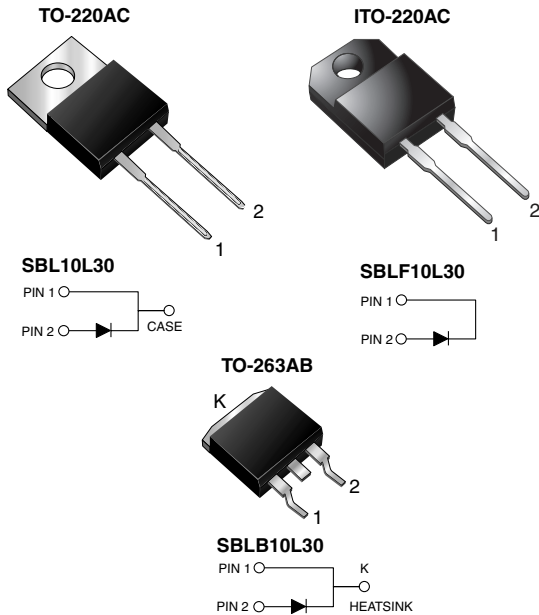


## Low $V_F$ Schottky Barrier Rectifier



### FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Very 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, OR-ing diode, freewheeling diodes, dc-to-dc converters and polarity protection application.

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	10 A
$V_{RRM}$	30 V
$I_{FSM}$	200 A
$V_F$	0.43 V
$T_J$ max.	150 °C

### 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

### MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	30	V
Working peak reverse voltage	$V_{RWM}$	21	V
Maximum DC blocking voltage	$V_{DC}$	30	V
Maximum average forward rectified current at $T_C = 140$ °C	$I_{F(AV)}$	10	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	200	A
Peak repetitive reverse current at $t_p = 2$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0	A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000	V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 150	°C
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1$ 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>	$I_F = 10\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F$	0.52	V
	$I_F = 10\text{ A}$	$T_J = 125\text{ }^\circ\text{C}$		0.43	
Maximum instantaneous reverse current at DC blocking voltage <sup>(1)</sup>			$I_R$	1.0	mA
				$T_J = 125\text{ }^\circ\text{C}$	

**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	$R_{\theta JC}$	4.3	4.8	4.3	$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	SBL10L30-E3/45	1.80	45	50/tube	Tube
ITO-220AC	SBLF10L30-E3/45	1.94	45	50/tube	Tube
TO-263AB	SBLB10L30-E3/45	1.33	45	50/tube	Tube
TO-263AB	SBLB10L30-E3/81	1.33	81	800/reel	Tape and reel
TO-220AC	SBL10L30HE3/45 <sup>(1)</sup>	1.80	45	50/tube	Tube
ITO-220AC	SBLF10L30HE3/45 <sup>(1)</sup>	1.94	45	50/tube	Tube
TO-263AB	SBLB10L30HE3/45 <sup>(1)</sup>	1.33	45	50/tube	Tube
TO-263AB	SBLB10L30HE3/81 <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)

