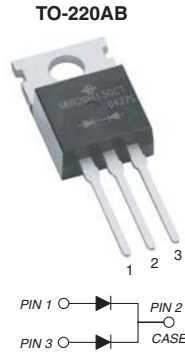


## Dual Common-Cathode Schottky Rectifier



### FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max., 10 s, per JESD 22-B106
- 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, Or-ing diodes, DC/DC converters or polarity protection application.

### MECHANICAL DATA

**Case:** TO-220AB

Molding compound meets UL 94V-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	
$I_{F(AV)}$	2 x 30 A
$V_{RRM}$	35 V to 60 V
$I_{FSM}$	320 A
$V_F$	0.51 V, 0.56 V
$T_J$ 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 at (Fig.1)	$I_{F(AV)}$	total device		60	A
		per diode		30	
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 per diode at $t_p = 2\ \mu\text{s}$ , 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 <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	TEST CONDITIONS		M6035C	M6045C	M6060C		UNIT
				TYP.	MAX.	TYP.	MAX.	
Instantaneous forward voltage per diode	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 10 A	T <sub>J</sub> = 25 °C	0.42	-	0.43	-	V
		I <sub>F</sub> = 20 A		0.49	-	0.52	-	
		I <sub>F</sub> = 30 A		0.55	0.61	0.59	0.65	
		I <sub>F</sub> = 10 A	T <sub>J</sub> = 125 °C	0.31	-	0.33	-	
		I <sub>F</sub> = 20 A		0.42	-	0.47	-	
		I <sub>F</sub> = 30 A		0.51	0.56	0.56	0.61	
Reverse current per diode	I <sub>R</sub> <sup>(2)</sup>	V <sub>R</sub>	T <sub>J</sub> = 25 °C	140	700	180	700	μA
			T <sub>J</sub> = 125 °C	106	175	140	175	mA
Typical junction capacitance	C <sub>J</sub>	4.0 V, 1 MHz		1170	-	970	-	pF

**Notes**

- (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	M6035C	M6045C	M6060C	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	2.0			°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<sub>A</sub> = 25 °C unless otherwise noted)**

