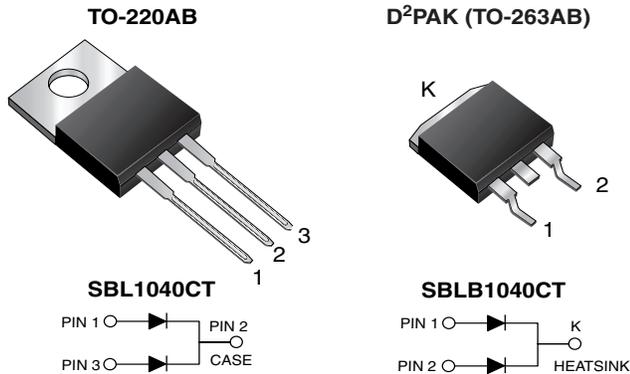


## Dual Common Cathode Schottky Rectifier



### LINKS TO ADDITIONAL RESOURCES



| 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) |
| Circuit configuration   | Common cathode                          |

### 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 available:
  - - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
Available

### 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/N-M3 - RoHS-compliant, halogen-free, commercial grade

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

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

E3 and M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** as marked

**Mounting Torque:** 10 in-lbs maximum



| <b>MAXIMUM RATINGS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)            |                |                         |  |                  |
|--|----------------|-------------------------|--|------------------|
| PARAMETER  | SYMBOL         | SBL1040CT<br>SBLB1040CT |  | 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 $T_C = 107\text{ }^\circ\text{C}$               | total device   | 10                      |  | A                |
|  | per diode      | 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             |  | $^\circ\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ 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  $\leq 40\text{ ms}$ 

| <b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |     |      |                    |
|---|-----------------|-----|------|--------------------|
| PARAMETER   | SYMBOL          | SBL | SBLB | UNIT               |
| Typical thermal resistance per diode  | $R_{\theta JC}$ | 3.0 | 3.0  | $^\circ\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (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          |
| D <sup>2</sup> PAK (TO-263AB)         | SBLB1040CT-M3/I                | 1.35            | I            | 800/reel      | Tape and reel |
| D <sup>2</sup> PAK (TO-263AB)         | SBLB1040CTHM3/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)

