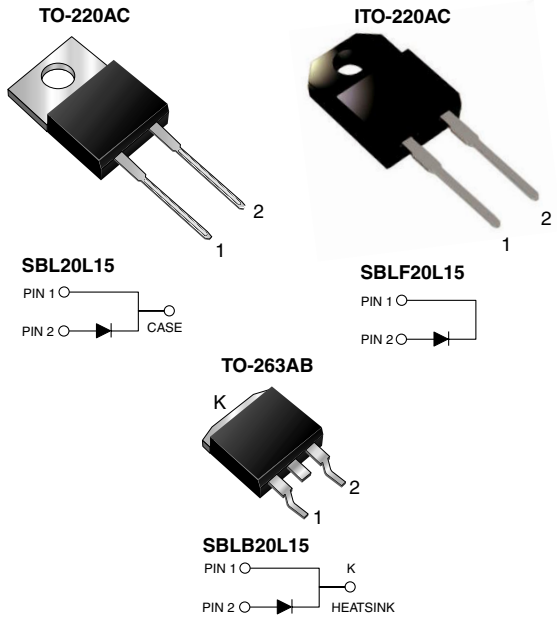
Low V_F Schottky Barrier Rectifier



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-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, Oring diode, 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	
$I_{F(AV)}$	20 A
V_{RRM}	15 V
I_{FSM}	340 A
V_F	0.33 V
T_j max	125 °C

MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	15	V
Working peak reverse voltage	V_{RWM}	15	V
Maximum DC blocking voltage	V_{DC}	15	V
Maximum average forward rectified current at T_C = 115 °C	$I_{F(AV)}$	20	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	340	A
Peak repetitive reverse current at t_p = 2 µs, 1 kHz	I_{RRM}	2.0	A
Voltage rate of change (rated V_R)	dv/dt	10000	V/µs
Maximum operating junction temperature	T_J	125	°C
Storage temperature range	T_{STG}	- 65 to + 150	°C
Isolation voltage (ITO-220AC only) From terminal to heatsink t = 1 minute	V_{AC}	1500	V

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**VALUE**	**UNIT**
Maximum instantaneous forward voltage (1)	at I_F = 19 A, T_j = 25 °C at I_F = 19 A, T_j = 125 °C at I_F = 40 A, T_j = 25 °C at I_F = 40 A, T_j = 125 °C	V_F	0.41 0.33 0.52 0.50	V
Maximum reverse current at working peak reverse voltage (1)	T_j = 25 °C T_j = 100 °C	I_R	6.0 500	mA mA

Note:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**SBL**	**SBLF**	**SBLB**	**UNIT**
Typical thermal resistance, junction to case	$R_{\theta JC}$	1.6	4.0	1.6	°C/W

ORDERING INFORMATION					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AC	SBL20L15-E3/45	1.80	45	50/Tube	Tube
ITO-220AC	SBLF20L15-E3/45	1.94	45	50/Tube	Tube
TO-263AB	SBLB20L15-E3/45	1.33	45	50/Tube	Tube
TO-263AB	SBLB20L15-E3/81	1.33	81	800/Reel	Tape Reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

