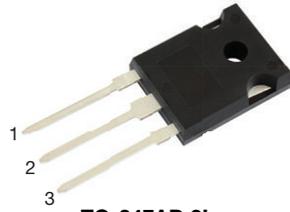
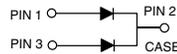


## Dual Common Cathode Schottky Rectifier


**TO-247AD 3L**

**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**

### 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-247AD 3L

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - RoHS-compliant, halogen-free, commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 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-247AD 3L
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)	$I_{F(AV)}$	total device		60	A
		per diode		30	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	350		A	
Peak repetitive reverse current at $t_p = 2$ $\mu$ s, 1 kHz per diode	$I_{RRM}$	2.0		A	
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/ $\mu$ s	
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +150		°C	



**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25 °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 I <sub>F</sub> = 20 A I <sub>F</sub> = 30 A	T <sub>J</sub> = 25 °C	0.42	-	0.43	-	V
				0.49	-	0.52	-	
				0.54	0.60	0.59	0.64	
		I <sub>F</sub> = 10 A I <sub>F</sub> = 20 A I <sub>F</sub> = 30 A	T <sub>J</sub> = 125 °C	0.31	-	0.33	-	
				0.42	-	0.47	-	
				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 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

**THERMAL CHARACTERISTICS** (T<sub>A</sub> = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	M6035P	M6045P	M6060P	UNIT
Typical thermal resistance per diode	R <sub>θJC</sub>	2.0			°C/W

