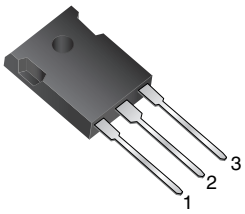
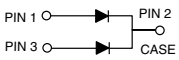
Dual Common Cathode Schottky Rectifier



TO-3P (TO-247AD)



FEATURES

- Power pack
- Guardring for overvoltage protection
- Low 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, DC/DC converters, or polarity protection application.

MECHANICAL DATA

Case: TO-3P (TO-247AD)

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}	350 A
V_F at I_F = 30 A	0.50 V, 0.56 V
T_J max.	150 °C
Package	TO-3P (TO-247AD)
Circuit configurations	Common cathode

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	M6035P	M6045P	M6060P	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}	350			A
Peak repetitive reverse current at t_p = 2 µs, 1 kHz per diode		I_{RRM}	2.0			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**		**M6035P**	**M6045P**	**M6060P**		**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		0.54	0.60	0.59	0.64	
		I_F = 10 A	T_J = 125 °C	0.31	-	0.33	-	
		I_F = 20 A		0.42	-	0.47	-	
		I_F = 30 A		0.50	0.55	0.56	0.60	
Reverse current per diode	I_R (2)	V_R	T_J = 25 °C	135	600	240	600	µA
			T_J = 125 °C	110	160	140	160	mA
Typical junction capacitance	C_J	4.0 V, 1 MHz		1150	-	1090	-	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**	**M6035P**	**M6045P**	**M6060P**	**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**
M6045P-E3/45	6.14	45	30/tube	Tube
M6060P-E3/45	6.14	45	30/tube	Tube

