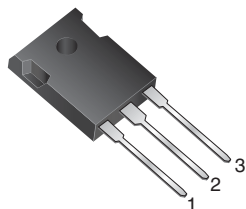


# Dual Common-Cathode Schottky Rectifier


**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

$I_{F(AV)}$	30 A
$V_{RRM}$	35 V, 60 V
$I_{FSM}$	200 A
$V_F$	0.60 V, 0.65 V
$T_J \text{ max.}$	150 °C

## MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	35	45	50	60	V
Maximum working peak reverse voltage	V <sub>RWM</sub>	35	45	50	60	V
Maximum DC blocking voltage	V <sub>DC</sub>	35	45	50	60	V
Maximum average forward rectified current (Fig.1)	I <sub>F(AV)</sub>	30				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	200				A
Peak repetitive reverse surge current at t <sub>p</sub> = 2 μs, 1 kHz per diode	I <sub>RRM</sub> <sup>(1)</sup>	2.0		1.0		A
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000				V/μs
Operating junction temperature range	T <sub>J</sub>	- 65 to + 150				°C
Storage temperature range	T <sub>STG</sub>	- 65 to + 175				°C

### Note

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

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

PARAMETER	SYMBOL	TEST CONDITIONS		MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT
Maximum instantaneous forward voltage per diode	$V_F^{(1)}$	$I_F = 20\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$	-		0.75		V
		$I_F = 20\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$	0.60		0.65		
		$I_F = 30\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$	0.76		-		
		$I_F = 30\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$	0.72		-		
Maximum instantaneous reverse current at rated DC blocking voltage per diode	$I_R^{(1)}$		$T_J = 25\text{ }^{\circ}\text{C}$	1.0		5.0		mA
			$T_J = 125\text{ }^{\circ}\text{C}$	60		100		

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

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

PARAMETER	SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT
Typical thermal resistance, junction to case per diode	$R_{\theta JC}$	1.4				$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-247AD	MBR3045PT-E3/45	6.13	45	30/tube	Tube

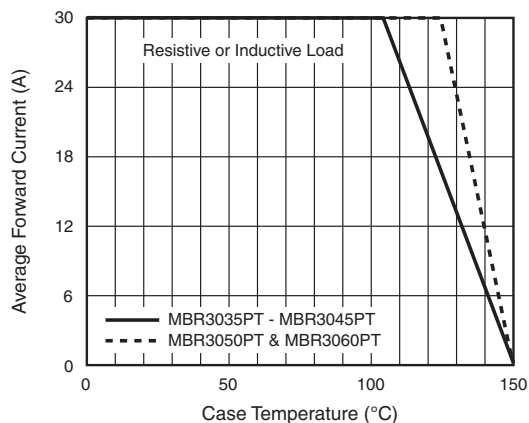
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

