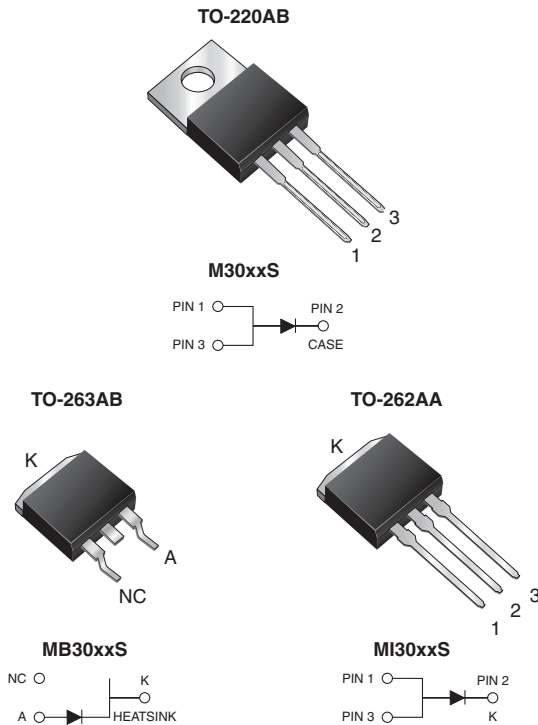


Schottky Barrier Rectifier



FEATURES

- 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


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, HE3 suffix meets JESD 201 class 2 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

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 $t_p = 2.0$ μ s, 1 kHz	I_{RRM}	2.0		
Voltage rate of change (rated V_R)	dV/dt	10 000		V/ μ s
Operating junction and storage temperature range	T_J	- 65 to + 150		°C
	T_{STG}	- 65 to + 175		



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS	TYP.	MAX.	UNIT	
Maximum instantaneous forward voltage	V _F ⁽¹⁾	I _F = 15 A	T _J = 25 °C	0.54	-	V
				0.65		
		I _F = 30 A	T _J = 125 °C	0.46	-	
				0.61	0.66	
Maximum instantaneous reverse current at DC blocking voltage	I _R ⁽²⁾	Rated V _R	T _J = 25 °C	40	200	μA
			T _J = 125 °C	26	55	mA
Typical junction capacitance	C _J	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 _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	M30xxS	MB30xxS	MI30xxS	UNIT
Typical thermal resistance	R _{θJC}	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_A = 25 °C unless otherwise noted)

