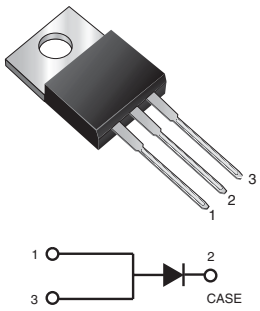
Schottky Barrier Rectifier

TO-220AB



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder Dip 260 °C, 40 seconds
- 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 or polarity protection applications.

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	30 A
V_{RRM}	35 V, 45 V
I_{FSM}	200 A
V_F at I_F = 30 A	0.61 V
T_J max.	150 °C

MECHANICAL DATA

Case: TO-220AB

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

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	M3035S	M3045S	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	30		A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	200		A
Peak repetitive reverse current per leg at t_p = 2 µs, 1 kHz	I_{RRM}	2.0		A
Voltage rate of change (rated V_R)	dv/dt	10000		V/µs
Operating junction temperature range	T_J	- 65 to + 150		°C
Storage temperature range	T_{STG}	- 65 to + 175		°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	TEST CONDITION		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage (1)	at I_F = 15 A at I_F = 30 A	T_J = 25 °C	V_F	0.54 0.65	- 0.70	V
	at I_F = 15 A at I_F = 30 A	T_J = 125 °C		0.46 0.61	- 0.66	
Maximum instantaneous reverse current at rated V_R (1)	T_J = 25 °C T_J = 125 °C		I_R	40 26	200 55	µA mA
Typical junction capacitance	at 4.0 V, 1 MHz		C_J	980		pF

Note:

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**M3035S**	**M3045S**	**UNIT**
Typical thermal resistance	$R_{\theta JC}$	2.0		°C/W

ORDERING INFORMATION				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
MBR3045-E3/4W	1.878	4W	50/Tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

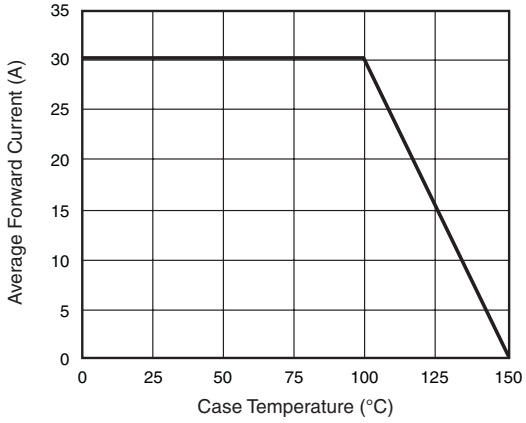


Figure 1. Forward Current Derating Curve

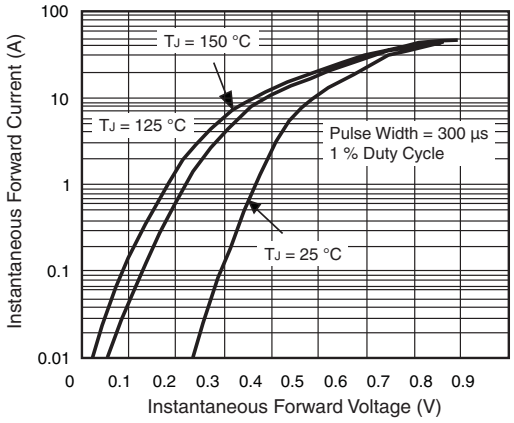


Figure 3. Typical Instantaneous Forward Characteristics

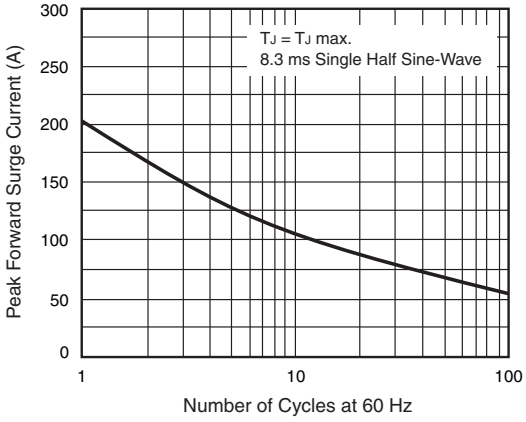


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

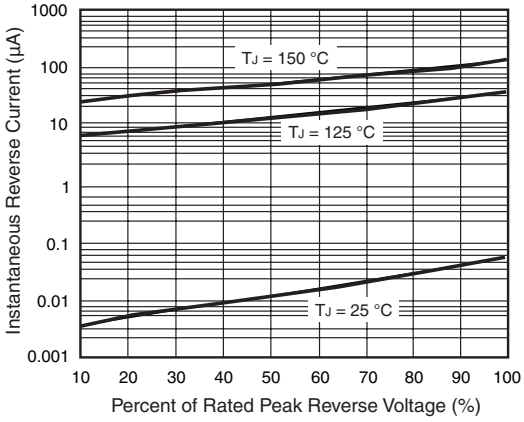


Figure 4. Typical Reverse Characteristics

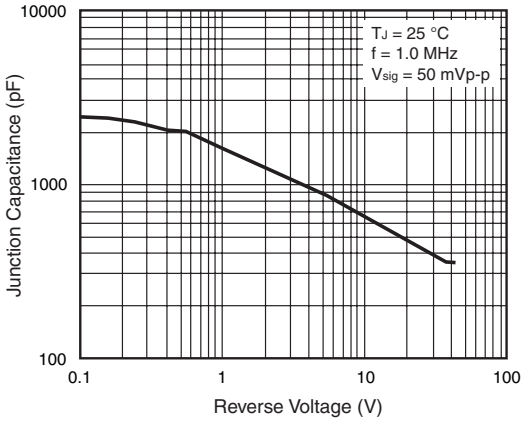
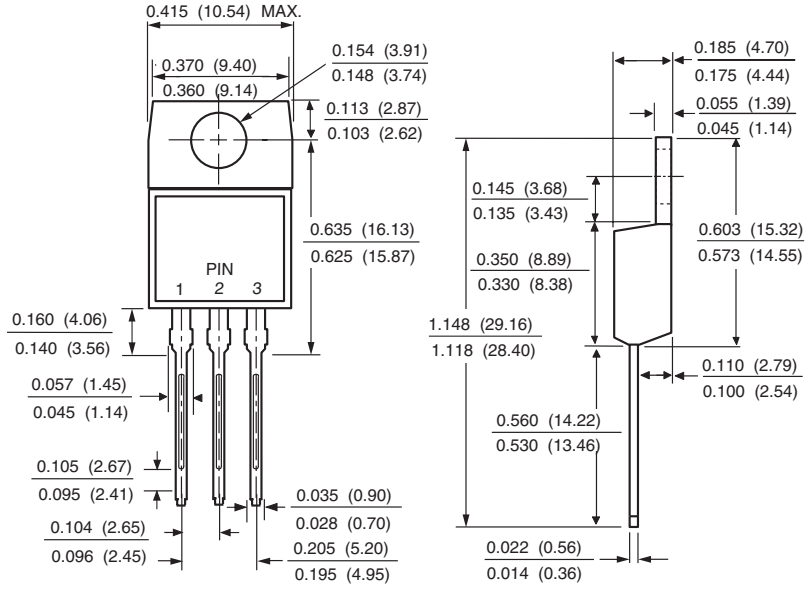


Figure 5. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS IN INCHES (MILLIMETERS)

TO-220AB



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