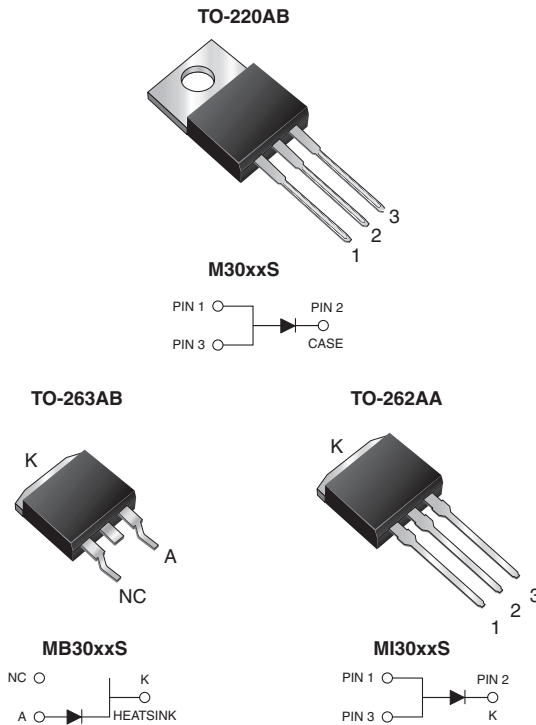


## Schottky Barrier Rectifier



### FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- 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 bath temperature 275 °C maximum, 10 s per JESD22-B106 (for TO-220AB and TO-262AA package)
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://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, and polarity protection application.

### MECHANICAL DATA

**Case:** TO-220AB, TO-263AB, and TO-262AA

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

### 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
Package	TO-220AB, TO-263AB, TO-262AA
Diode variations	Single

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

PARAMETER	SYMBOL	M(B,I)3035S	M(B,I)3045S	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	V
Maximum average forward rectified current (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 at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	2.0		
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000		V/ $\mu$ s
Operating junction and storage temperature range	$T_J$	- 65 to + 150		°C
	$T_{STG}$	- 65 to + 175		



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 15 A	T <sub>J</sub> = 25 °C	0.54	-	V
		I <sub>F</sub> = 30 A		0.65		
		I <sub>F</sub> = 15 A	T <sub>J</sub> = 125 °C	0.46	-	
		I <sub>F</sub> = 30 A		0.61	0.66	
Maximum instantaneous reverse current at DC blocking voltage	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	40	200	μA
			T <sub>J</sub> = 125 °C	26	55	mA
Typical junction capacitance	C <sub>J</sub>	4.0 V, 1 MHz	980		pF	

**Note**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	M30xxS	MB30xxS	MI30xxS	UNIT
Typical thermal resistance	R <sub>θJC</sub>	2.0			°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	M3045S-E3/4W	1.878	4W	50/tube	Tube
TO-263AB	MB3045S-E3/4W	1.37	4W	50/tube	Tube
TO-263AB	MB3045S-E3/8W	1.37	8W	800/reel	Tape and reel
TO-263AA	MI3045S-E3/4W	1.454	4W	50/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

