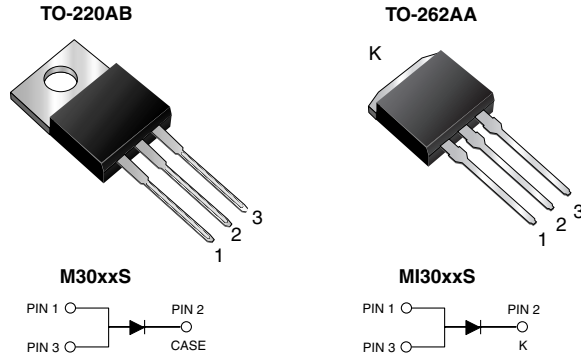


Schottky Barrier Rectifier



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

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.

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

MECHANICAL DATA

Case: TO-220AB and TO-262AA

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, 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	M(I)3035S	M(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 per leg at $t_p = 2$ μ s, 1 kHz	I_{RRM}	2.0		A
Voltage rate of change (rated V_R)	dV/dt	10 000		V/ μ s
Operating junction temperature range	T_J	- 65 to + 150		°C
Storage temperature range	T_{STG}	- 65 to + 175		°C

ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	$I_F = 15$ A $I_F = 30$ A	V_F	0.54 0.65	- 0.70	V
	$I_F = 15$ A $I_F = 30$ A		0.46 0.61	- 0.66	
Maximum instantaneous reverse current at rated V_R ⁽²⁾	$T_J = 25$ °C $T_J = 125$ °C	I_R	40 26	200 55	μ A mA
Typical junction capacitance	4.0 V, 1 MHz	C_J	980		pF

Notes:

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

(2) Pulse test: Pulse width \leq 40 ms



THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	M30xxS	MI30xxS	UNIT
Typical thermal resistance	$R_{\theta JC}$	2.0		$^\circ\text{C/W}$

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-262AA	MI3045S-E3/4W	1.454	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