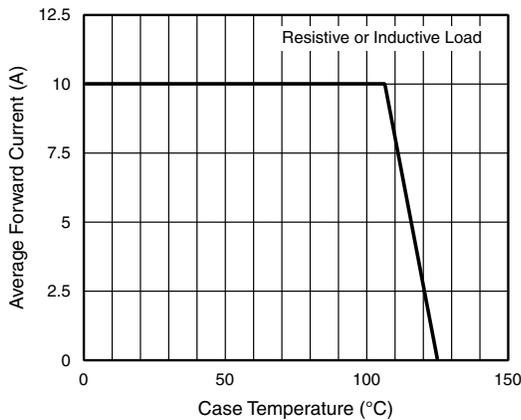


Fig. 1 - Forward Current Derating Curve

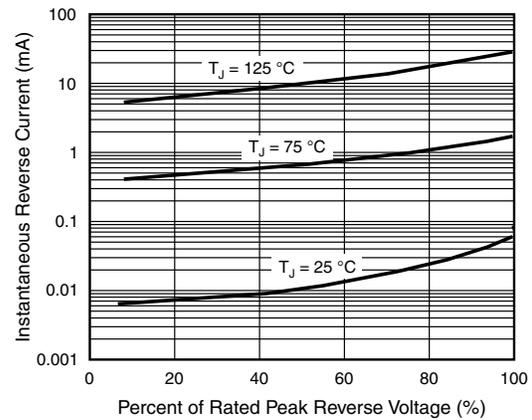


Fig. 4 - Typical Reverse Characteristics Per Diode

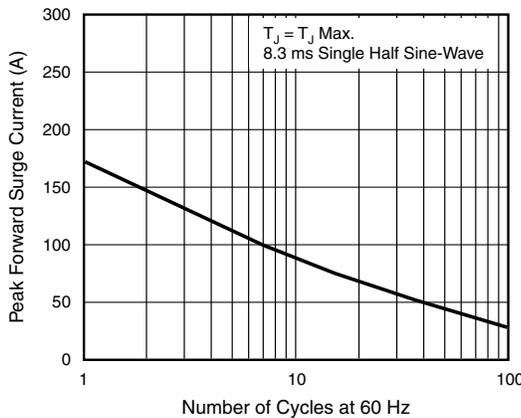


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

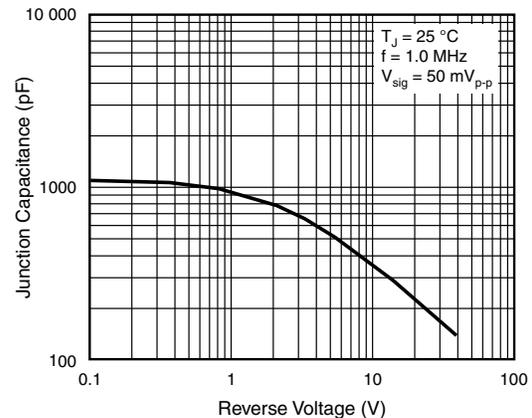


Fig. 5 - Typical Junction Capacitance Per Diode

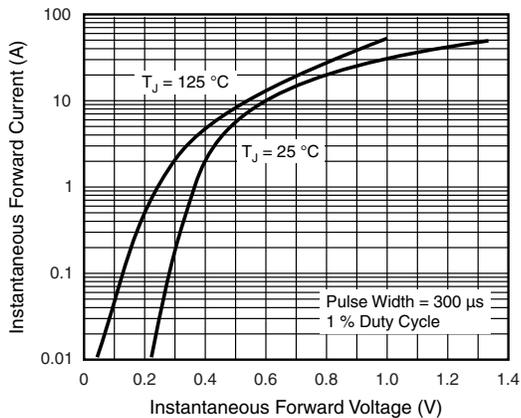


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

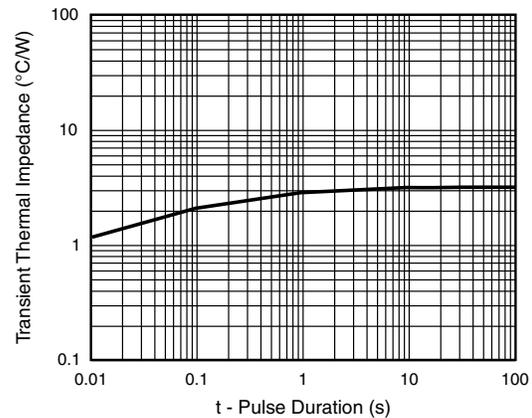
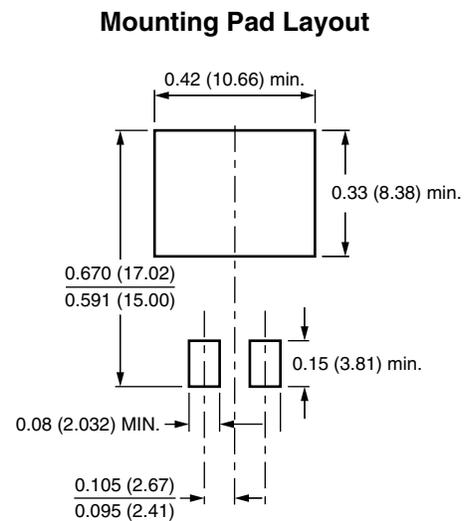
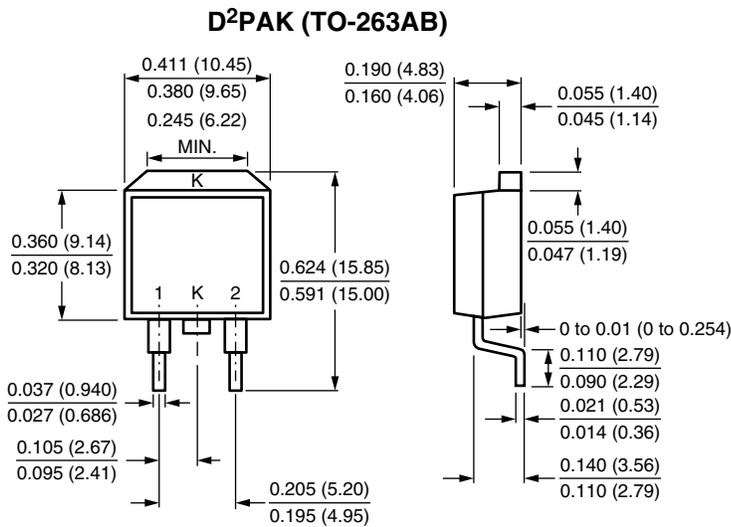
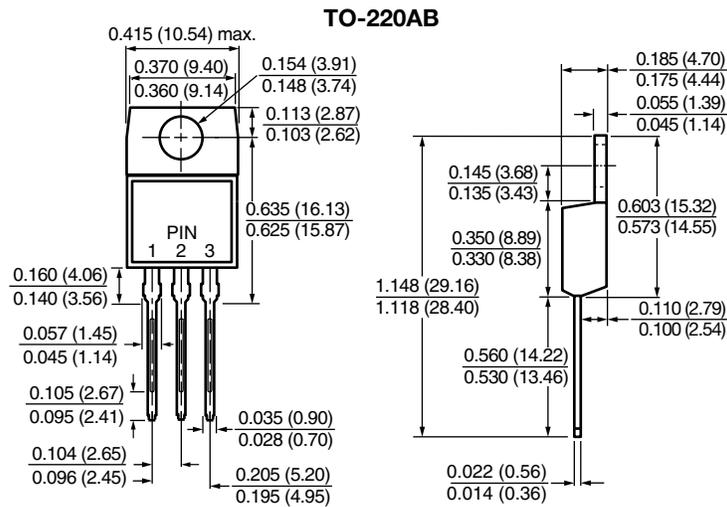


Fig. 6 - Typical Transient Thermal Impedance Per Diode



### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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