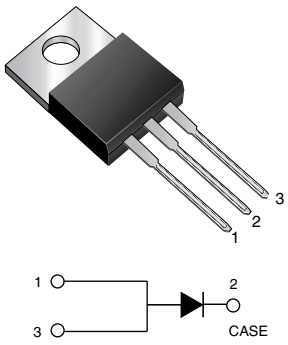
Schottky Barrier Rectifier

TO-220AB



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	20 A
V_{RRM}	35 V, 45 V
I_{FSM}	200 A
V_F at I_F = 20 A	0.55 V
T_J max.	150 °C
Package	TO-220AB
Diode variations	Single die

FEATURES

- Trench MOS Schottky technology
- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max.10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see 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, or polarity protection application.

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

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

PARAMETER	SYMBOL	M2035S	M2045S	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	V
Maximum average forward rectified current (fig.1)	$I_{F(AV)}$	20		A
Peak forward surge current 8.3 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	10 000		V/µs
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150		°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	V_F (1)	I_F = 10 A	T_J = 25 °C	0.52	-	V
		I_F = 20 A		0.62	0.70	
		I_F = 10 A	T_J = 125 °C	0.42	-	
		I_F = 20 A		0.55	0.61	
Maximum reverse current at rated V_R	I_R (2)		T_J = 25 °C	80	200	µA
			T_J = 125 °C	24	35	mA
Typical junction capacitance	C_J	4.0 V, 1 MHz		700		pF

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**M2035S**	**M2045S**	**UNIT**
Typical thermal resistance	$R_{\theta JC}$	2.0		°C/W

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
M2045S-E3/4W	1.877	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

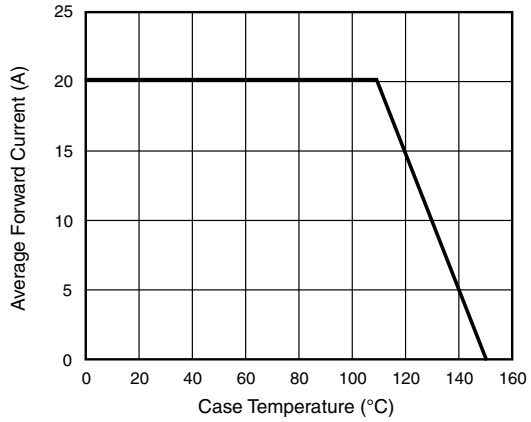


Fig. 1 - Forward Current Derating Curve

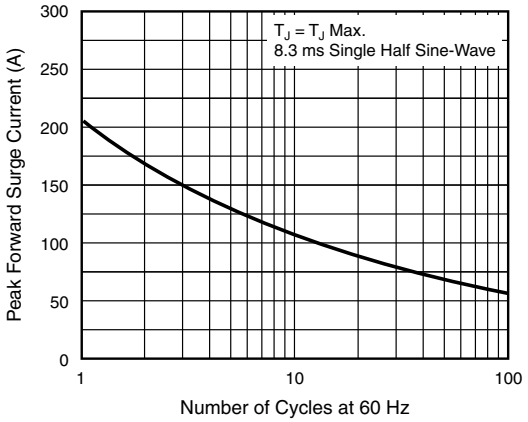


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

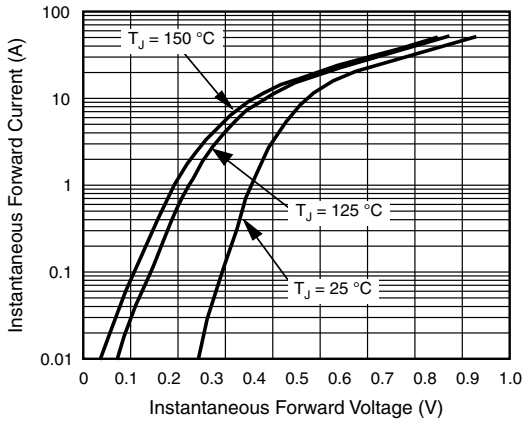


Fig. 3 - Typical Instantaneous Forward Characteristics

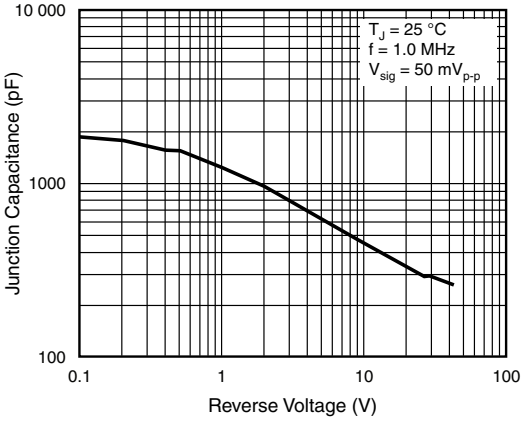


Fig. 5 - Typical Junction Capacitance

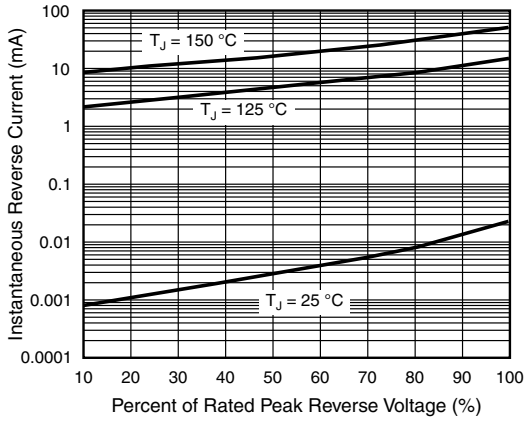
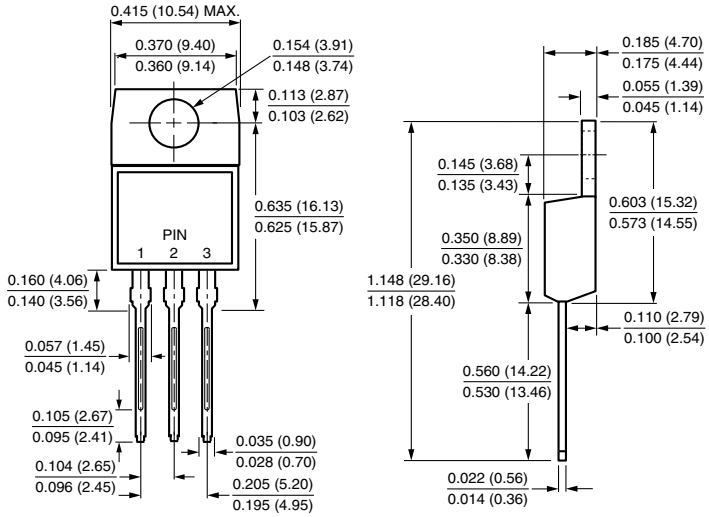


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



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