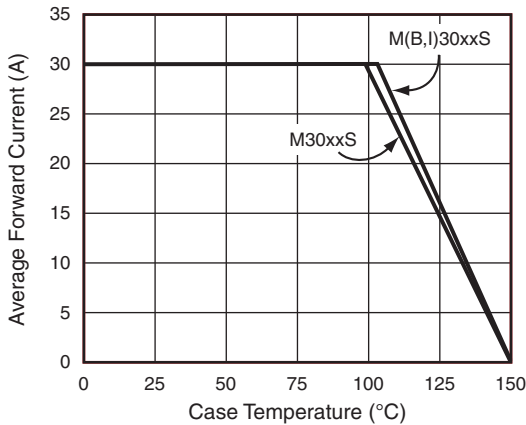


Fig. 1 - Forward Current Derating Curve

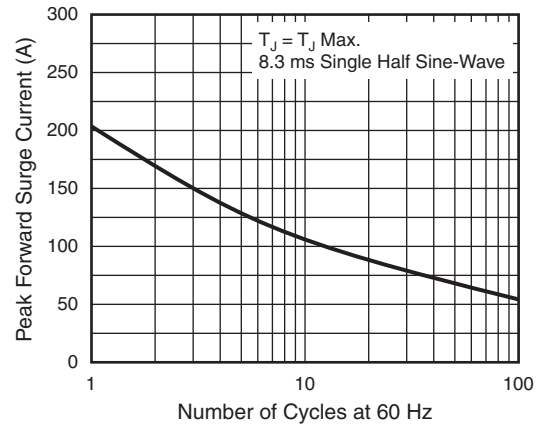


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

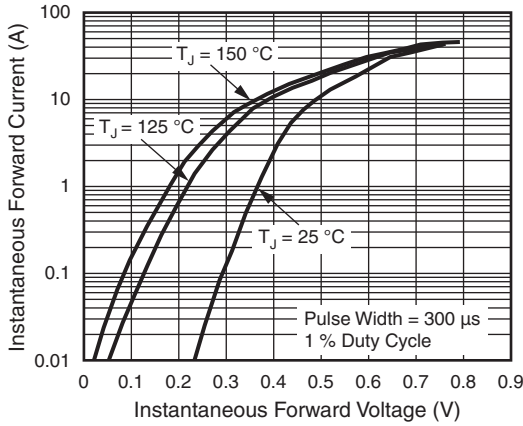


Fig. 3 - Typical Instantaneous Forward Characteristics

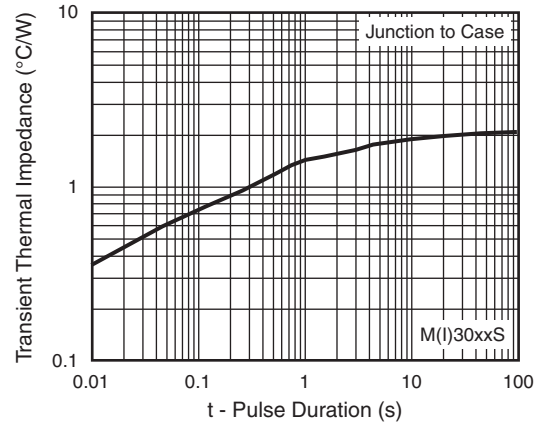


Fig. 6 - Typical Transient Thermal Impedance

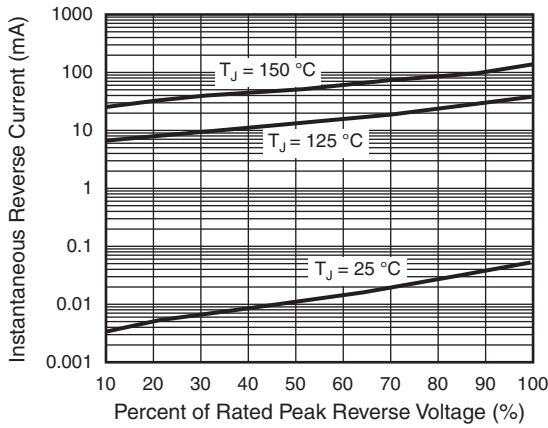


Fig. 4 - Typical Reverse Characteristics

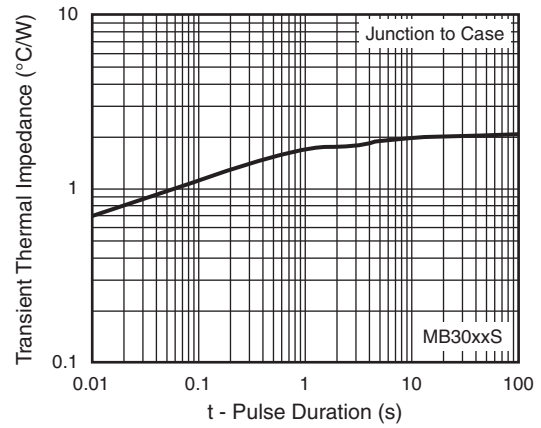