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

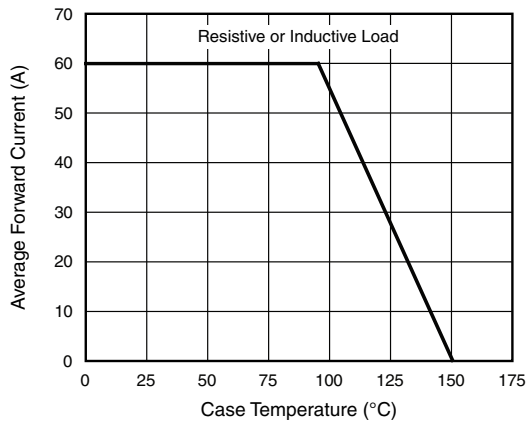


Fig. 1 - Forward Current Derating Curve

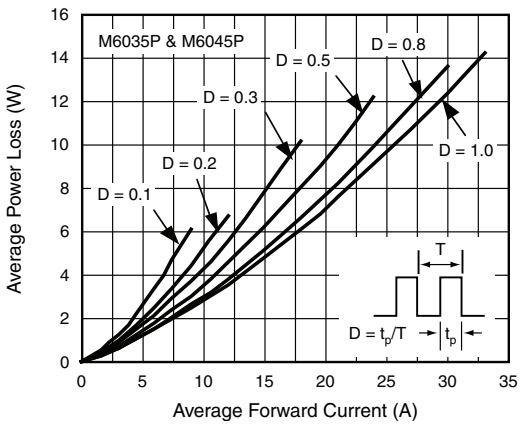


Fig. 2 - Forward Power Loss Characteristics Per Diode

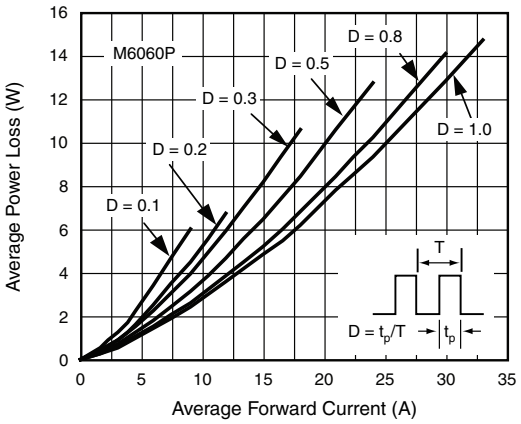


Fig. 3 - Forward Power Loss Characteristics Per Diode

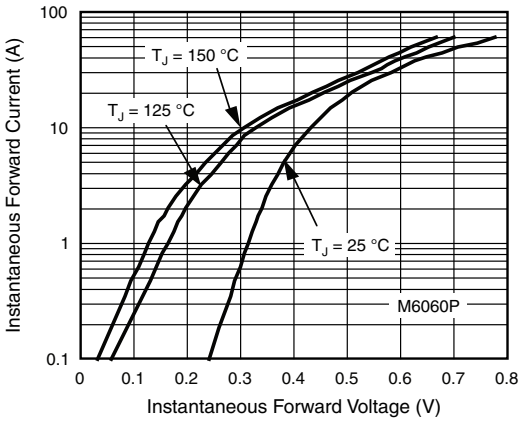


Fig. 6 - Typical Instantaneous Forward Characteristics Per Diode

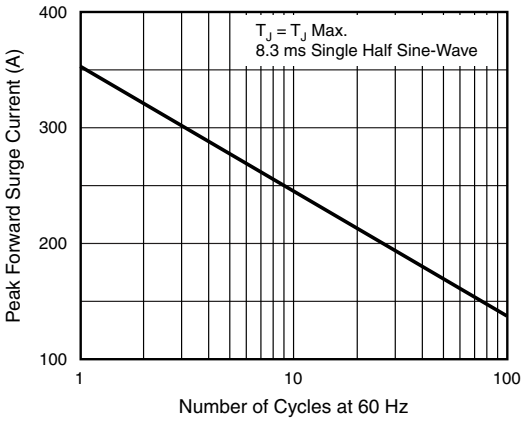


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

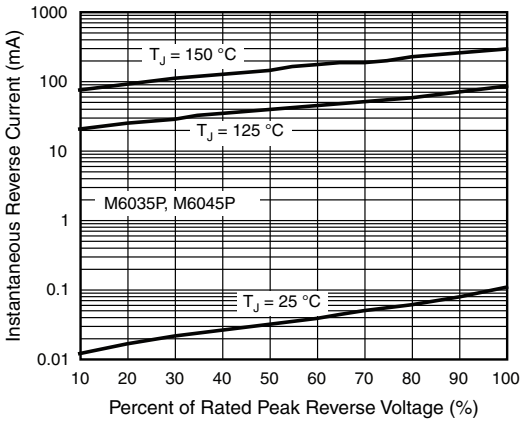


Fig. 7 - Typical Reverse Characteristics Per Diode

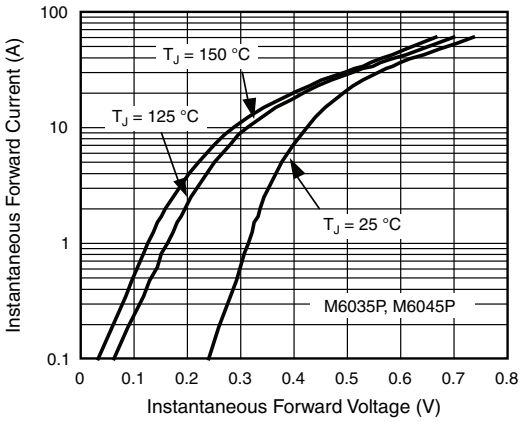


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

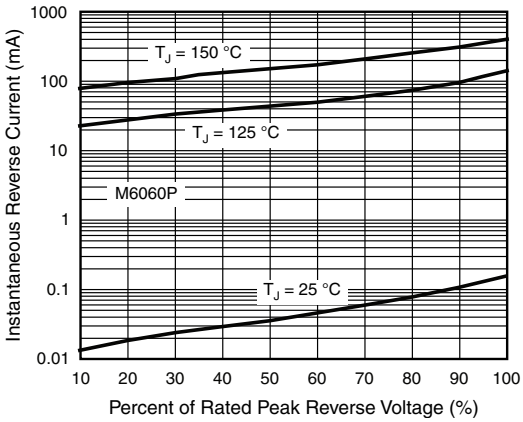


Fig. 8 - Typical Reverse Characteristics Per Diode

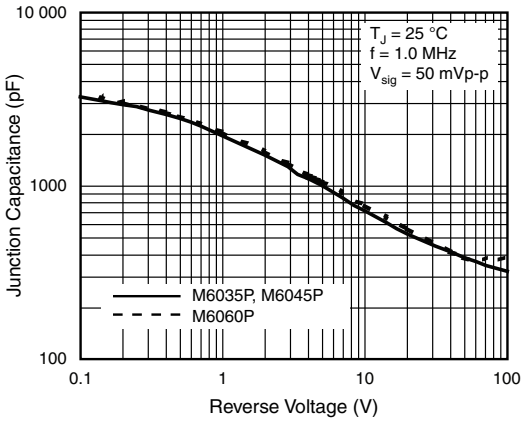


Fig. 9 - Typical Junction Capacitance Per Diode

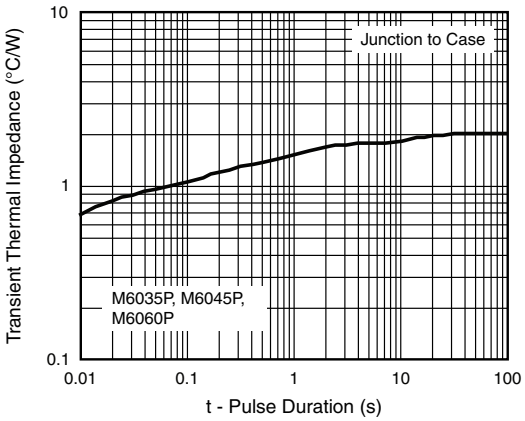
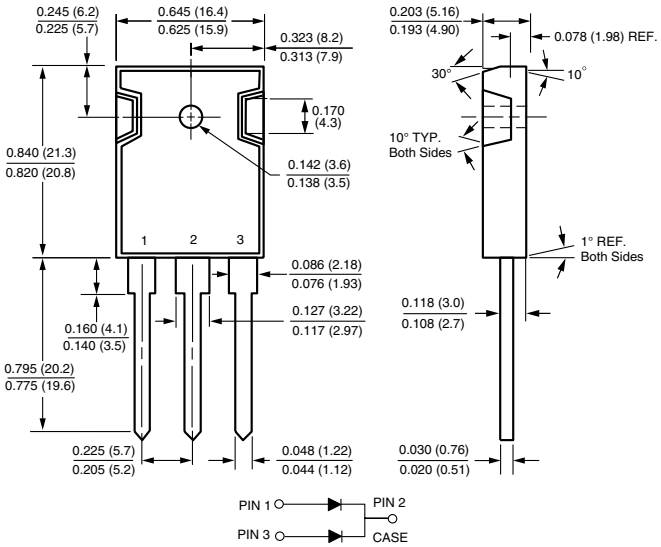


Fig. 10 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-3P (TO-247AD)



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