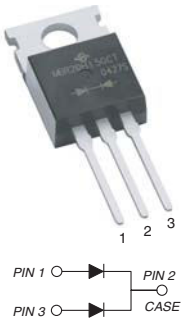
Dual Common-Cathode Schottky Rectifier

TO-220AB



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.

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

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

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)	total device	$I_{F(AV)}$	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 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 °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 A	T_J = 25 °C	0.42	-	0.43	-	V
		I_F = 20 A		0.49	-	0.52	-	
		I_F = 30 A		0.55	0.61	0.59	0.65	
		I_F = 10 A	T_J = 125 °C	0.31	-	0.33	-	
		I_F = 20 A		0.42	-	0.47	-	
		I_F = 30 A		0.51	0.56	0.56	0.61	
Reverse current per diode	I_R (2)	V_R	T_J = 25 °C	140	700	180	700	µA
			T_J = 125 °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 ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	M6035C	M6045C	M6060C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	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_A = 25 °C unless otherwise noted)

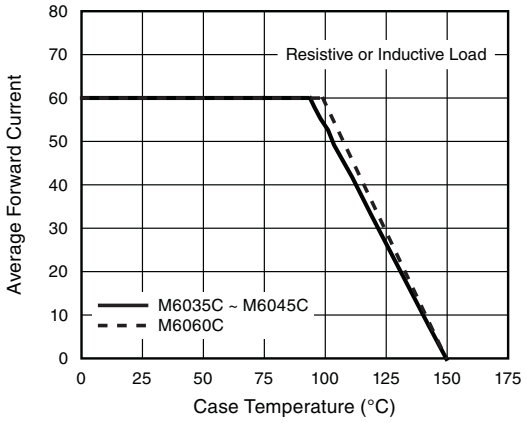


Fig. 1 - Maximum Forward Current Derating Curve

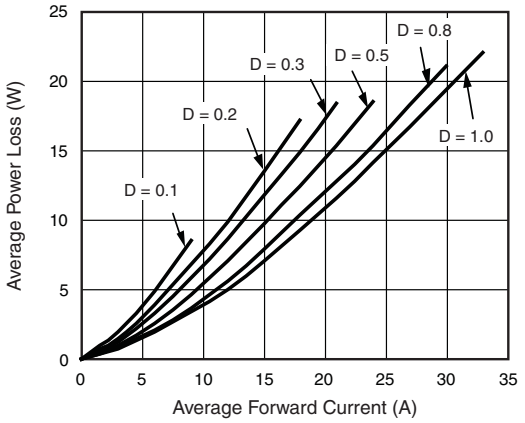


Fig. 2 - Forward Power Loss Characteristics Per Diode

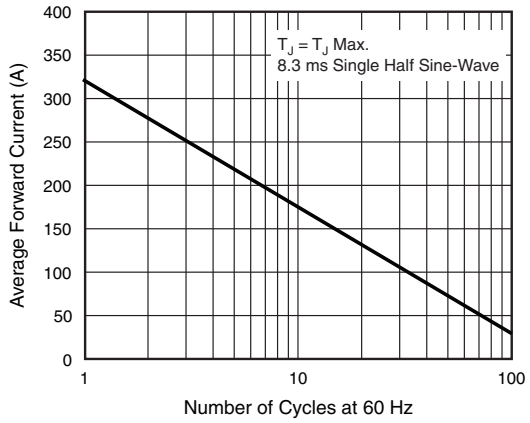


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

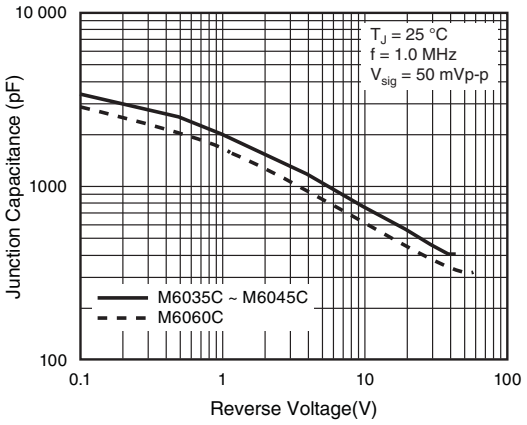


Fig. 6 - Typical Junction Capacitance Per Diode

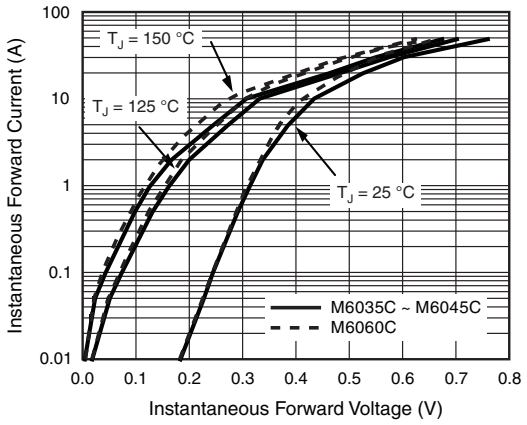


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

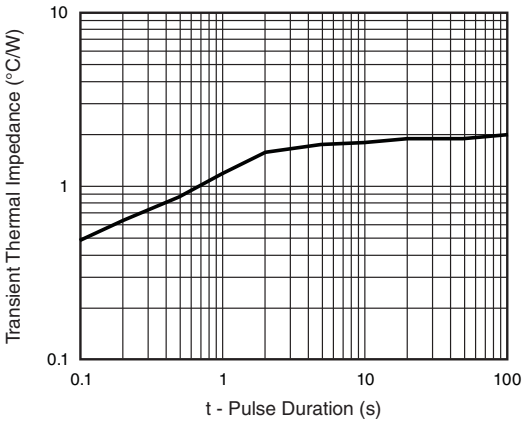


Fig. 7 - Typical Transient Thermal Impedance Per Diode

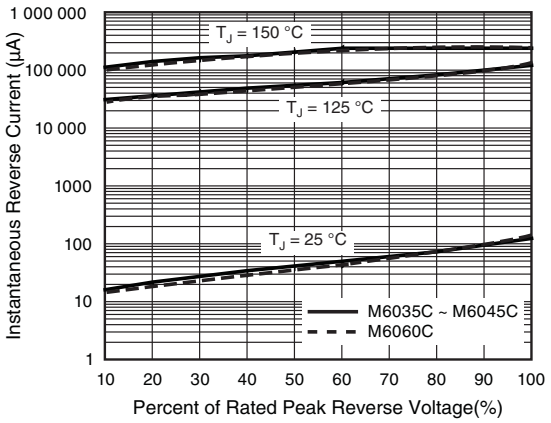
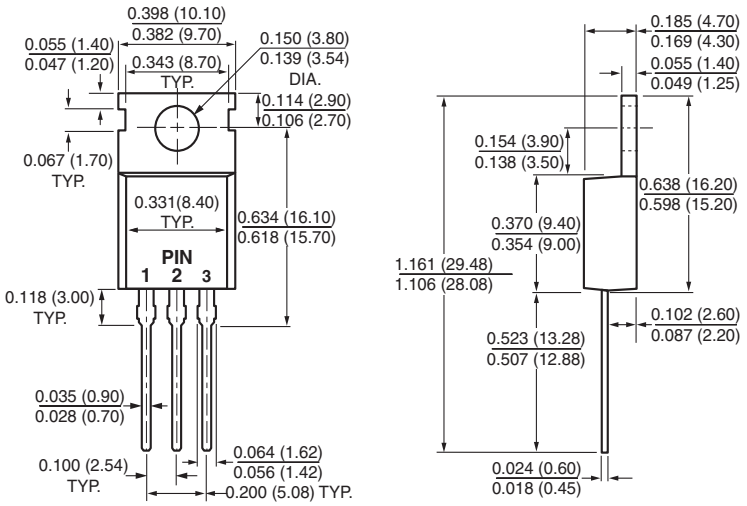


Fig. 5 - Typical Reverse Characteristics Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



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