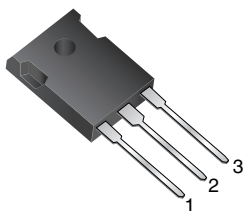


## Dual Common Cathode Schottky Rectifier


**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](http://www.vishay.com/doc?99912)



### 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 <sub>RRM</sub>	35	45	60	V
Maximum average forward rectified current at (fig.1)	I <sub>F(AV)</sub>	60			A
		30			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	350			A
Peak repetitive reverse current at t <sub>p</sub> = 2 μs, 1 kHz per diode	I <sub>RRM</sub>	2.0			A
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000			V/μs
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150			°C

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

PARAMETER	SYMBOL	TEST CONDITIONS		M6035P	M6045P	M6060P		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		0.54	0.60	0.59	0.64	
		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		0.50	0.55	0.56	0.60	
Reverse current per diode	I <sub>R</sub> <sup>(2)</sup>	V <sub>R</sub>	T <sub>J</sub> = 25 °C	135	600	240	600	μA
			T <sub>J</sub> = 125 °C	110	160	140	160	mA
Typical junction capacitance	C <sub>J</sub>	4.0 V, 1 MHz		1150	-	1090	-	pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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	M6035P	M6045P	M6060P	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
M6045P-E3/45	6.14	45	30/tube	Tube
M6060P-E3/45	6.14	45	30/tube	Tube

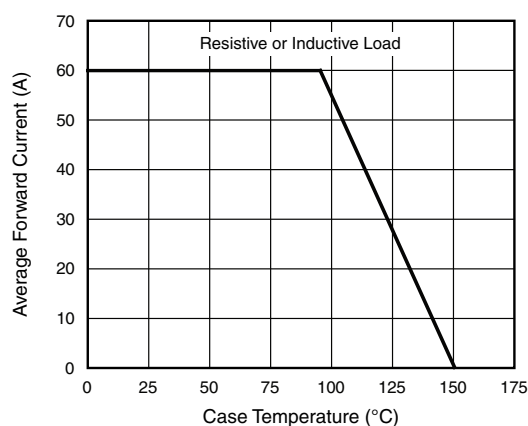
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

