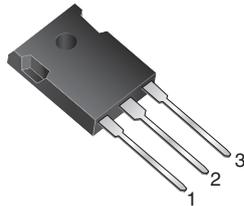
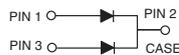


## Dual Common-Cathode Schottky Rectifier


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

**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](http://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-247AD (TO-3P)

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	
$I_{F(AV)}$	40 A
$V_{RRM}$	35 V to 60 V
$I_{FSM}$	400 A
$V_F$	0.60 V, 0.62 V
$T_J$ max.	150 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	50	60	V
Maximum working peak reverse voltage	$V_{RWM}$	35	45	50	60	V
Maximum DC blocking voltage	$V_{DC}$	35	45	50	60	V
Maximum average forward rectified current $T_C = 125\text{ °C}$	$I_{F(AV)}$	40				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	400				A
Peak repetitive reverse surge current per diode	$I_{RRM}^{(1)}$	2.0		1.0		A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000				V/ $\mu$ s
Operating junction temperature range	$T_J$	- 65 to + 150				°C
Storage temperature range	$T_{STG}$	- 65 to + 175				°C

**Note**

<sup>(1)</sup> 2.0  $\mu$ s pulse width,  $f = 1.0$  kHz



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Maximum instantaneous forward voltage per diode	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 20 A, T <sub>J</sub> = 25 °C	0.70		0.72		V
		I <sub>F</sub> = 20 A, T <sub>J</sub> = 125 °C	0.60		0.62		
		I <sub>F</sub> = 40 A, T <sub>J</sub> = 25 °C	0.80		-		
		I <sub>F</sub> = 40 A, T <sub>J</sub> = 125 °C	0.75		-		
Maximum instantaneous reverse current at rated DC blocking voltage per diode	I <sub>R</sub> <sup>(1)</sup>	T <sub>J</sub> = 25 °C	1.0				mA
		T <sub>J</sub> = 125 °C	100				

**Note**

<sup>(1)</sup> Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Thermal resistance, junction to case per diode	R <sub>θJC</sub>	1.2				°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-247AD	MBR4045PT-E3/45	6.13	45	30/tube	Tube

