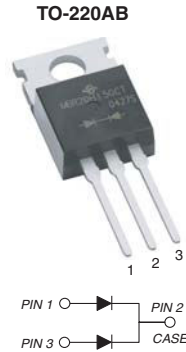


Dual Common-Cathode Schottky Rectifier



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


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 ($T_A = 25$ °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)}	60			A
		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 μs, 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

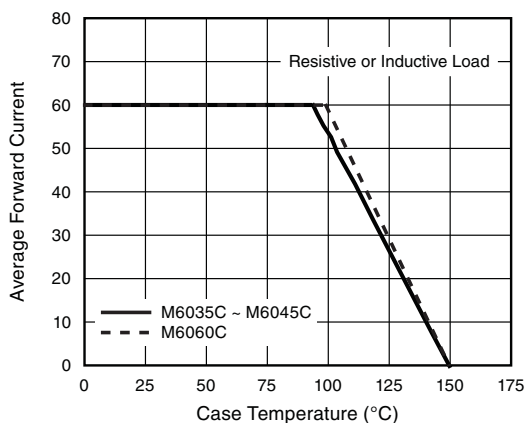
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

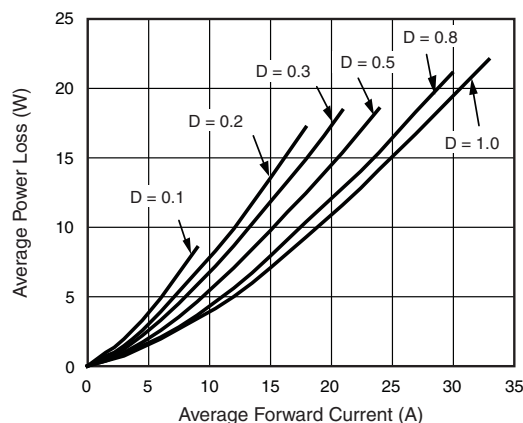


Fig. 2 - Forward Power Loss Characteristics Per Diode

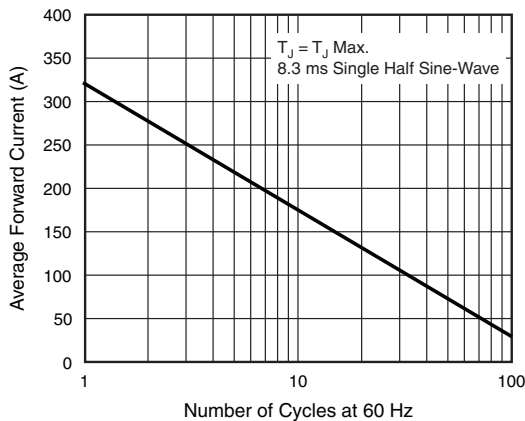


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

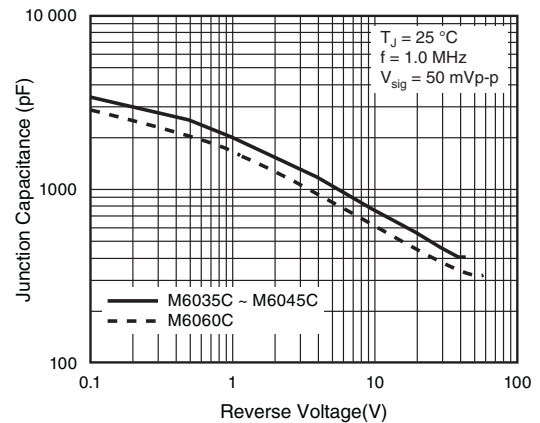


Fig. 6 - Typical Junction Capacitance Per Diode

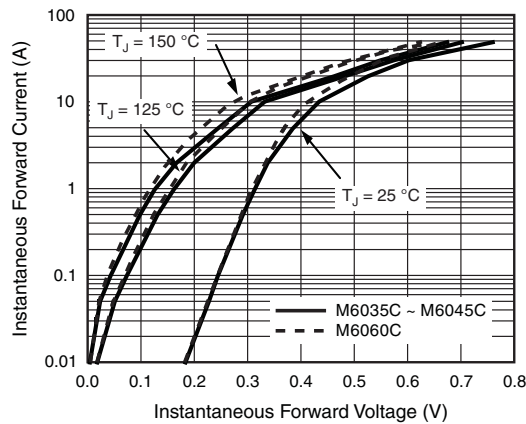


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

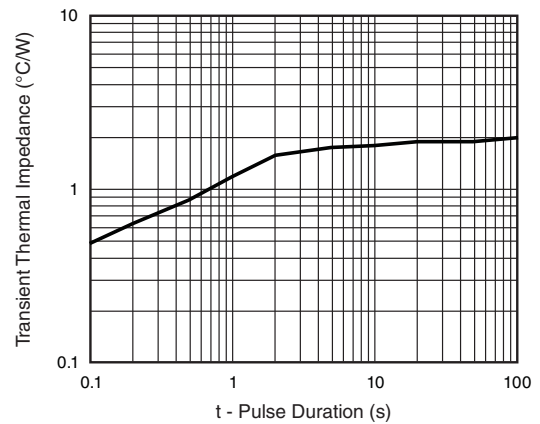


Fig. 7 - Typical Transient Thermal Impedance Per Diode

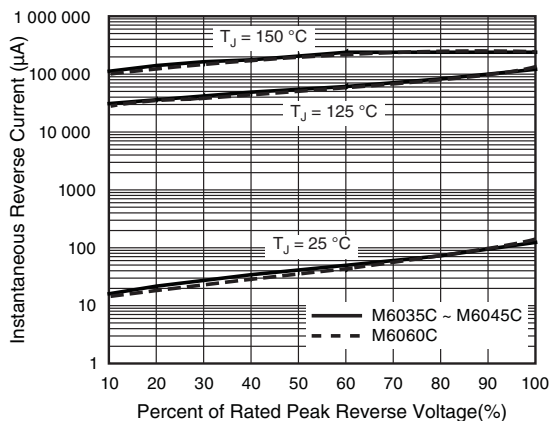
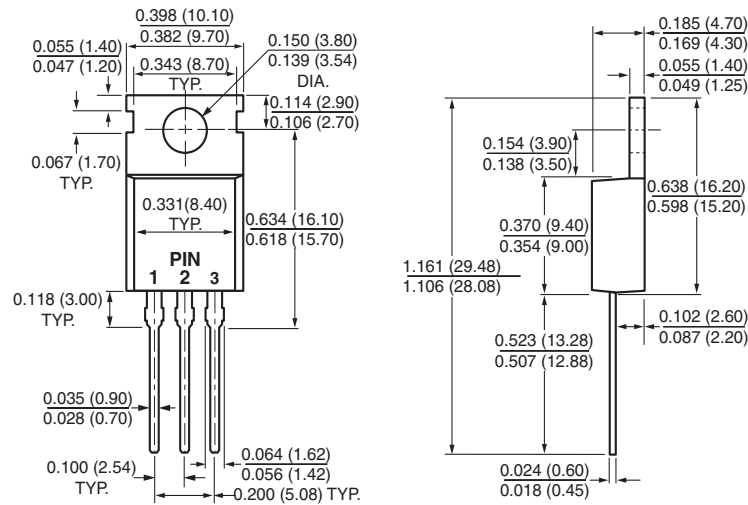


Fig. 5 - Typical Reverse Characteristics Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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