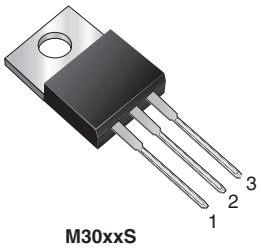
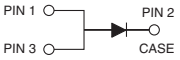
Schottky Barrier Rectifier

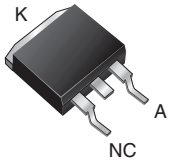
TO-220AB



M30xxS

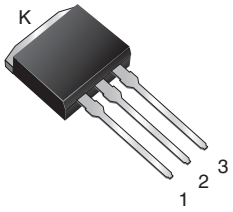


TO-263AB

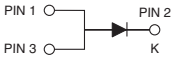


MB30xxS

TO-262AA



MI30xxS



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
- 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

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 µs, 1 kHz	I_{RRM}	2.0		
Voltage rate of change (rated V_R)	dV/dt	10 000		V/µs
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
		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 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	$R_{\theta JC}$	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)

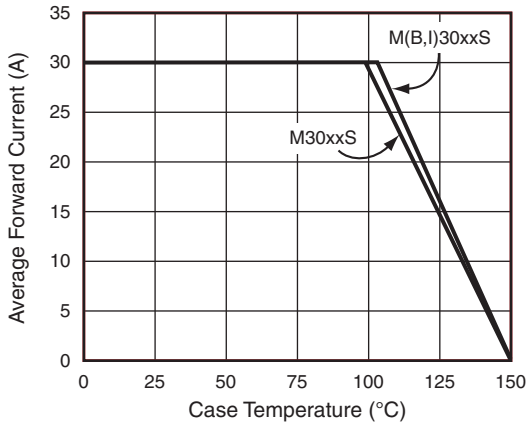


Fig. 1 - Forward Current Derating Curve

