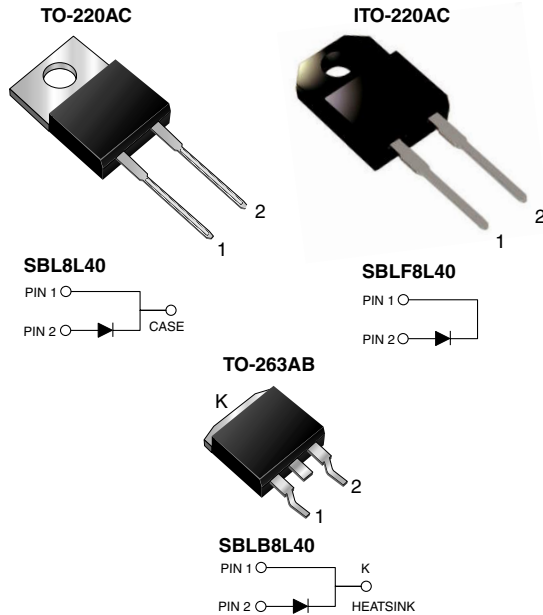


## Schottky Barrier Rectifier



### FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020C, LF max peak of 245 °C (for TO-263AB package)
- Solder Dip 260 °C, 40 seconds (for TO-220AC & ITO-220AC package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

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

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** As marked

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

### MAJOR RATINGS AND CHARACTERISTICS

$I_{F(AV)}$	8 A
$V_{RRM}$	40 V
$I_{FSM}$	250 A
$V_F$	0.41 V
$T_j \text{ max}$	125 °C

### MAXIMUM RATINGS ( $T_C = 25 \text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	40	V
Working peak reverse voltage	$V_{RWM}$	28	V
Maximum DC blocking voltage	$V_{DC}$	40	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	8	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per leg	$I_{FSM}$	250	A
Peak repetitive reverse current at $t_p = 2 \text{ } \mu\text{s}$ , 1 kHz	$I_{RRM}$	1.0	A
Voltage rate of change (rated $V_R$ )	$dv / dt$	10000	V / $\mu\text{s}$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 125	°C
Isolation voltage (ITO-220AC only) From terminal to heatsink $t = 1$ minute	$V_{AC}$	1500	V

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	at $I_F = 4\text{ A}$ , $T_j = 25\text{ }^\circ\text{C}$	$V_F$	0.44	V
	at $I_F = 4\text{ A}$ , $T_j = 125\text{ }^\circ\text{C}$		0.35	
	at $I_F = 8\text{ A}$ , $T_j = 25\text{ }^\circ\text{C}$		0.50	
	at $I_F = 8\text{ A}$ , $T_j = 125\text{ }^\circ\text{C}$		0.41	
Maximum instantaneous reverse current at DC blocking voltage <sup>(1)</sup>	$T_j = 25\text{ }^\circ\text{C}$ $T_j = 100\text{ }^\circ\text{C}$	$I_R$	1.0 75	mA

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 2 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	SBL	SBLF	SBLB	UNIT
Typical thermal resistance from junction to case per leg	$R_{\theta JC}$	3.2	4.0	3.2	$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	SBL8L40-E3/45	1.80	45	50/Tube	Tube
ITO-220AC	SBLF8L40-E3/45	1.94	45	50/Tube	Tube
TO-263AB	SBLB8L40-E3/45	1.33	45	50/Tube	Tube
TO-263AB	SBLB8L40-E3/81	1.33	81	800/Reel	Tape Reel
TO-220AC	SBL8L40HE3/45 <sup>(1)</sup>	1.80	45	50/Tube	Tube
ITO-220AC	SBLF8L40HE3/45 <sup>(1)</sup>	1.94	45	50/Tube	Tube
TO-263AB	SBLB8L40HE3/45 <sup>(1)</sup>	1.33	45	50/Tube	Tube
TO-263AB	SBLB8L40HE3/81 <sup>(1)</sup>	1.33	81	800/Reel	Tape Reel