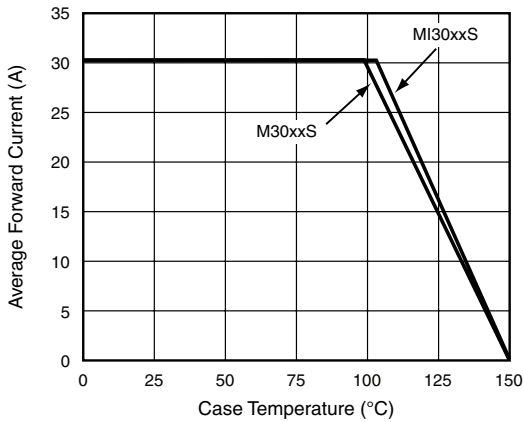


Figure 1. Forward Current Derating Curve

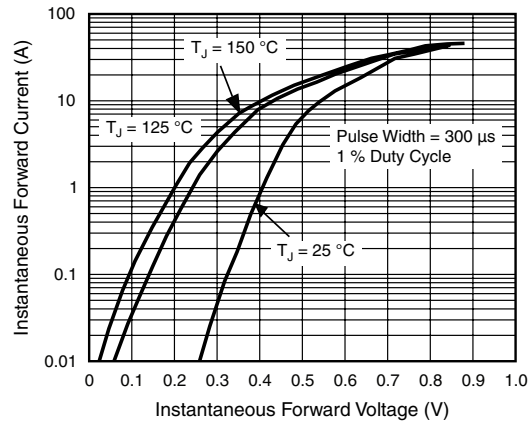


Figure 3. Typical Instantaneous Forward Characteristics

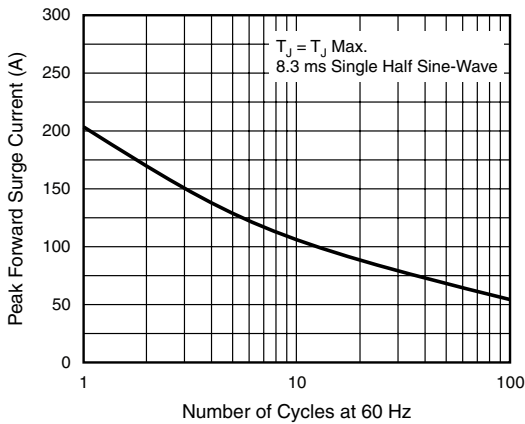


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

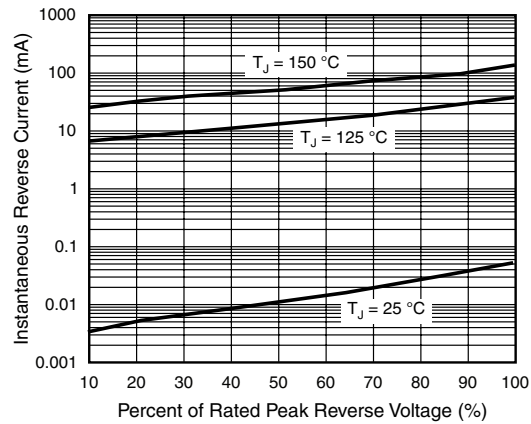


Figure 4. Typical Reverse Characteristics

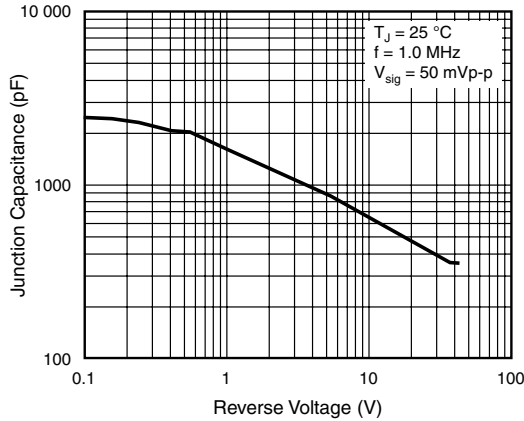


Figure 5. Typical Junction Capacitance

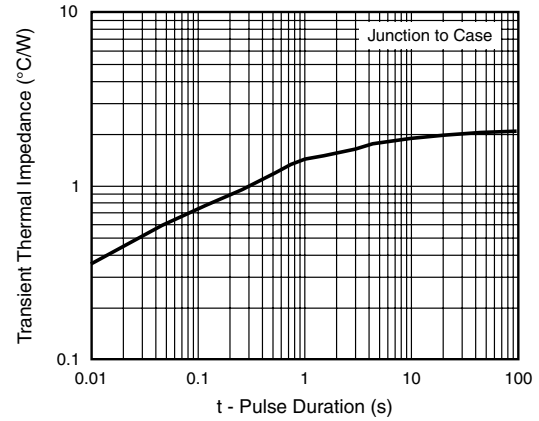
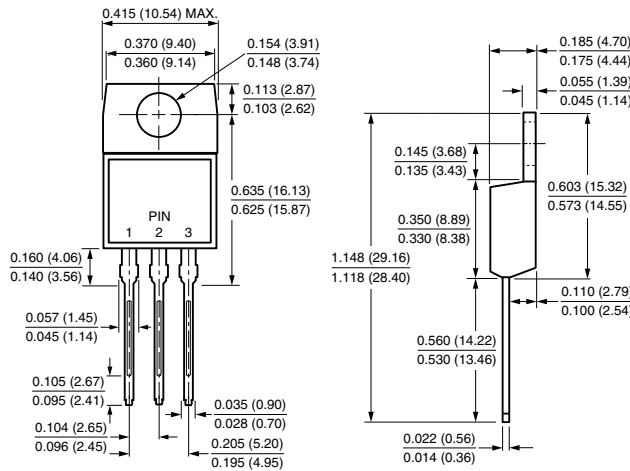


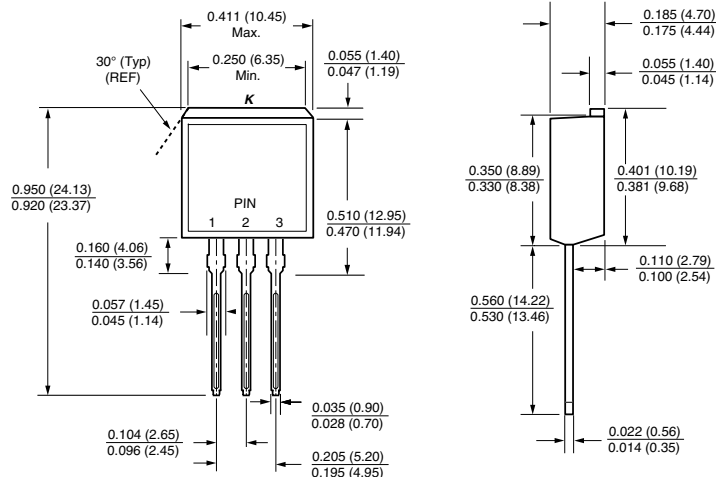
Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



TO-262AA





Disclaimer

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