Fig. 7 - Typical Transient Thermal Impedance

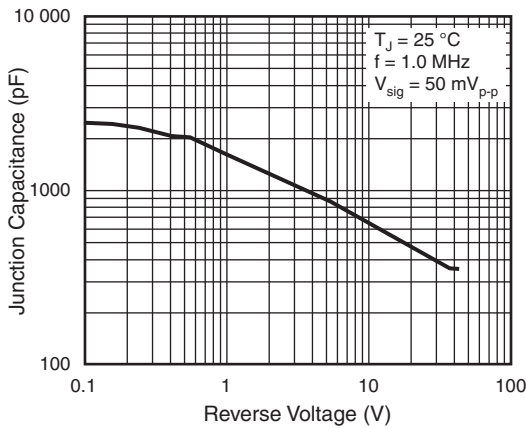
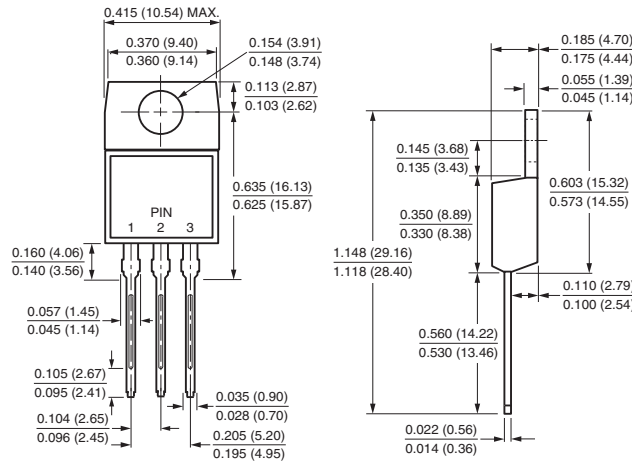


Fig. 5 - Typical Junction Capacitance

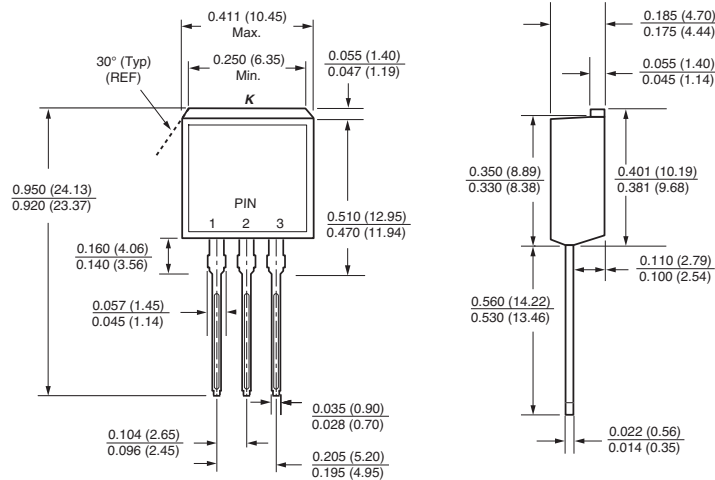


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

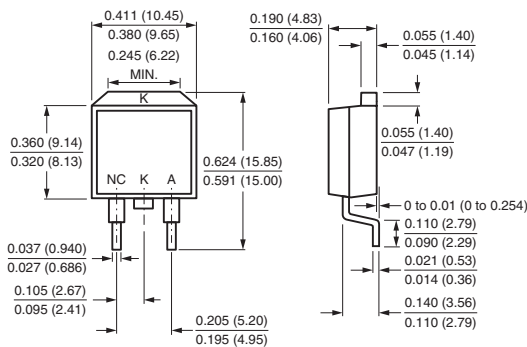
#### TO-220AB



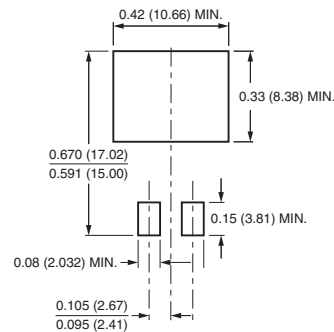
#### TO-262AA



#### TO-263AB



#### Mounting Pad Layout





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