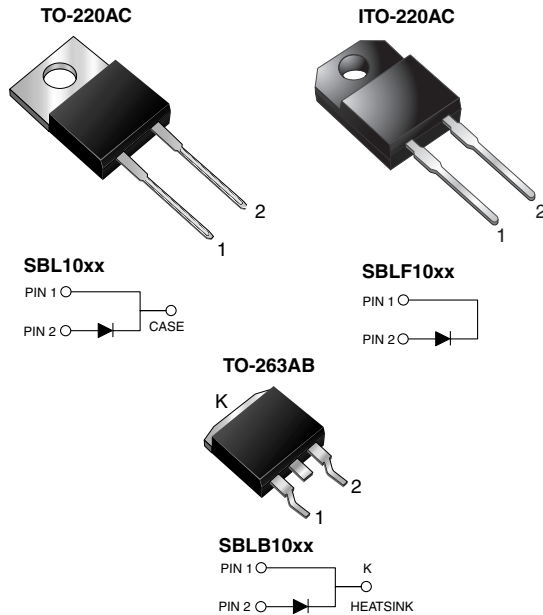




**THE DATASHEET OF  
SBLB1040-E3/81**



## 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-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AC and ITO-220AC package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### 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-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), 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
$T_J \text{ max.}$	125 °C

MAXIMUM RATINGS ( $T_C = 25 \text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SBL1030	SBL1040	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	30	40	V
Working peak reverse voltage	$V_{RWM}$	21	28	V
Maximum DC blocking voltage	$V_{DC}$	30	40	V
Maximum average forward rectified current at $T_C = 110 \text{ }^\circ\text{C}$	$I_{F(AV)}$	10		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	250		A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 125		°C
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1 \text{ min}$	$V_{AC}$	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>	10 A		$V_F$	0.6	V
Maximum instantaneous reverse current at DC blocking voltage <sup>(1)</sup>		$T_C = 25\text{ }^\circ\text{C}$	$I_R$	1.0	mA
		$T_C = 100\text{ }^\circ\text{C}$		50	

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % 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	$R_{\theta JC}$	2.0	5.0	2.0	$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (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) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