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

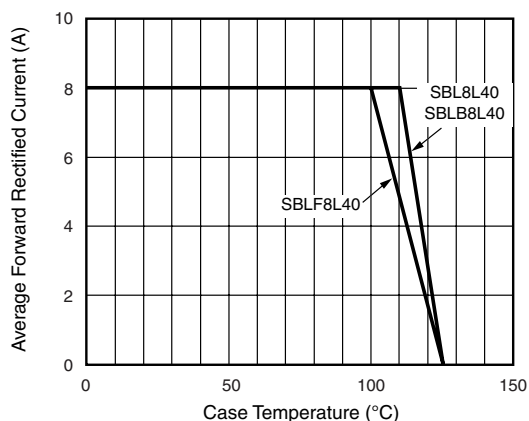


Figure 1. Maximum Forward Current Derating Curve

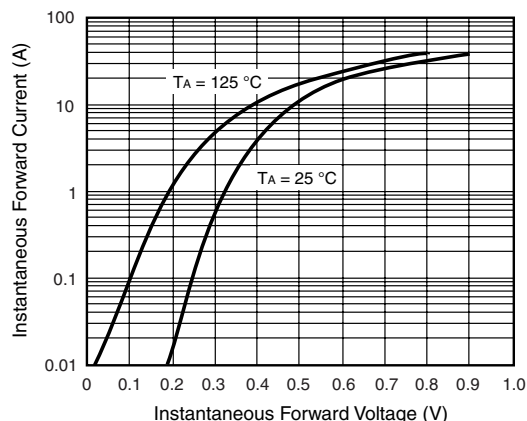


Figure 2. Typical Instantaneous Forward Characteristics

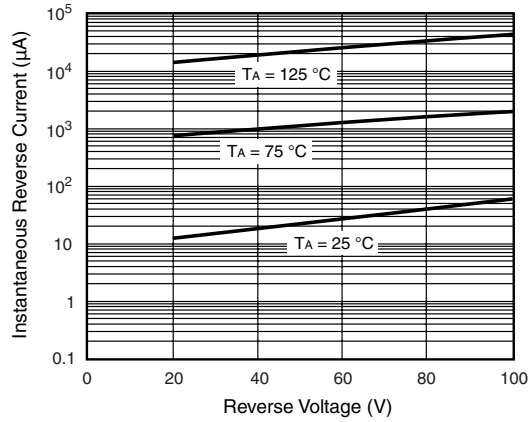


Figure 3. Typical Reverse Characteristics

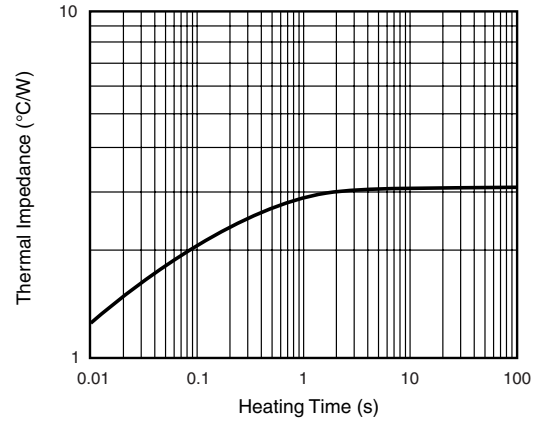


Figure 5. Transient Thermal Impedance

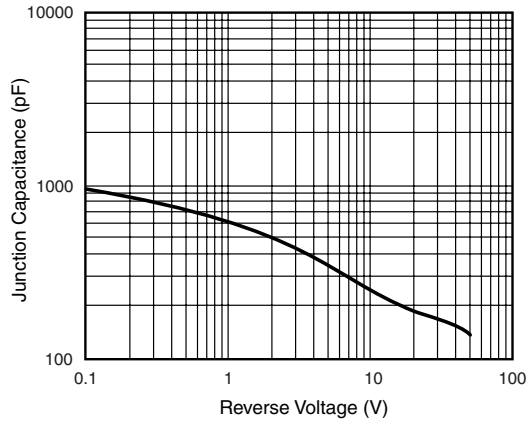


Figure 4. Typical Junction Capacitance

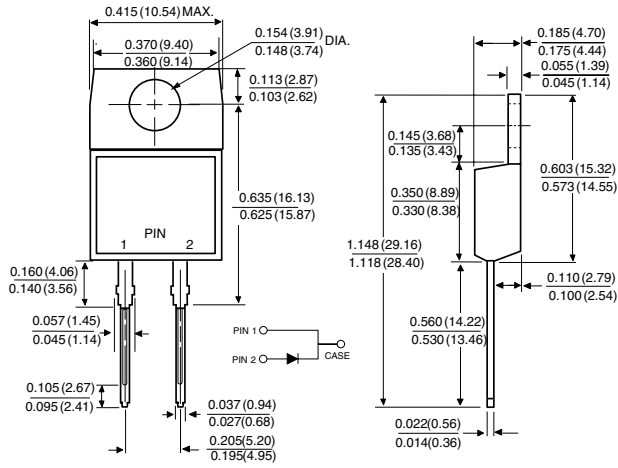
# SBL8L40, SBLF8L40 & SBLB8L40

Vishay General Semiconductor

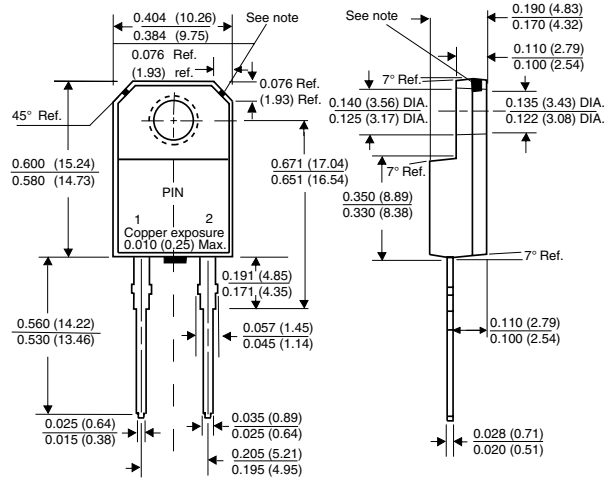


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

**TO-220AC**

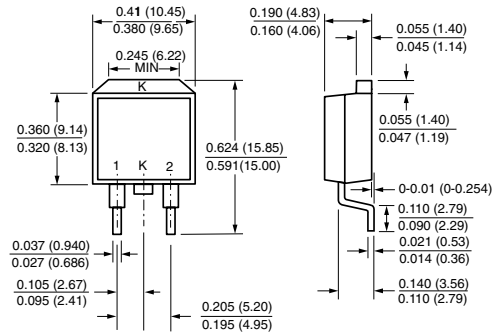


**ITO-220AC**

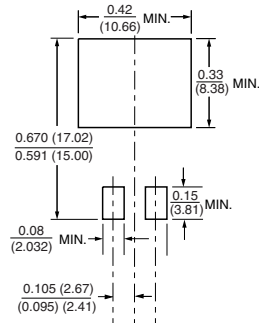


Note: Copper exposure is allowable for 0.005 (0.13) Max. from the body

**TO-263AB**



**Mounting Pad Layout**





## Disclaimer

All product specifications and data are subject to change without notice.

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