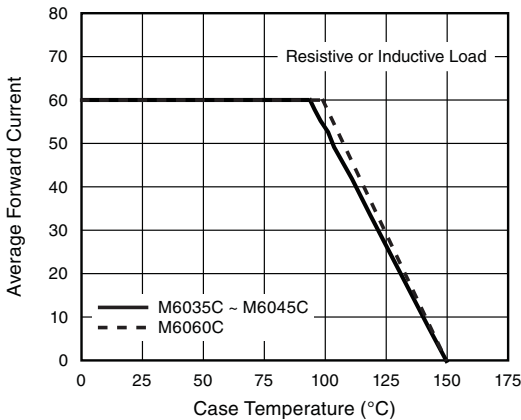


Fig. 1 - Maximum Forward Current Derating Curve

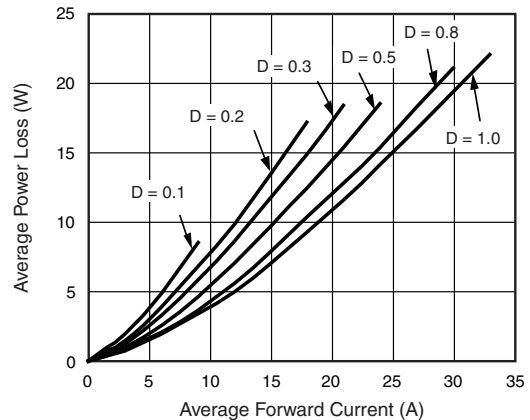


Fig. 2 - Forward Power Loss Characteristics Per Diode

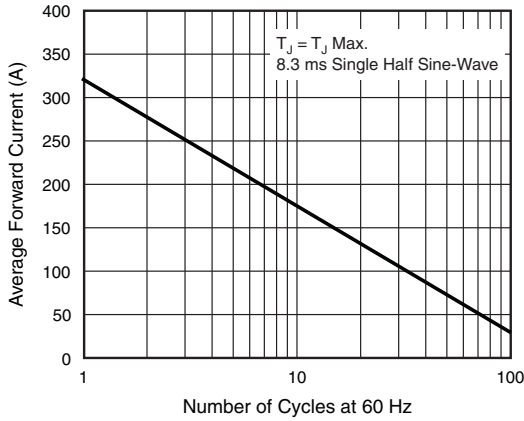


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

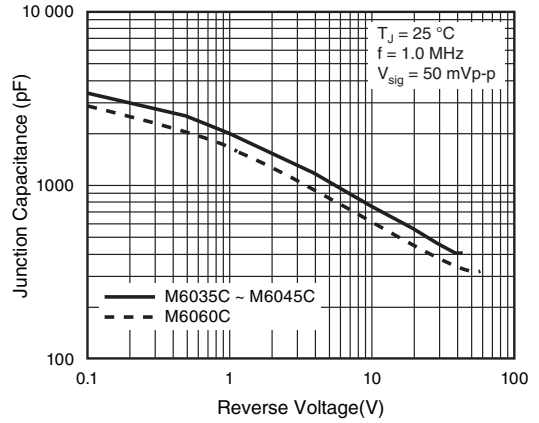


Fig. 6 - Typical Junction Capacitance Per Diode

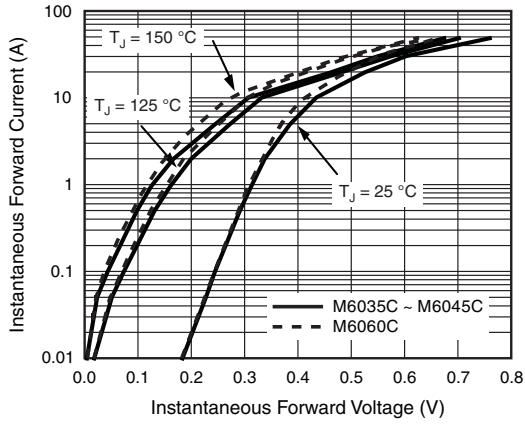


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

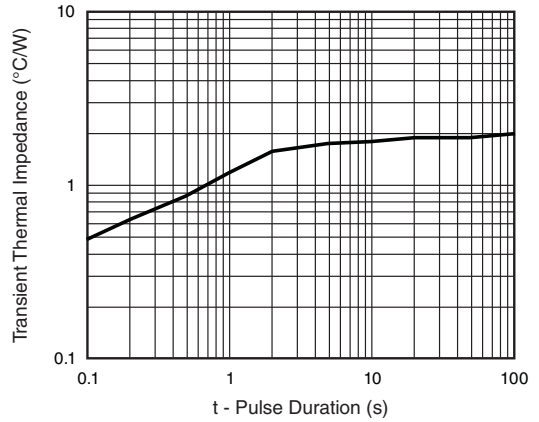


Fig. 7 - Typical Transient Thermal Impedance Per Diode

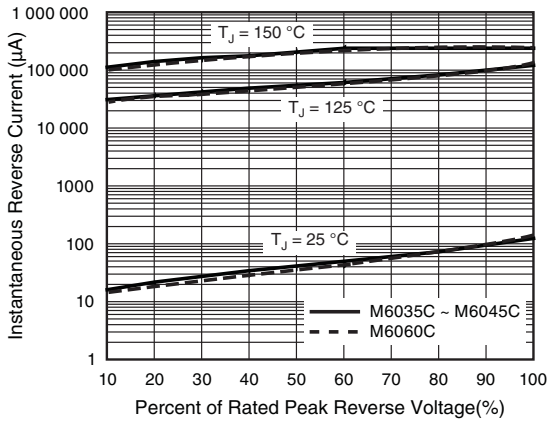
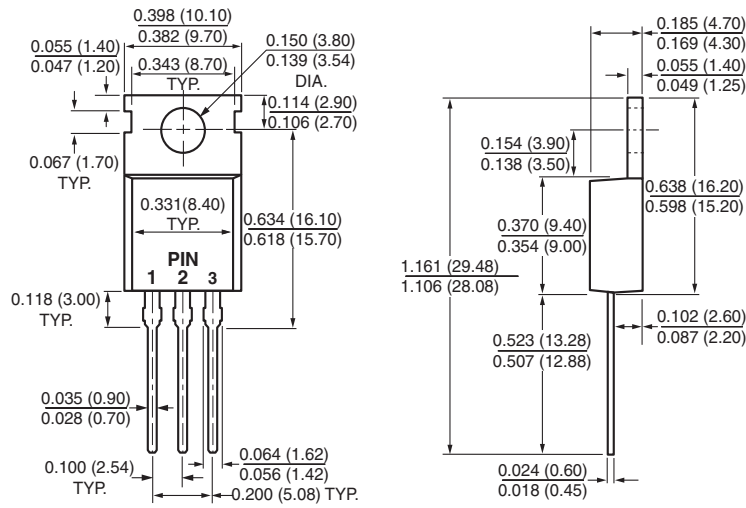


Fig. 5 - Typical Reverse Characteristics Per Diode



### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### TO-220AB





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