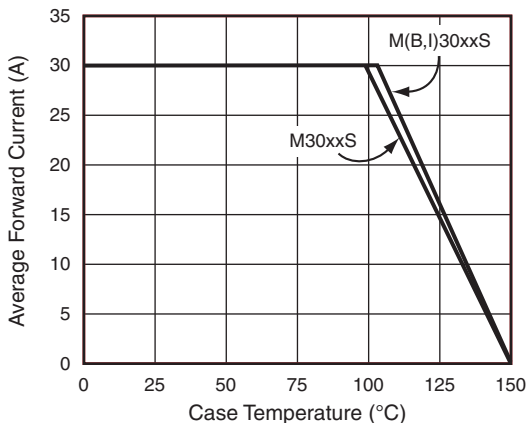


Fig. 1 - Forward Current Derating Curve

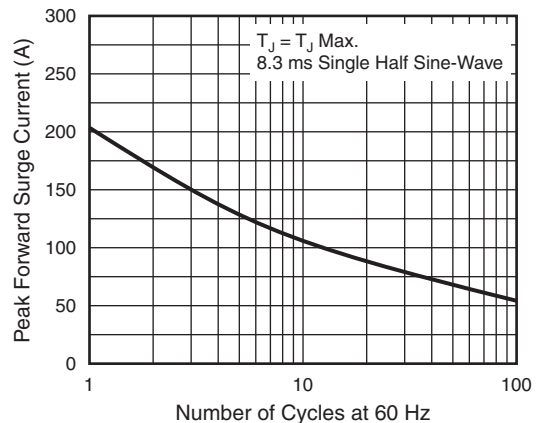


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

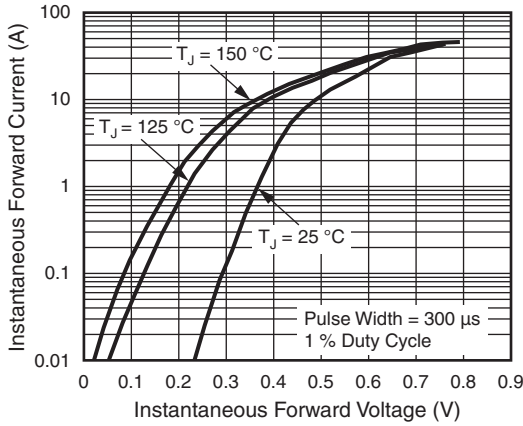


Fig. 3 - Typical Instantaneous Forward Characteristics

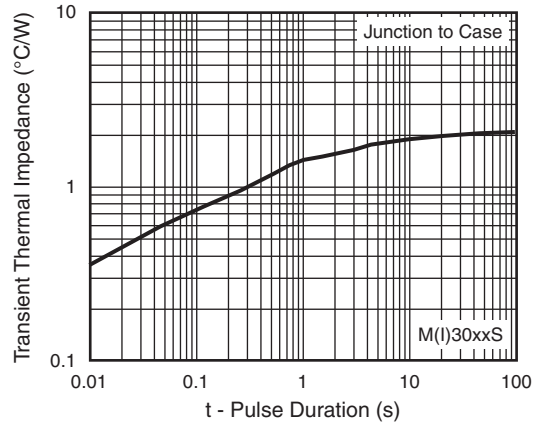


Fig. 6 - Typical Transient Thermal Impedance

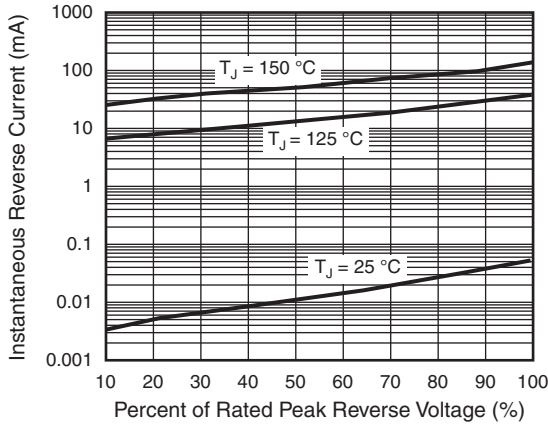


Fig. 4 - Typical Reverse Characteristics

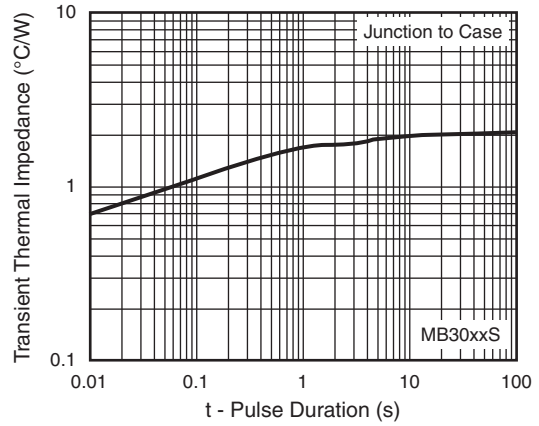


Fig. 7 - Typical Transient Thermal Impedance

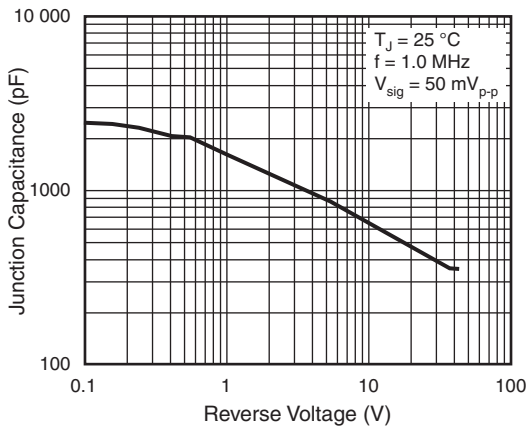
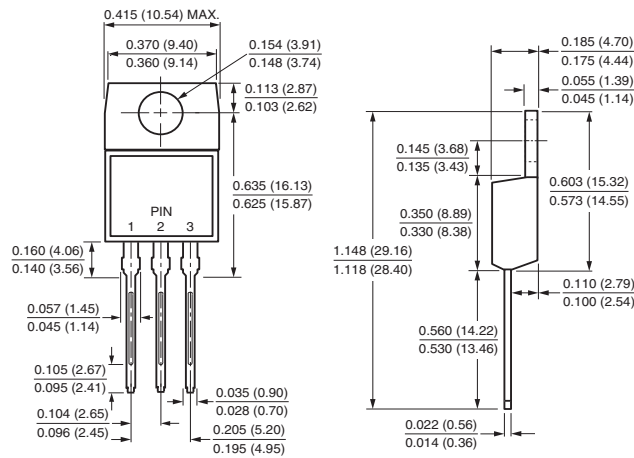


Fig. 5 - Typical Junction Capacitance

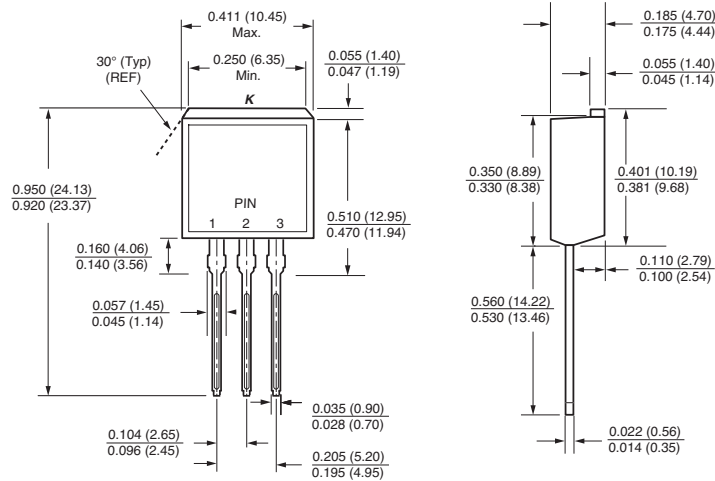


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

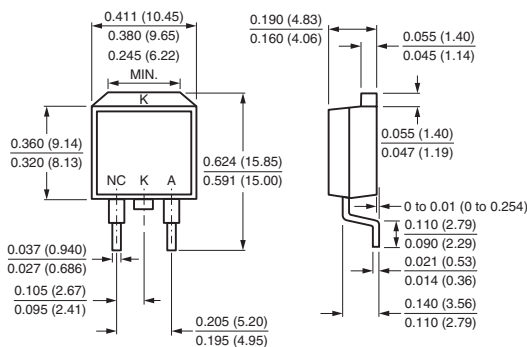
TO-220AB



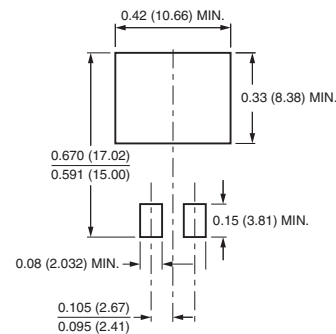
TO-262AA



TO-263AB



Mounting Pad Layout





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