**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
M6045P-M3/P	5.83	P	25/tube	Tube
M6060P-M3/P	5.83	P	25/tube	Tube



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

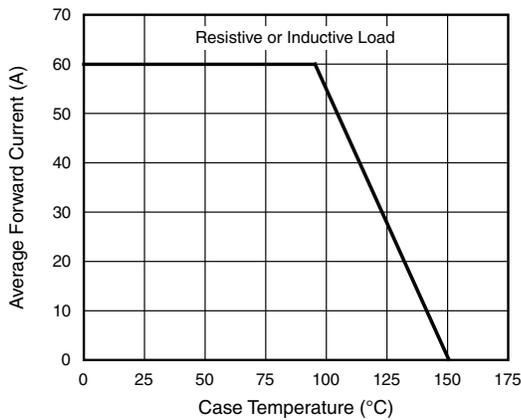


Fig. 1 - Forward Current Derating Curve

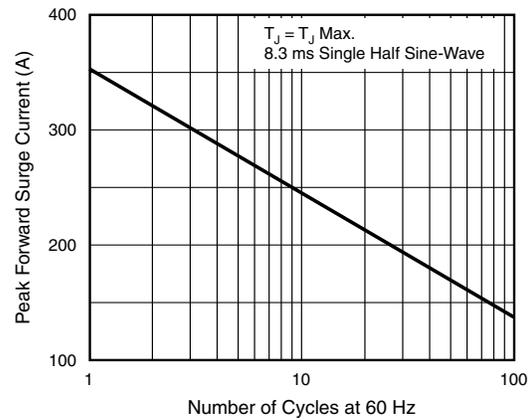


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

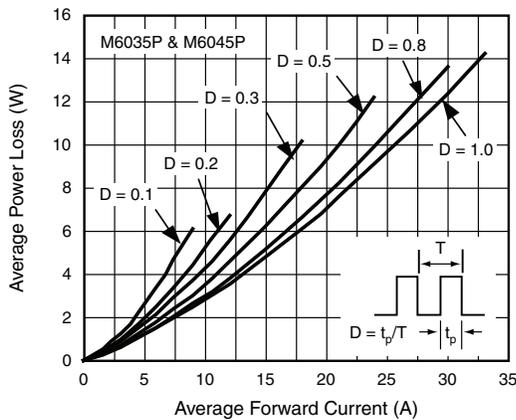


Fig. 2 - Forward Power Loss Characteristics Per Diode

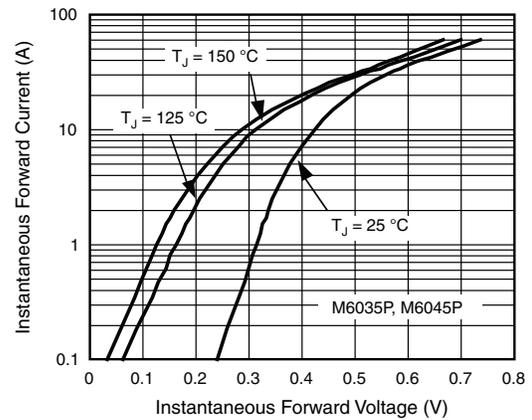


Fig. 5 - Typical Instantaneous Forward Characteristics Per Diode

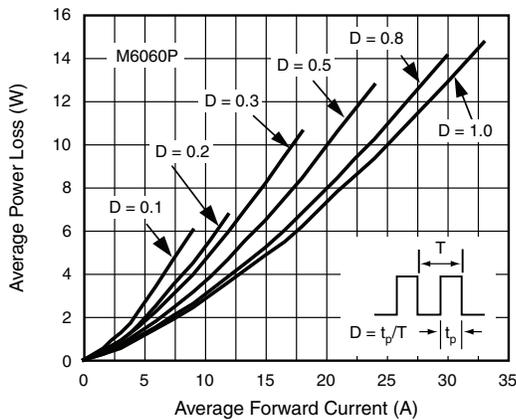


Fig. 3 - Forward Power Loss Characteristics Per Diode

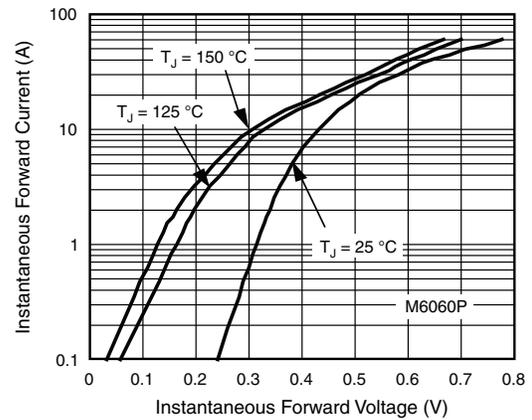


Fig. 6 - Typical Instantaneous Forward Characteristics Per Diode

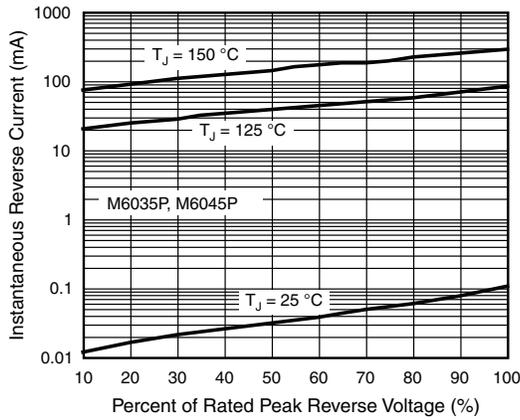


Fig. 7 - Typical Reverse Characteristics Per Diode

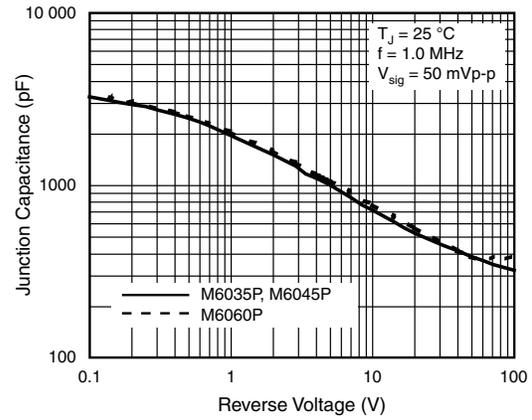


Fig. 9 - Typical Junction Capacitance Per Diode

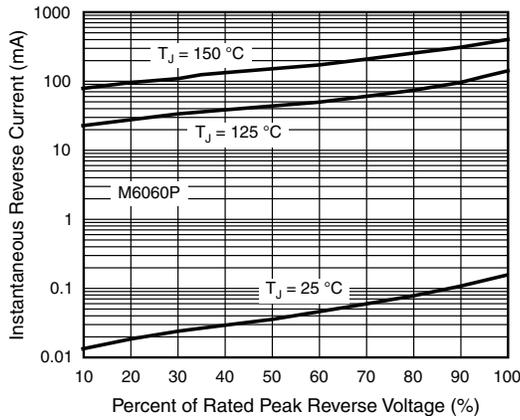


Fig. 8 - Typical Reverse Characteristics Per Diode

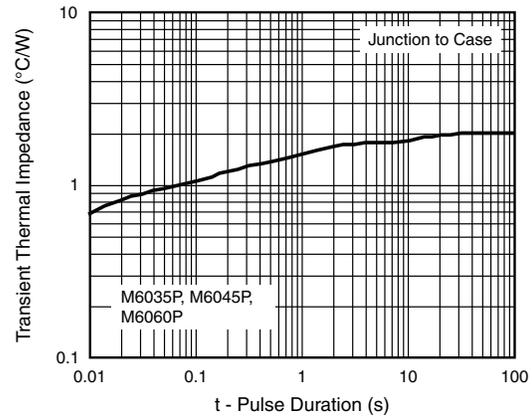
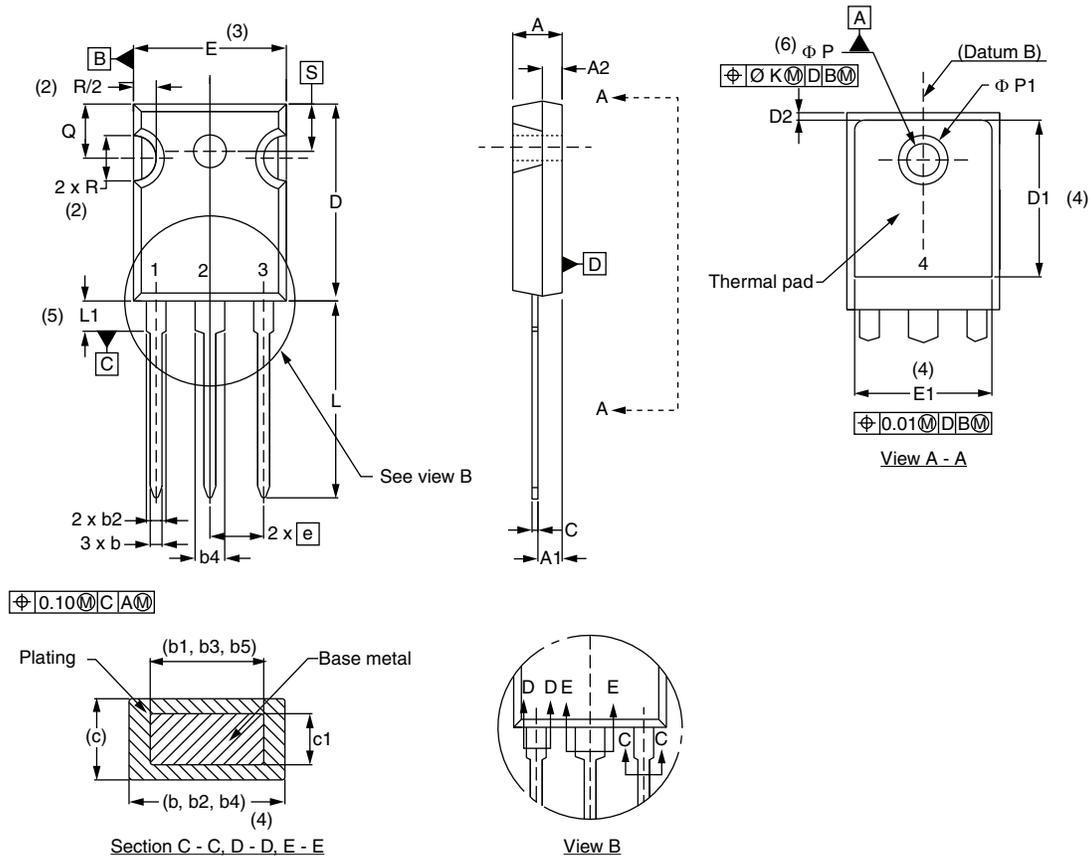


Fig. 10 - Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in millimeters (inches) **TO-247AD 3L**


SYMBOL	MILLIMETERS		INCHES		NOTES	SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.			MIN.	MAX.	MIN.	MAX.	