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

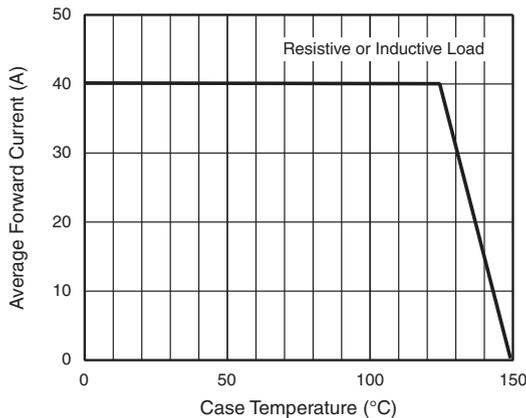


Fig. 1 - Forward Current Derating Curve

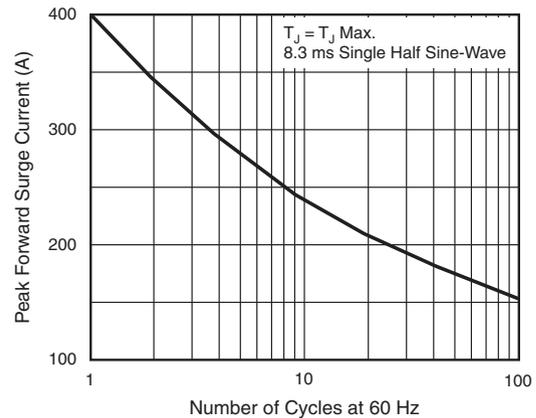


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

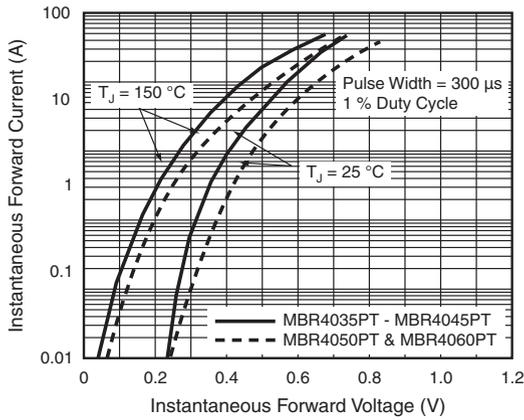


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

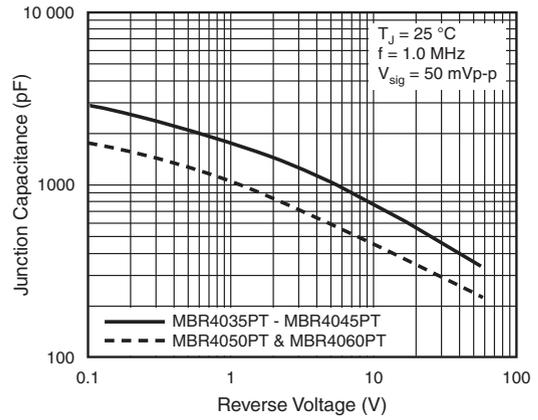


Fig. 5 - Typical Junction Capacitance Per Diode

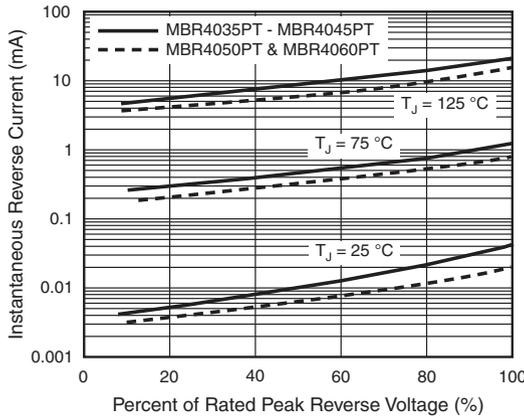


Fig. 4 - Typical Reverse Characteristics Per Diode

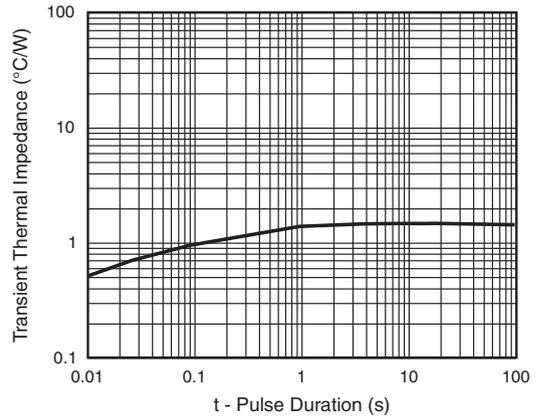
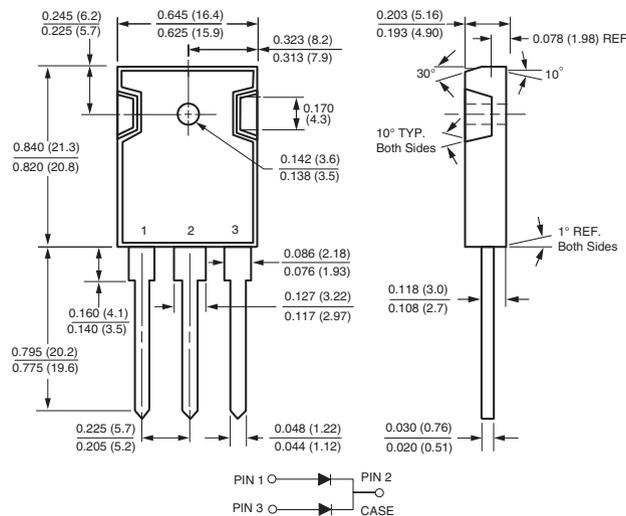


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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