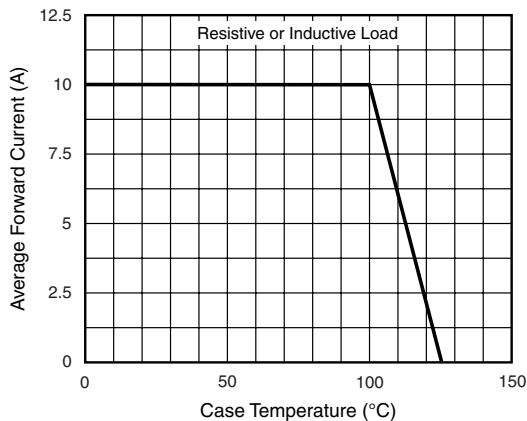


Figure 1. Forward Current Derating Curve

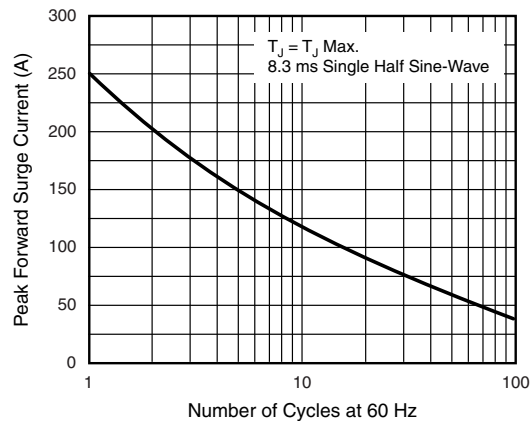


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

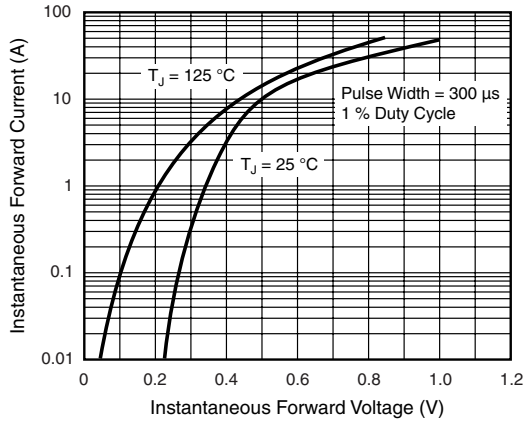


Figure 3. Typical Instantaneous Forward Characteristics

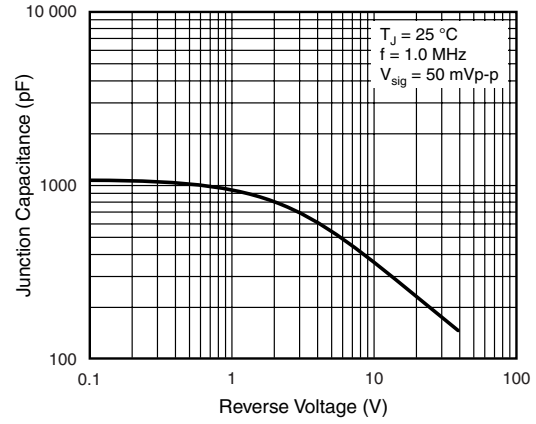


Figure 5. Typical Junction Capacitance

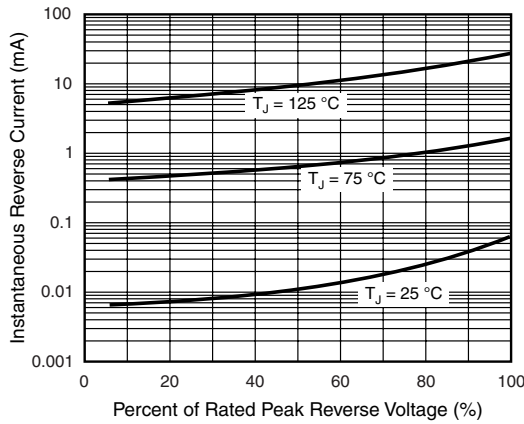


Figure 4. Typical Reverse Characteristics

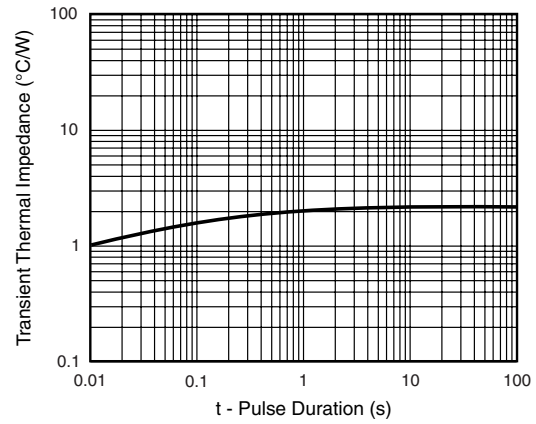
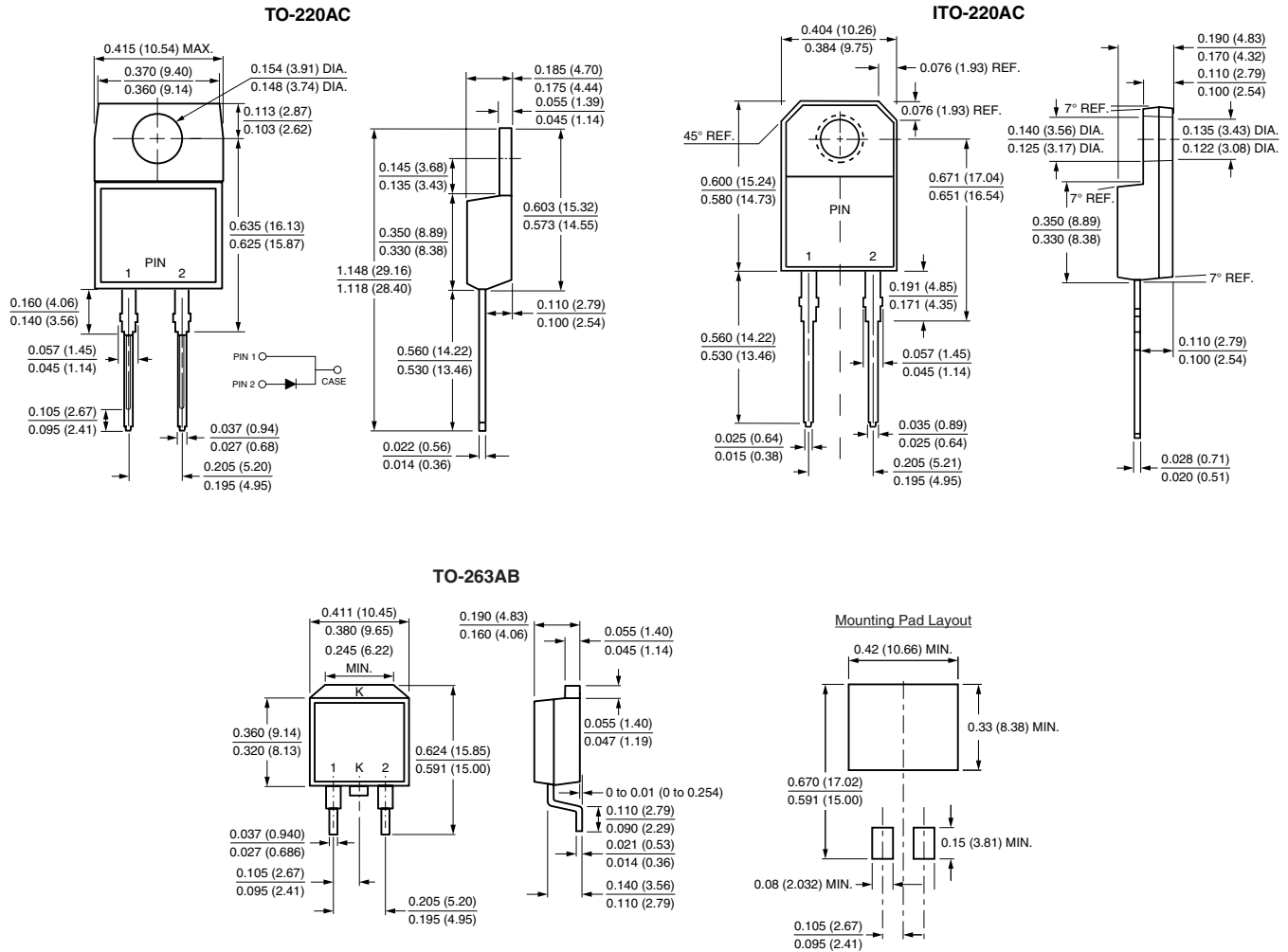


Figure 6. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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