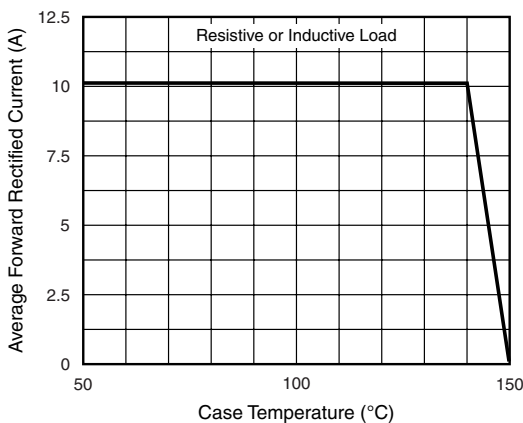


Figure 1. Forward Current Derating Curve

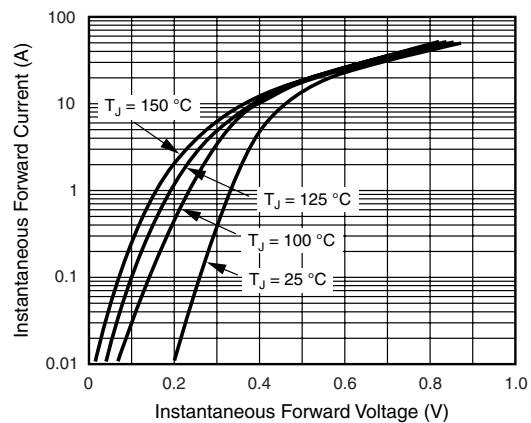


Figure 2. Typical Instantaneous Forward Characteristics

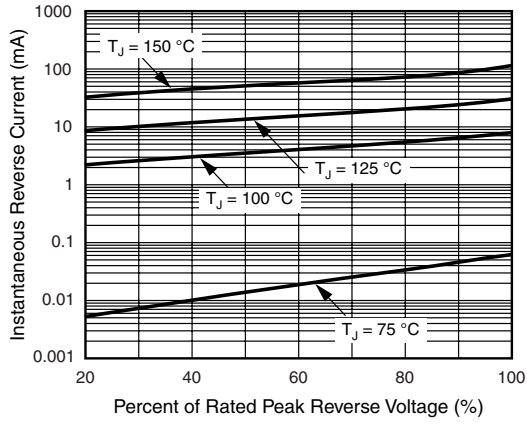


Figure 3. Typical Reverse Characteristics

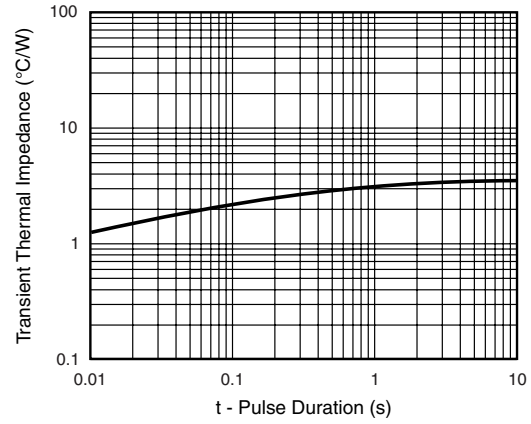


Figure 5. Typical Transient Thermal Impedance

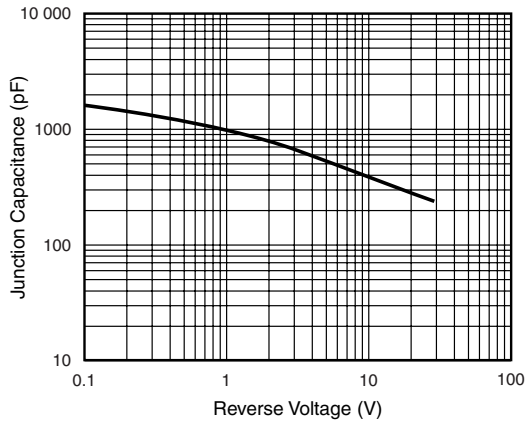
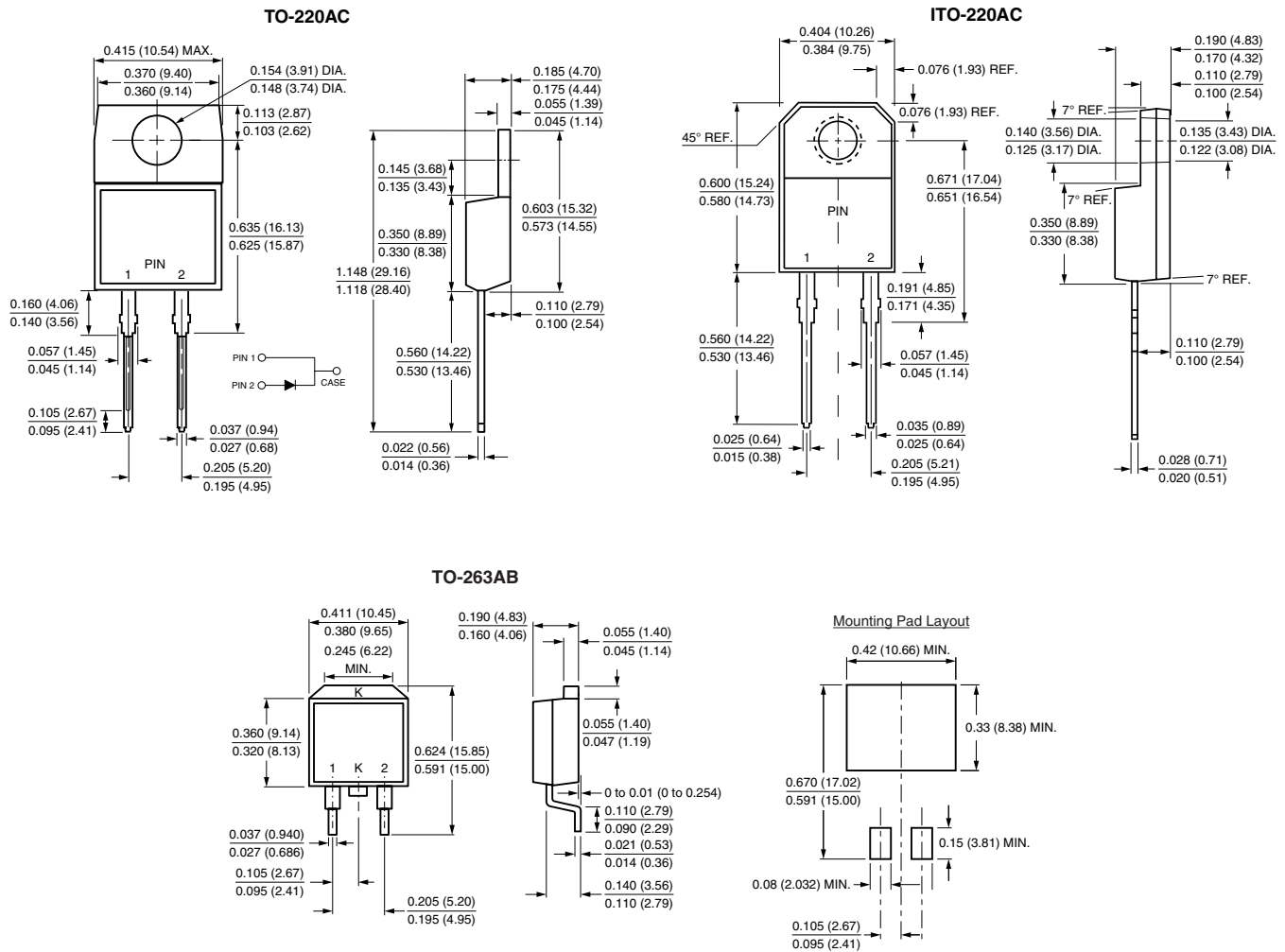


Figure 4. Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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