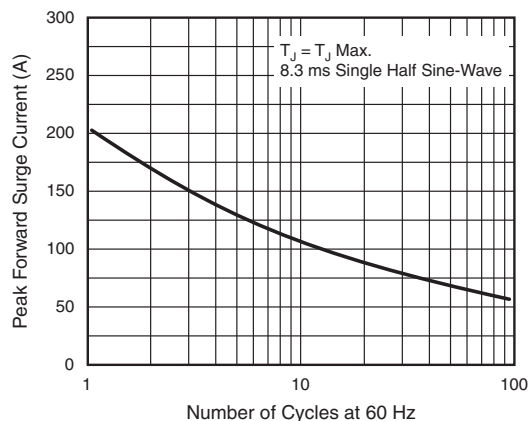


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

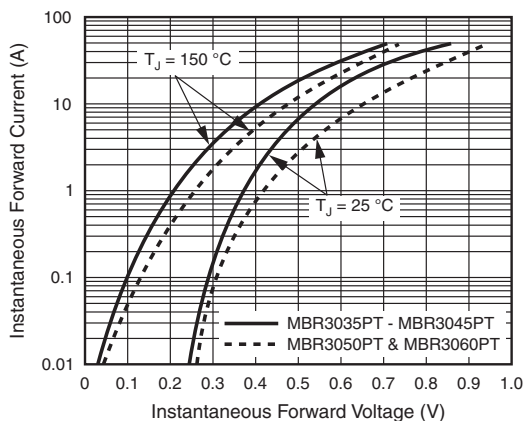


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

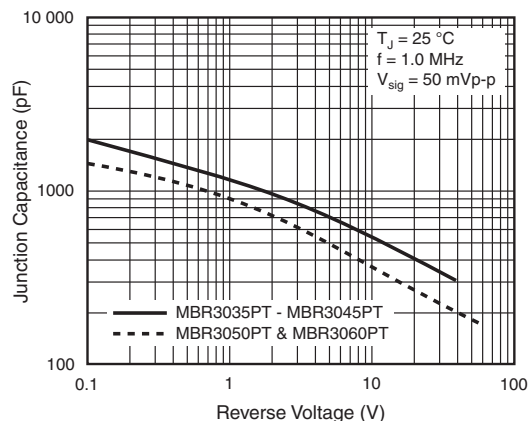


Fig. 5 - Typical Junction Capacitance Per Diode

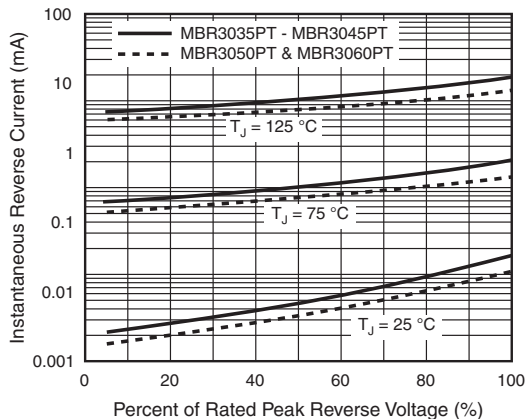


Fig. 4 - Typical Reverse Characteristics Per Diode

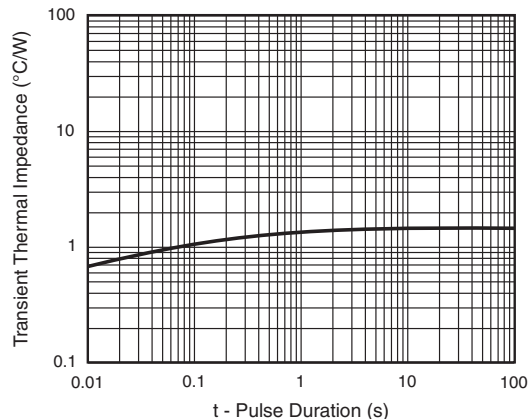
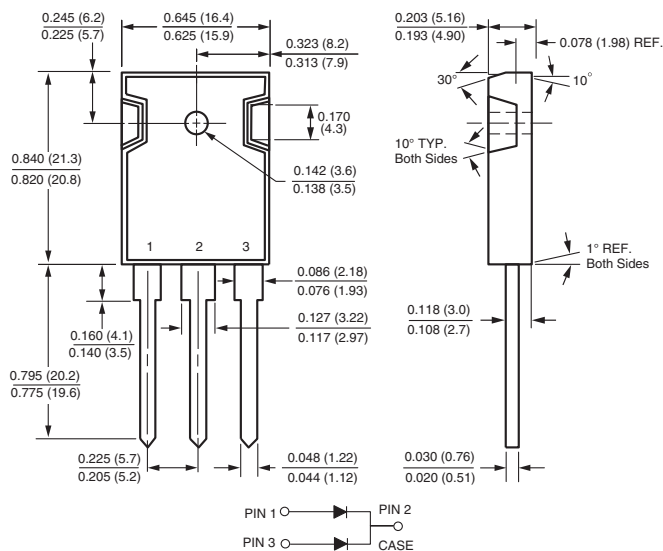


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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