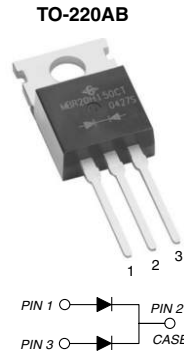


## Dual Common-Cathode Schottky Rectifier



### FEATURES

- Guarding for overvoltage protection
- Low 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, oring diodes, dc-to-dc converters or polarity protection applications.

### MECHANICAL DATA

**Case:** TO-220AB

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A x 2
$V_{RRM}$	35 V to 60 V
$I_{FSM}$	320 A
$V_F$	0.51 V, 0.56 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	M6035C	M6045C	M6060C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	60	V
Maximum average forward rectified current (Fig. 1) total device per diode	$I_{F(AV)}$	60 30			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	320			A
Peak repetitive reverse current at $t_p = 2.0\ \mu\text{s}$ , 1 kHz per diode	$I_{RRM}$	1.0			A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000			V/ $\mu\text{s}$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 150			°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITION	SYMBOL	M6035C	M6045C	M6060C		UNIT
			TYP.	MAX.	TYP.	MAX.	
Instantaneous forward voltage per diode (1)	$I_F = 10\text{ A}$ $I_F = 20\text{ A}$ $I_F = 30\text{ A}$	$T_J = 25\text{ °C}$	0.42	-	0.43	-	V
			0.49	-	0.52	-	
	$I_F = 10\text{ A}$ $I_F = 20\text{ A}$ $I_F = 30\text{ A}$	$T_J = 125\text{ °C}$	0.55	0.61	0.59	0.65	
			0.31	-	0.33	-	
Reverse current per diode (2)	$V_R$	$T_J = 25\text{ °C}$ $T_J = 125\text{ °C}$	0.42	-	0.47	-	
			0.51	0.56	0.56	0.61	
			140	700	180	700	
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	106	175	140	175	$\mu\text{A}$ mA
			1170	-	970	-	pF

**Notes:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: Pulse width  $\leq 40\text{ ms}$



THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	M6035C	M6045C	M6060C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$		2.0		$^\circ\text{C/W}$

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
M6045C-E3/45	2.068	45	50/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES**

