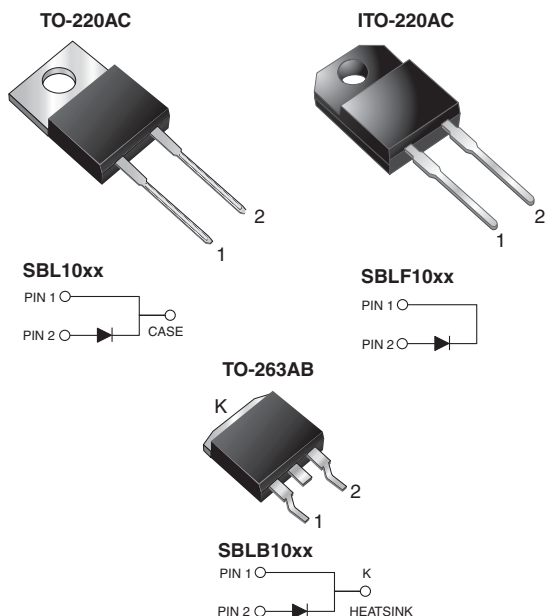


## Schottky Barrier Rectifier



### FEATURES

- 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](http://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, 40 V
$I_{FSM}$	250 A
$V_F$	0.60 V
$T_J \text{ max.}$	150 °C

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

PARAMETER	SYMBOL	SBL1030	SBL1040	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	30	40	V
Working peak reverse voltage	V <sub>RWM</sub>	21	28	
Maximum DC blocking voltage	V <sub>DC</sub>	30	40	
Maximum average forward rectified current at T <sub>C</sub> = 110 °C	I <sub>F(AV)</sub>	10		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	250		
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 40 to + 125		°C
Isolation voltage (ITO-220AC only) from terminal to heatsink t = 1 min	V <sub>AC</sub>	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  $\mu\text{s}$  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	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 <sup>(1)</sup>	1.80	45	50/tube	Tube
ITO-220AC	SBLF1030HE3/45 <sup>(1)</sup>	1.94	45	50/tube	Tube
TO-263AB	SBLB1030HE3/45 <sup>(1)</sup>	1.33	45	50/tube	Tube
TO-263AB	SBLB1030HE3/81 <sup>(1)</sup>	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)