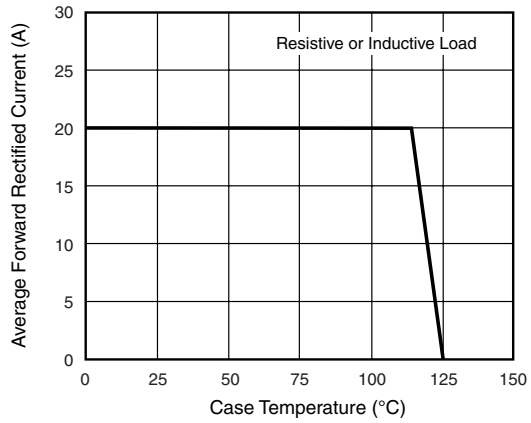


Figure 1. Forward Current Derating Curve

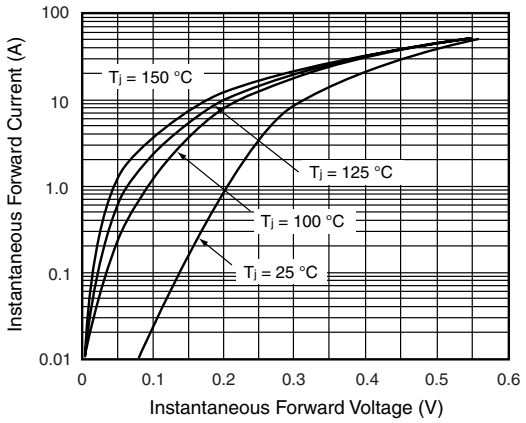


Figure 2. Typical Instantaneous Forward Characteristics

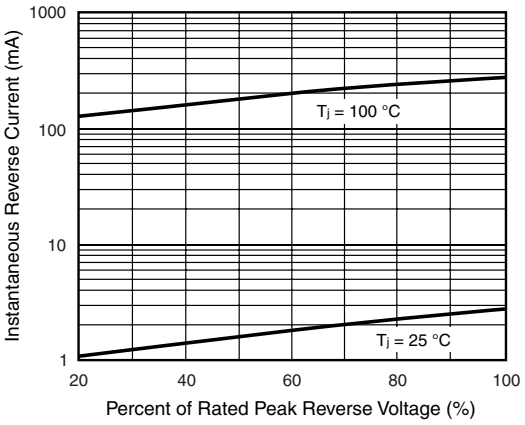


Figure 3. Typical Reverse Characteristics

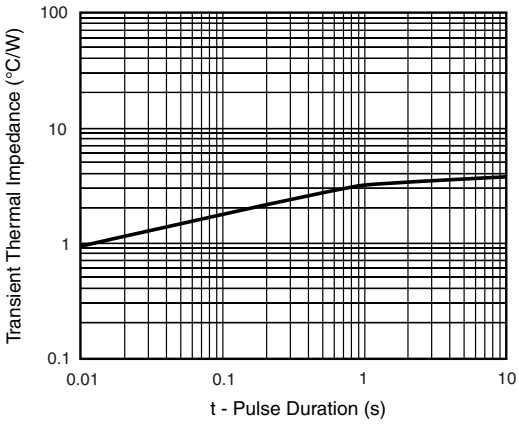


Figure 5. Typical Transient Thermal Impedance

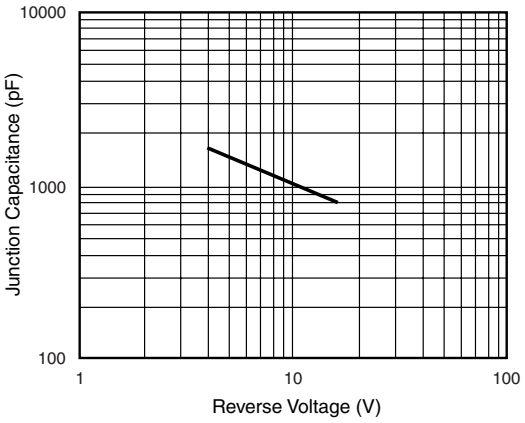
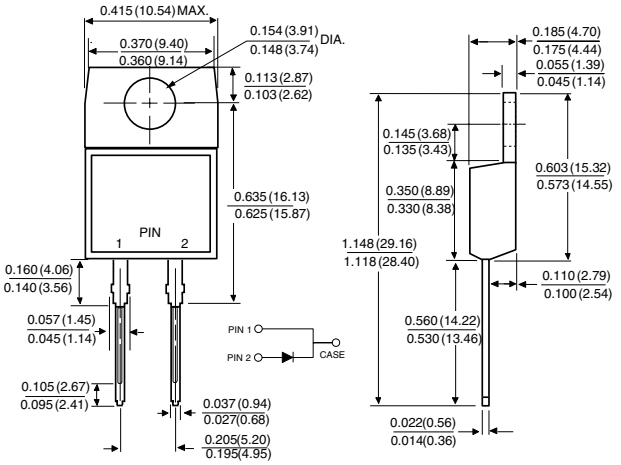


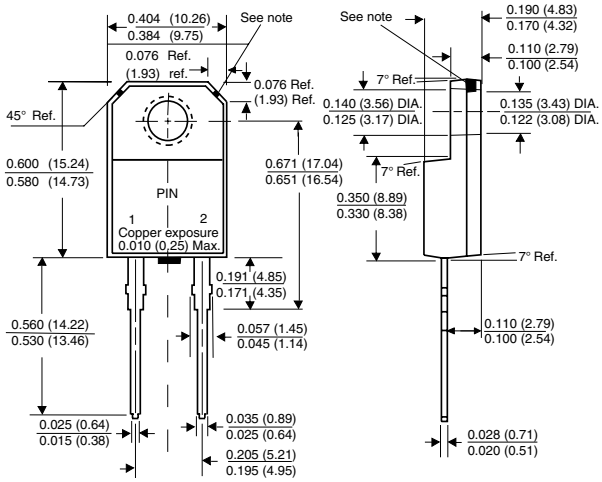
Figure 4. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC

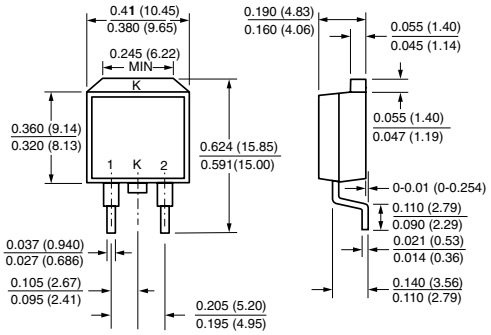


ITO-220AC

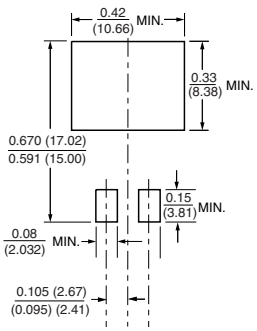


Note: Copper exposure is allowable for 0.005 (0.13) Max. from the body

TO-263AB



Mounting Pad Layout



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