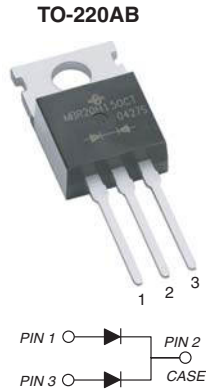


Dual Common Cathode Schottky Rectifier



FEATURES

- Power pack
- 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


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 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

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 30 A
V_{RRM}	35 V, 45 V, 60 V
I_{FSM}	320 A
V_F	0.51 V, 0.56 V
$T_J \text{ max.}$	150 °C
Package	TO-220AB
Diode variations	Common cathode

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/ μs	
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +150		°C	



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

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

Notes

- (1) Pulse test: 300 μs 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)

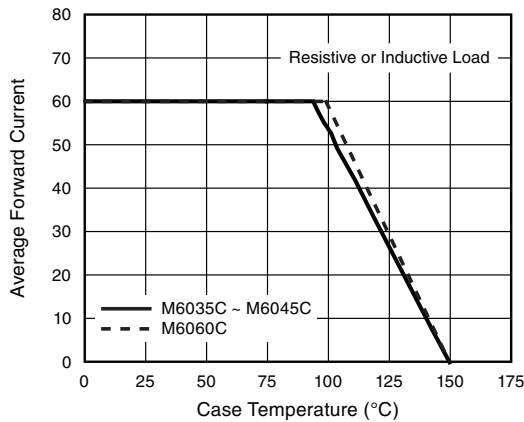


Fig. 1 - Maximum Forward Current Derating Curve

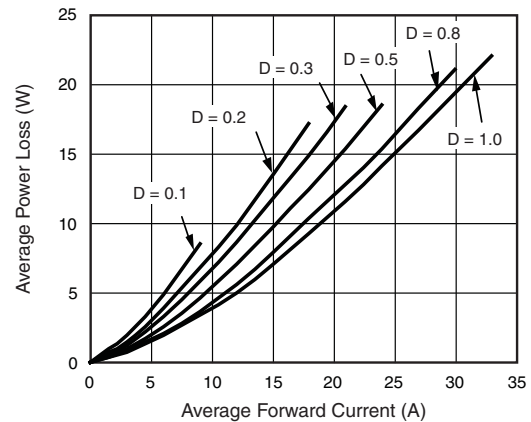


Fig. 2 - Forward Power Loss Characteristics Per Diode

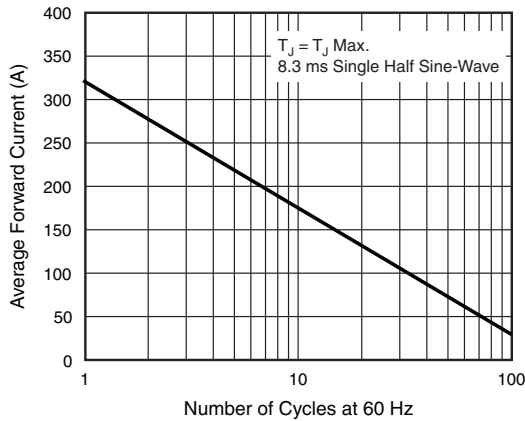


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

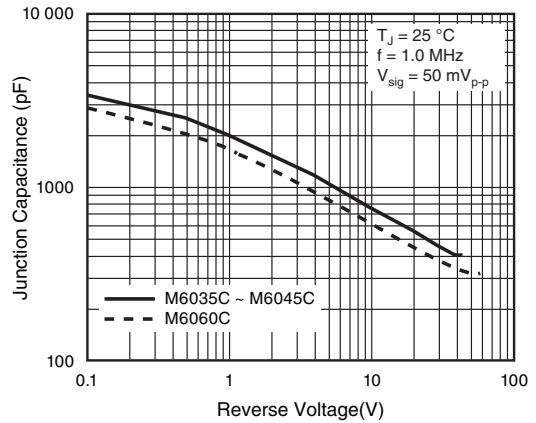


Fig. 6 - Typical Junction Capacitance Per Diode

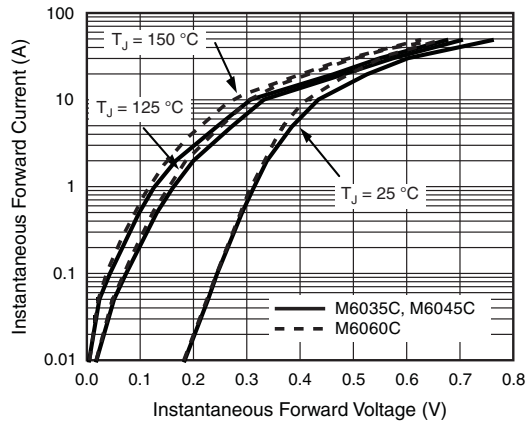


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

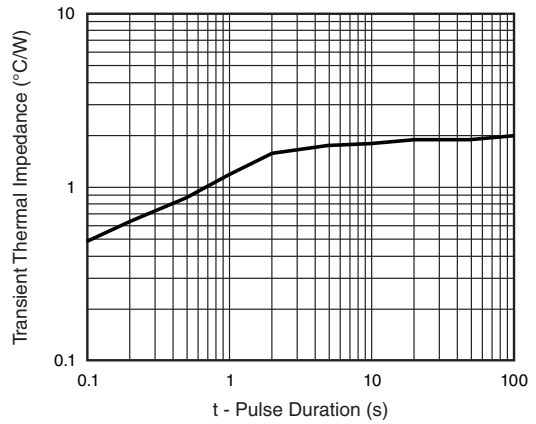


Fig. 7 - Typical Transient Thermal Impedance Per Diode

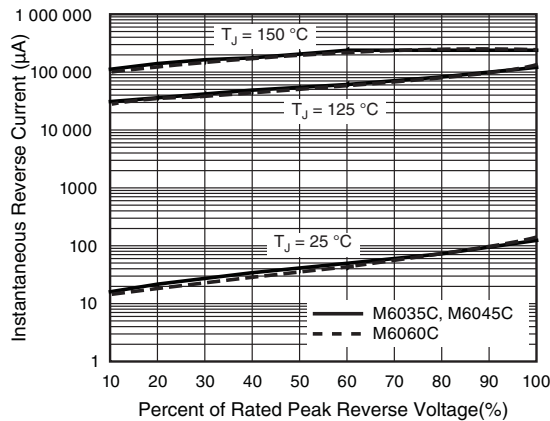
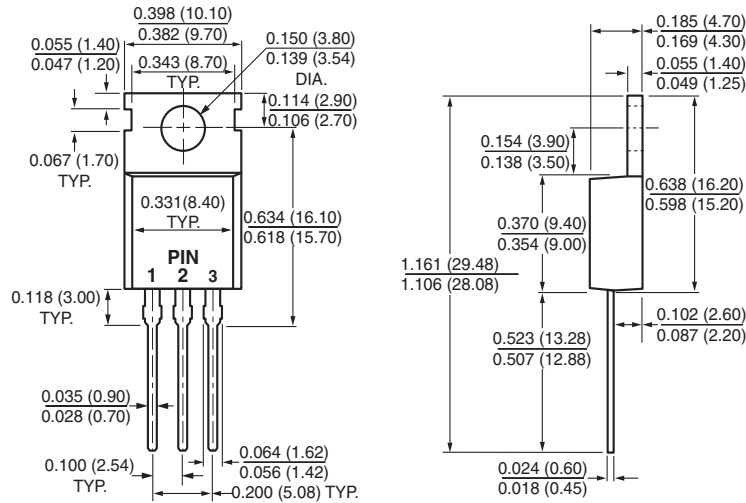


Fig. 5 - Typical Reverse Characteristics Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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