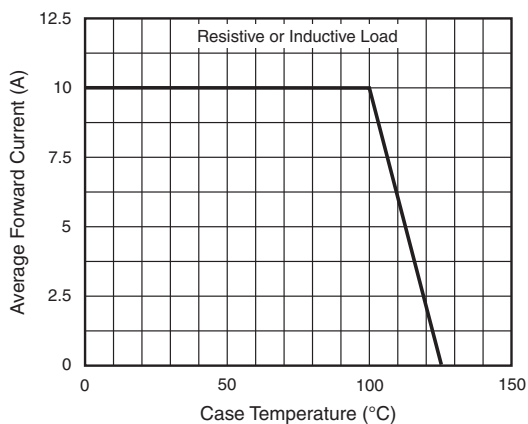


Fig. 1 - Forward Current Derating Curve

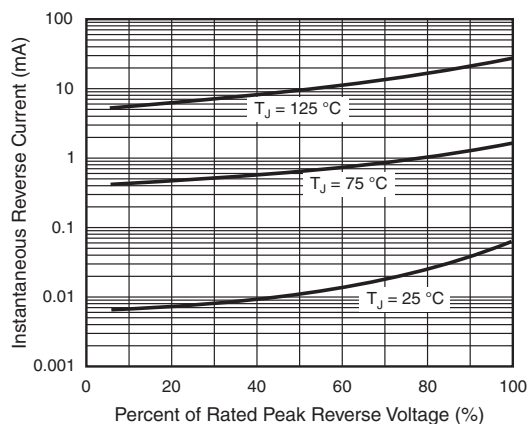


Fig. 4 - Typical Reverse Characteristics

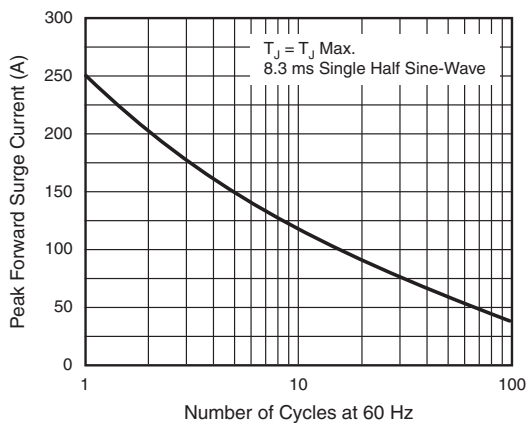


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

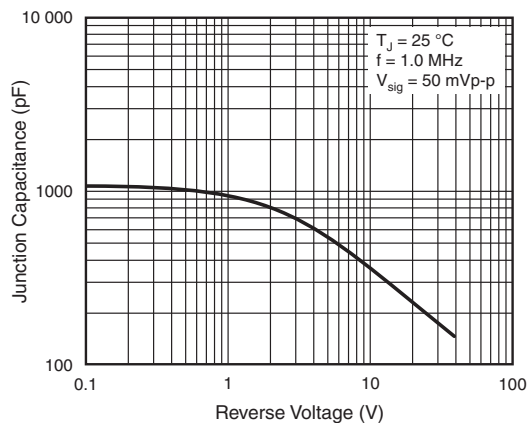


Fig. 5 - Typical Junction Capacitance

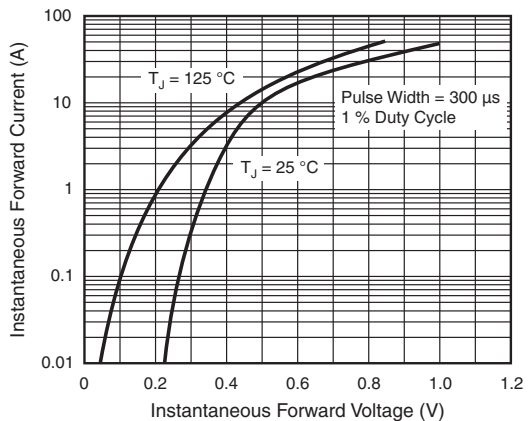


Fig. 3 - Typical Instantaneous Forward Characteristics

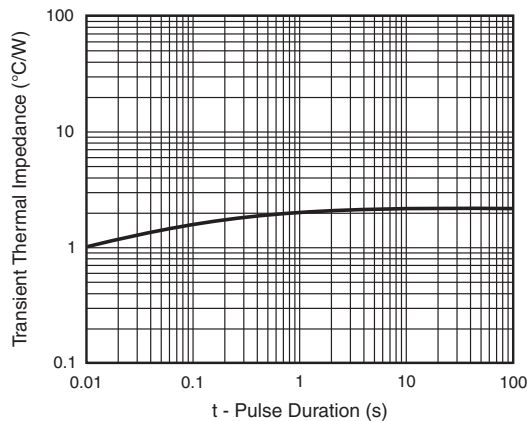
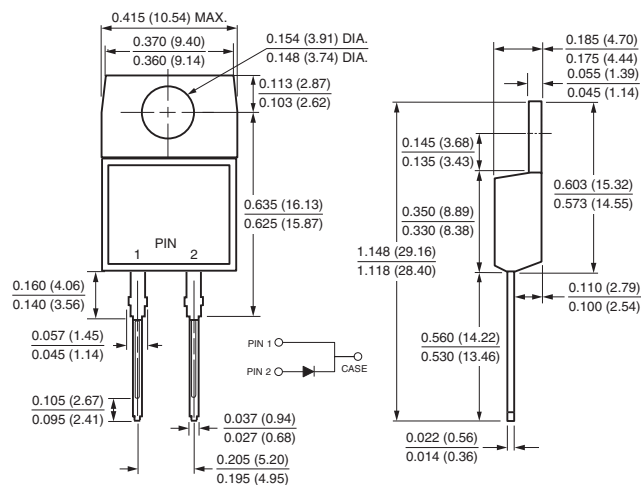


Fig. 6 - Typical Transient Thermal Impedance

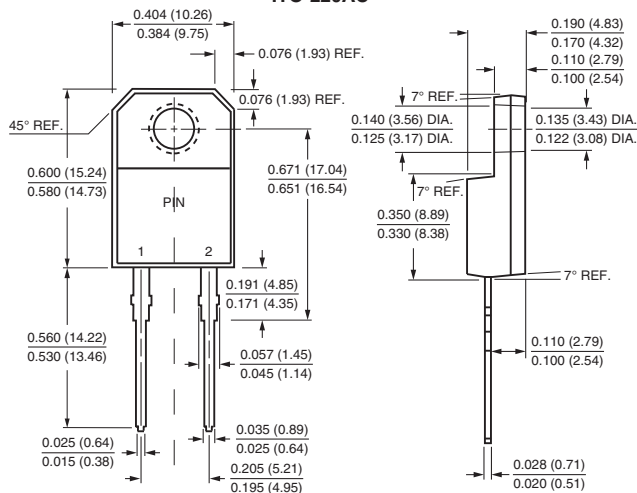


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

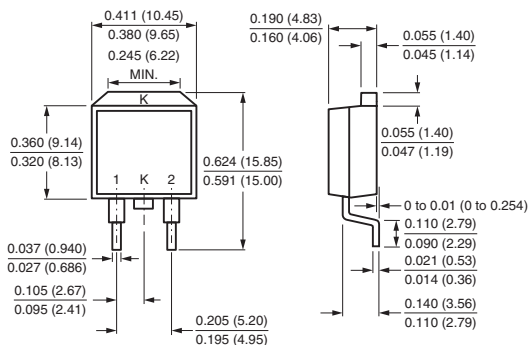
TO-220AC



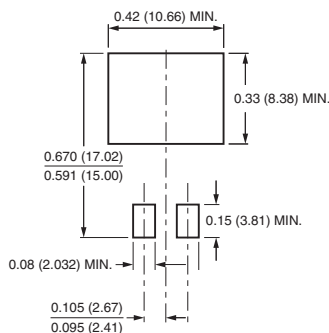
ITO-220AC



TO-263AB



Mounting Pad Layout





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[SBLB1030-E3/31](#) [SBLB1030-E3/81](#) [SBLB1030HE3/81](#) [SBLB1040/45](#) [SBLB1040/81](#) [SBLB1040-E3/45](#) [SBLB1040-](#)  
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