A	4.65	5.31	0.183	0.209		D2	0.51	1.30	0.020	0.051	
A1	2.21	2.59	0.087	0.102		E	15.29	15.87	0.602	0.625	3
A2	1.50	2.49	0.059	0.098		E1	13.46	-	0.53	-	
b	0.99	1.40	0.039	0.055		e	5.46 BSC		0.215 BSC		
b1	0.99	1.35	0.039	0.053		$\emptyset$ K	0.254		0.010		
b2	1.65	2.39	0.065	0.094		L	19.81	20.32	0.780	0.800	
b3	1.65	2.34	0.065	0.092		L1	3.71	4.29	0.146	0.169	
b4	2.59	3.43	0.102	0.135		$\emptyset$ P	3.56	3.66	0.14	0.144	
b5	2.59	3.38	0.102	0.133		$\emptyset$ P1	-	6.98	-	0.275	
c	0.38	0.89	0.015	0.035		Q	5.31	5.69	0.209	0.224	
c1	0.38	0.84	0.015	0.033		R	4.52	5.49	0.178	0.216	
D	19.71	20.70	0.776	0.815	3	S	5.51 BSC		0.217 BSC		
D1	13.08	-	0.515	-	4						

**Notes**

- (1) Dimensioning and tolerancing per ASME Y14.5M-1994
- (2) Contour of slot optional
- (3) Dimension D and E do not include mold flash. These dimensions are measured at the outermost extremes of the plastic body
- (4) Thermal pad contour optional with dimensions D1 and E1
- (5) Lead finish uncontrolled in L1
- (6)  $\emptyset$  P to have a maximum draft angle of 1.5 to the top of the part with a maximum hole diameter of 3.91 mm (0.154")
- (7) Outline conforms to JEDEC® outline TO-247 with exception of dimension A min., D, E min., Q min., S, and note 4



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