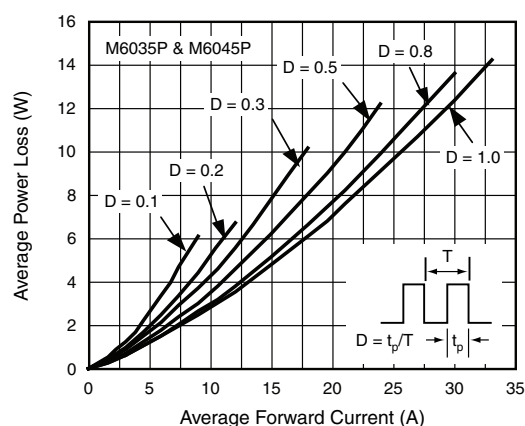


Fig. 2 - Forward Power Loss Characteristics Per Diode

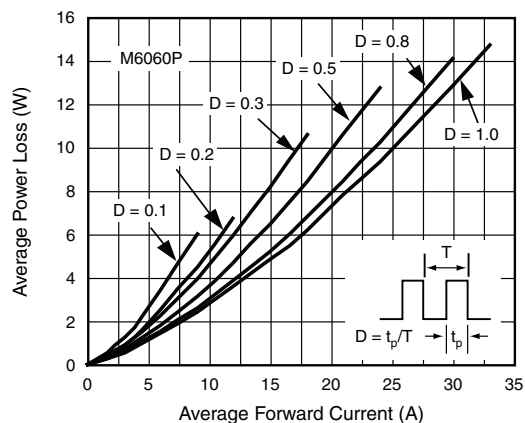


Fig. 3 - Forward Power Loss Characteristics Per Diode

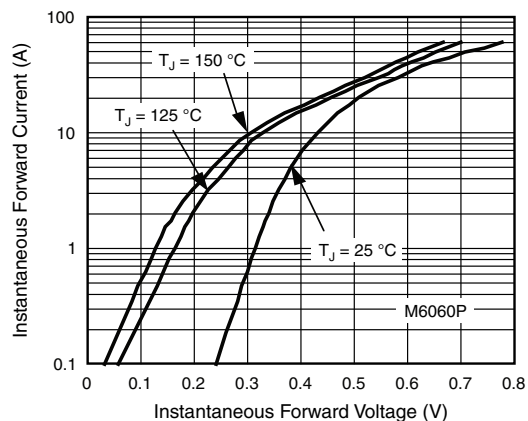


Fig. 6 - Typical Instantaneous Forward Characteristics Per Diode

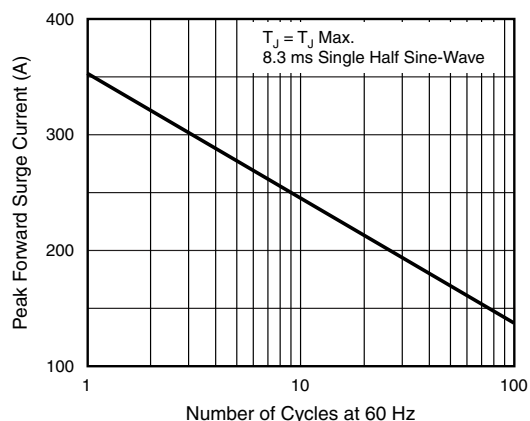


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

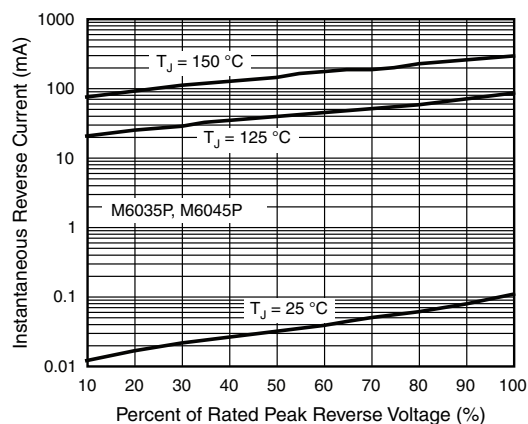


Fig. 7 - Typical Reverse Characteristics Per Diode

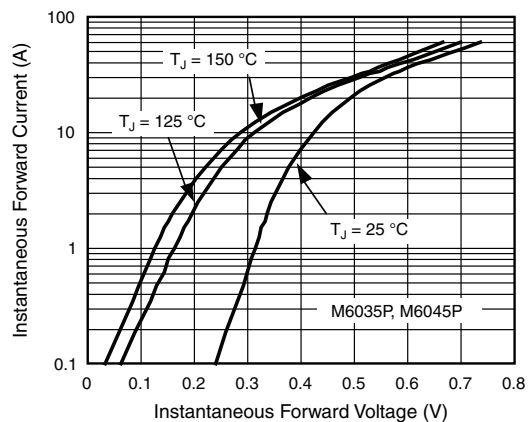


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

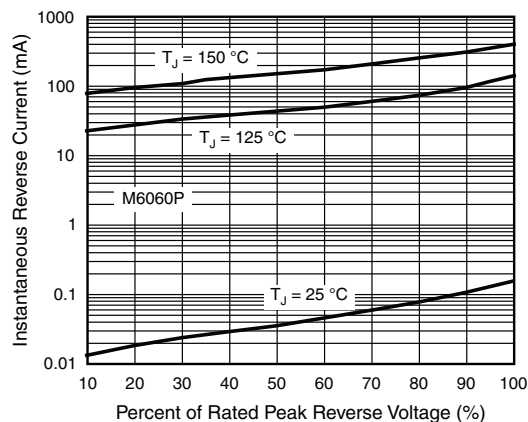


Fig. 8 - Typical Reverse Characteristics Per Diode

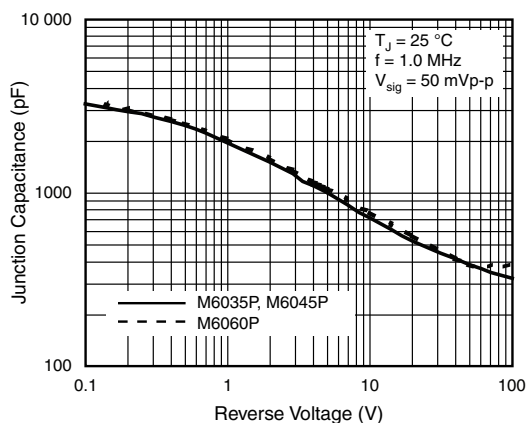


Fig. 9 - Typical Junction Capacitance Per Diode

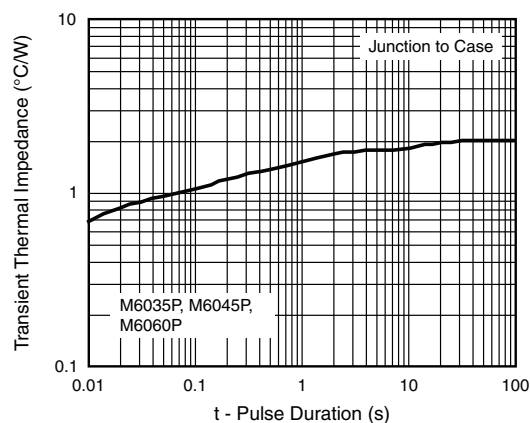
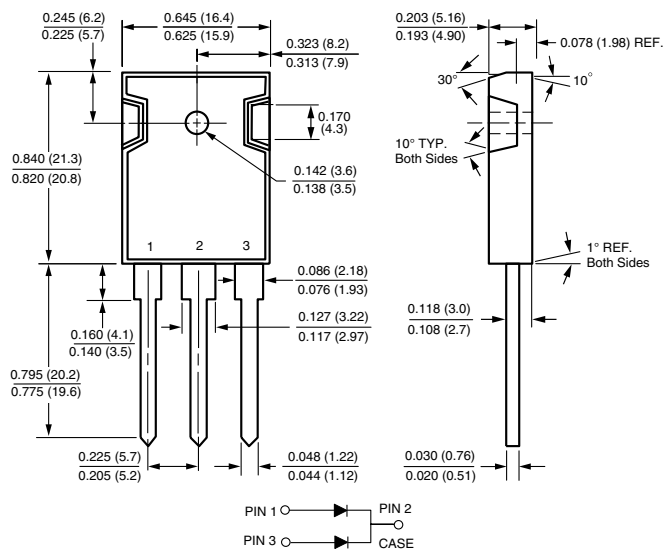


Fig. 10 - Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-3P (TO-247AD)**




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