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

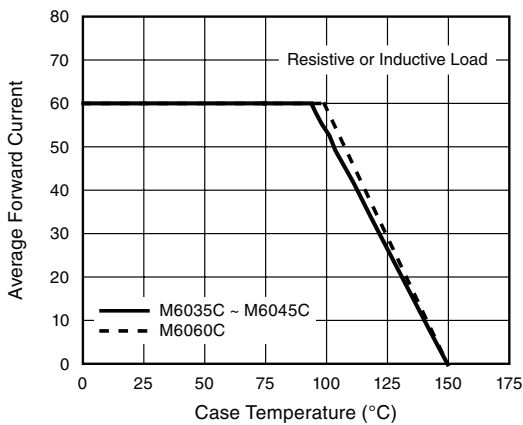


Figure 1. Maximum Forward Current Derating Curve

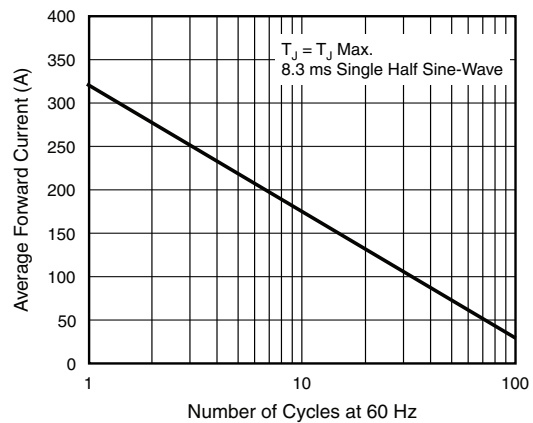


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

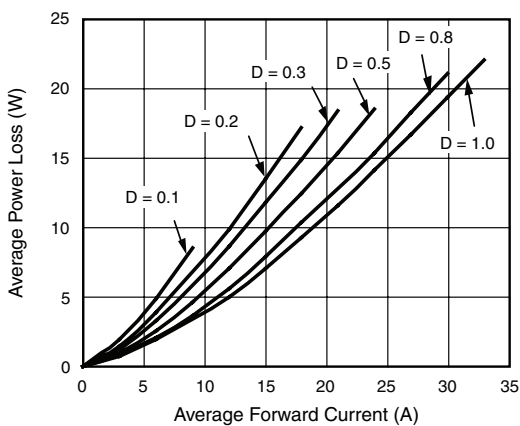


Figure 2. Forward Power Loss Characteristics Per Diode

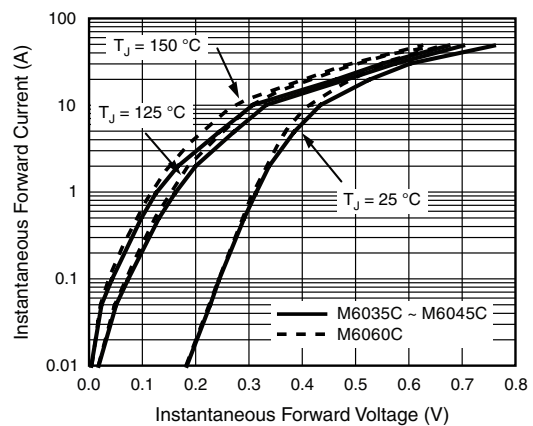


Figure 4. Typical Instantaneous Forward Characteristics Per Diode

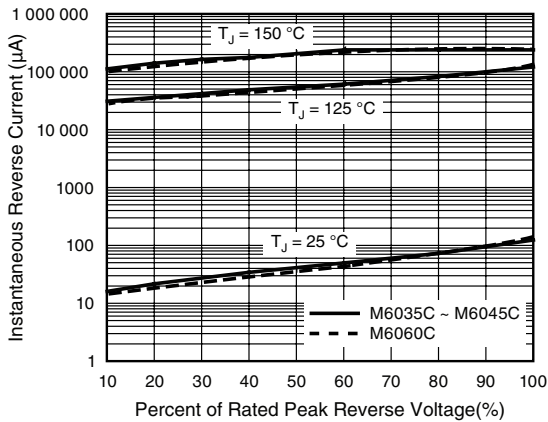


Figure 5. Typical Reverse Characteristics Per Diode

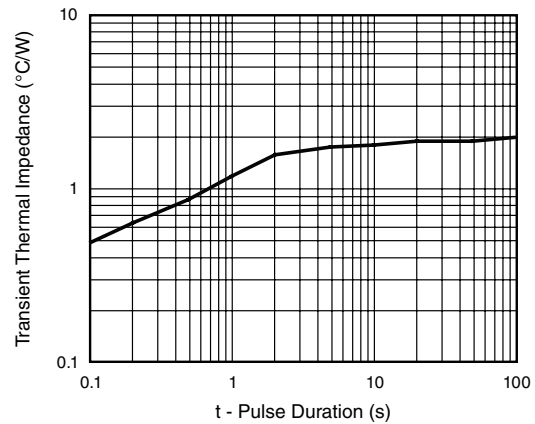


Figure 7. Typical Transient Thermal Impedance Per Diode

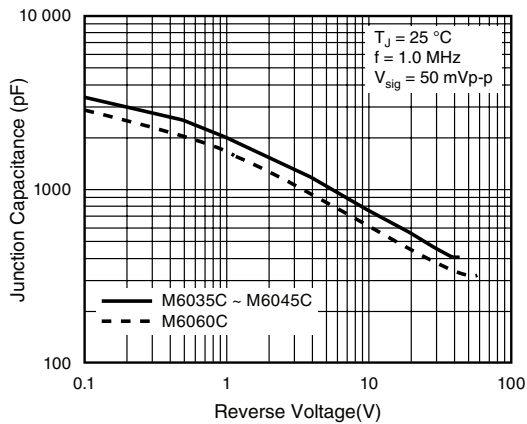
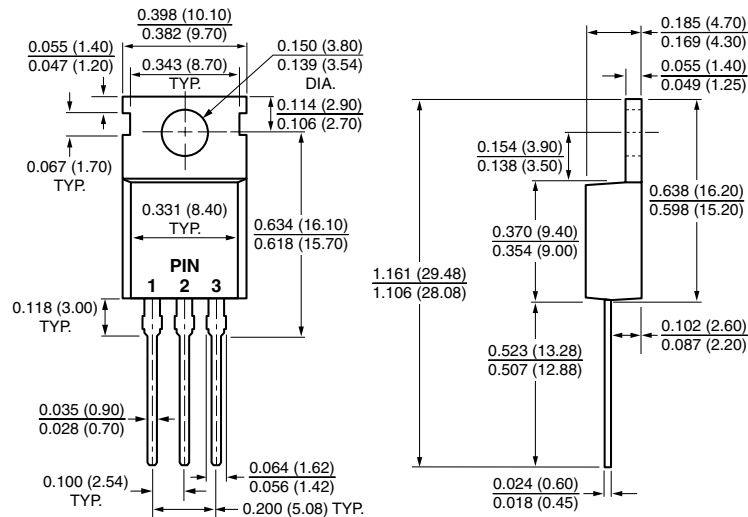


Figure 6. Typical Junction Capacitance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-220AB**





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