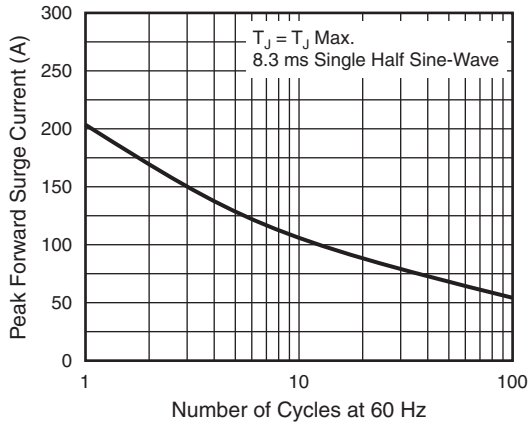


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

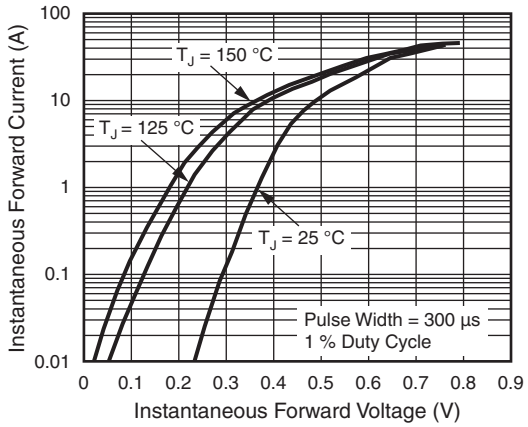


Fig. 3 - Typical Instantaneous Forward Characteristics

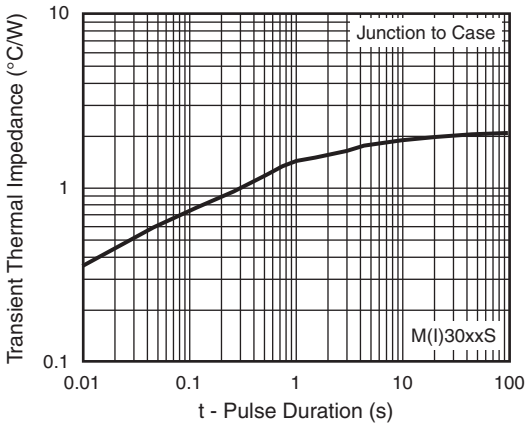


Fig. 6 - Typical Transient Thermal Impedance

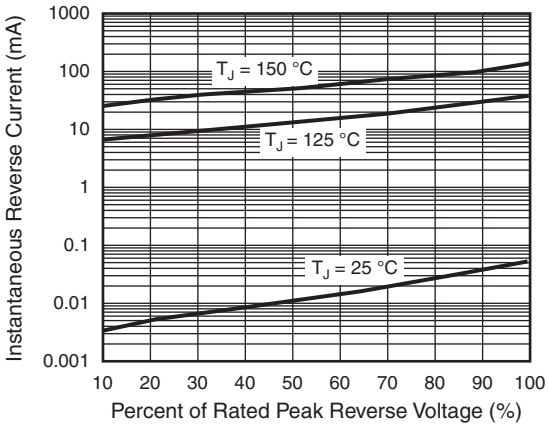


Fig. 4 - Typical Reverse Characteristics

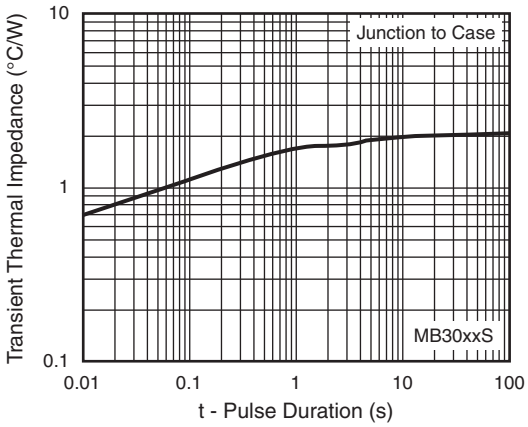


Fig. 7 - Typical Transient Thermal Impedance

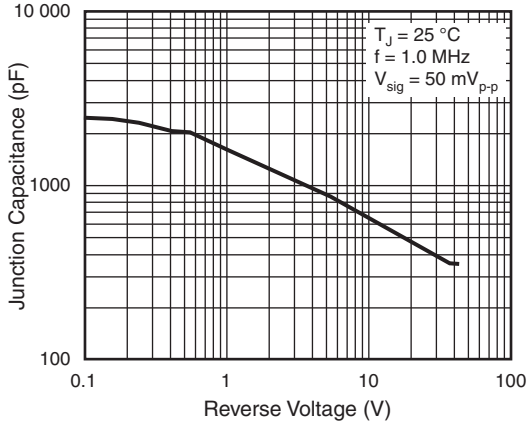
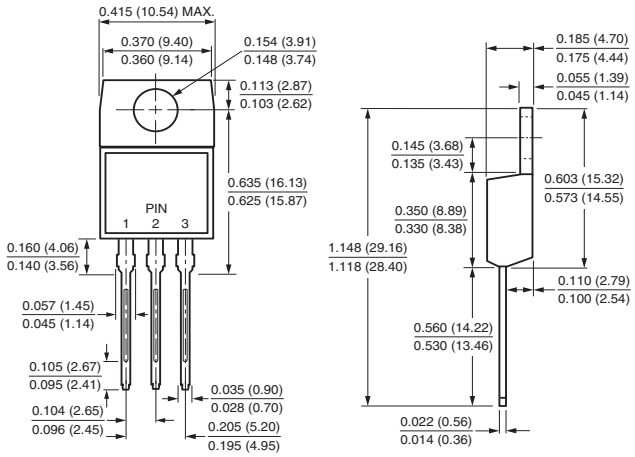


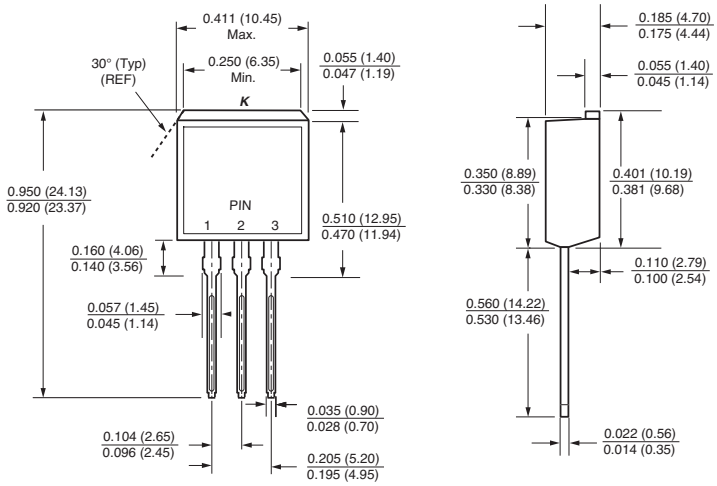
Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

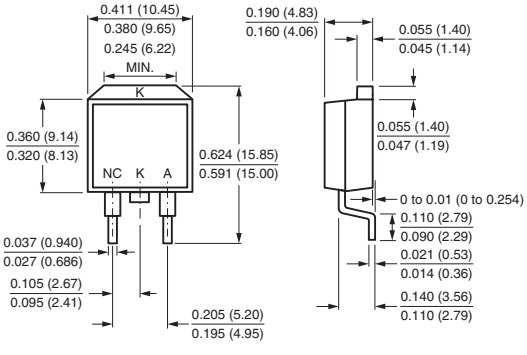
TO-220AB



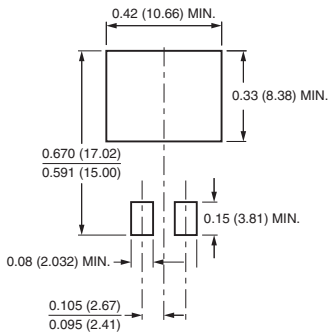
TO-262AA



TO-263AB



Mounting Pad Layout



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