

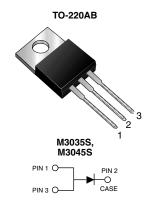
HALOGEN

FREE



Vishay General Semiconductor

Schottky Barrier Rectifier



PRIMARY 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			

FEATURES

- · 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

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.

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free and RoHS compliant,

commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PARAMETER	SYMBOL	M3035S	M3045S	UNIT
Maximum repetitive peak reverse voltage	V _{RRM}	RM 35 45		V
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	30		А
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	200		А
Peak repetitive reverse current per leg at $t_p = 2 \mu s$, 1 kHz	I _{RRM}	2.0		А
Voltage rate of change (rated V _R)	dV/dt	10 000		V/µs
Operating junction temperature range	TJ	- 65 to + 150		°C
Storage temperature range	T _{STG}	- 65 to + 175		°C

M3035S, M3045S

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	I _F = 15 A	- T _J = 25 °C	- V _F ⁽¹⁾	0.54	-	V
	I _F = 30 A			0.65	0.70	
	I _F = 15 A	T _J = 125 °C		0.46	-	
	I _F = 30 A			0.61	0.66	
Maximum instantaneous reverse current at rated V _R		T _J = 25 °C	I _R ⁽²⁾	40	200	μΑ
		T _J = 125 °C		26	55	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	980		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	M3035S M3045S		UNIT	
Typical thermal resistance	$R_{ heta JC}$	2.0		°C/W	

ORDERING INFORMATION (Example)							
PACKAGE	PACKAGE PREFERRED P/N UNIT WEIGHT		PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	M3045S-M3/4W	1.878	4W	50/tube	Tube		

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

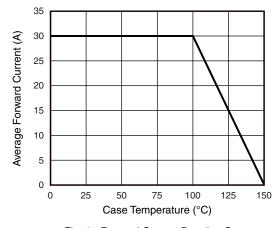


Fig. 1 - Forward Current Derating Curve

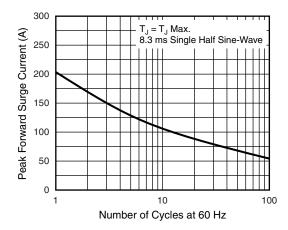


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



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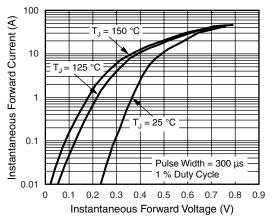


Fig. 3 - Typical Instantaneous Forward Characteristics

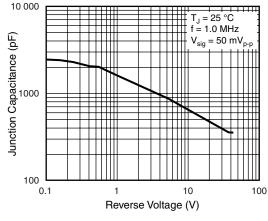


Fig. 5 - Typical Junction Capacitance

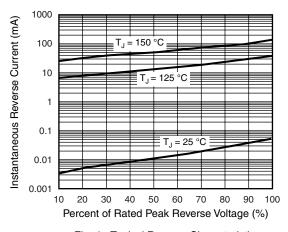


Fig. 4 - Typical Reverse Characteristics

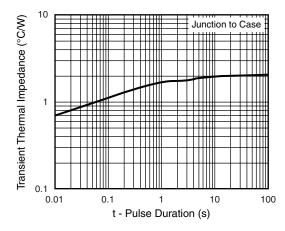
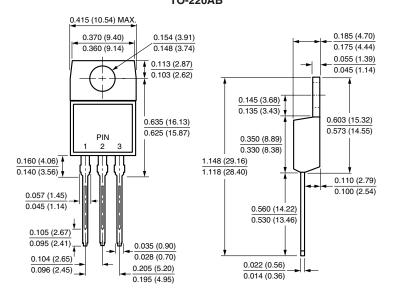


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters) TO-220AB







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