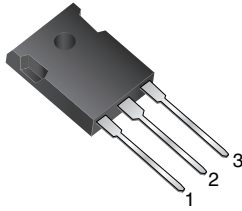
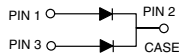


## Dual Common Cathode Schottky Rectifier


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

**RoHS**  
COMPLIANT

### FEATURES

- Power pack
- 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)

### 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	
$I_{F(AV)}$	40 A
$V_{RRM}$	35 V, 45 V, 50 V, 60 V
$I_{FSM}$	400 A
$V_F$	0.60 V, 0.62 V
$T_J$ max.	150 °C
Package	TO-3P (TO-247AD)
Circuit configuration	Common cathode

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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Maximum instantaneous forward voltage per diode	$V_F^{(1)}$	$I_F = 20\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$	0.70		0.72		V
		$I_F = 20\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$	0.60		0.62		
		$I_F = 40\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$	0.80		-		
		$I_F = 40\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$	0.75		-		
Maximum instantaneous reverse current at rated DC blocking voltage per diode	$I_R^{(1)}$	$T_J = 25\text{ }^\circ\text{C}$		1.0			mA
		$T_J = 125\text{ }^\circ\text{C}$		100			

**Note**

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Thermal resistance, junction to case per diode	$R_{\theta JC}$		1.2			$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (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** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

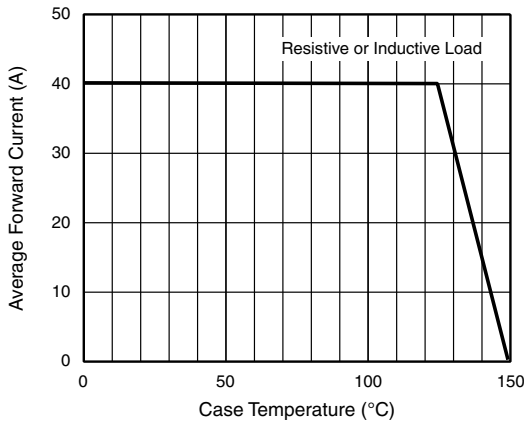


Fig. 1 - Forward Current Derating Curve

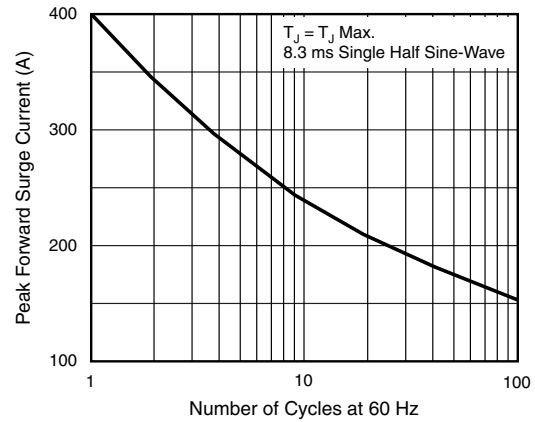


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



# MBR4035PT, MBR4045PT, MBR4050PT, MBR4060PT

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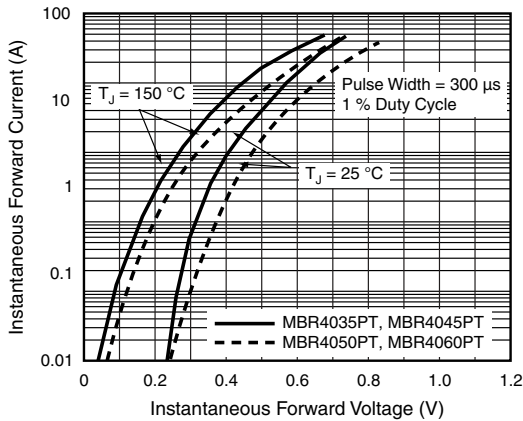


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

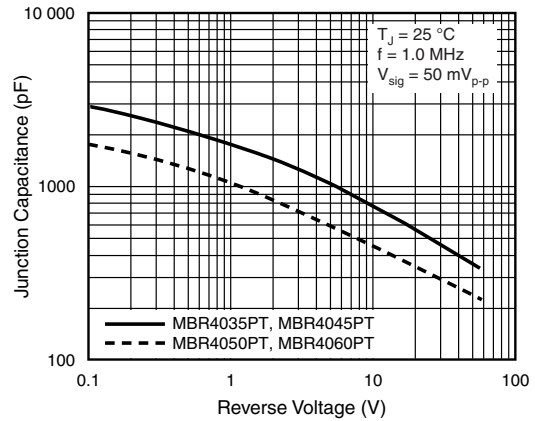


Fig. 5 - Typical Junction Capacitance Per Diode

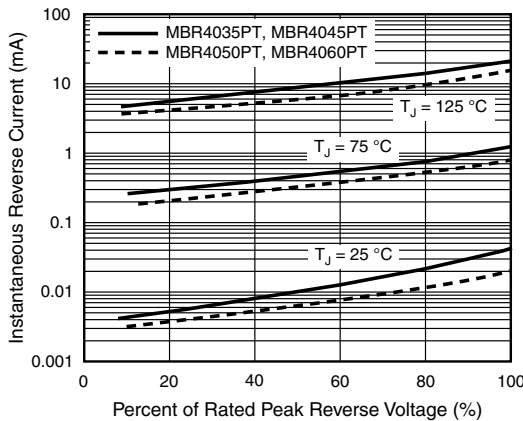


Fig. 4 - Typical Reverse Characteristics Per Diode

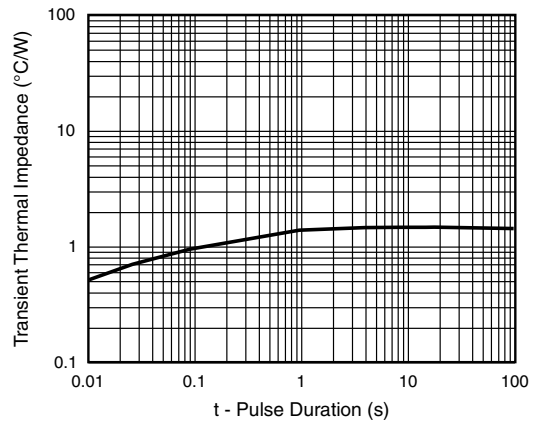
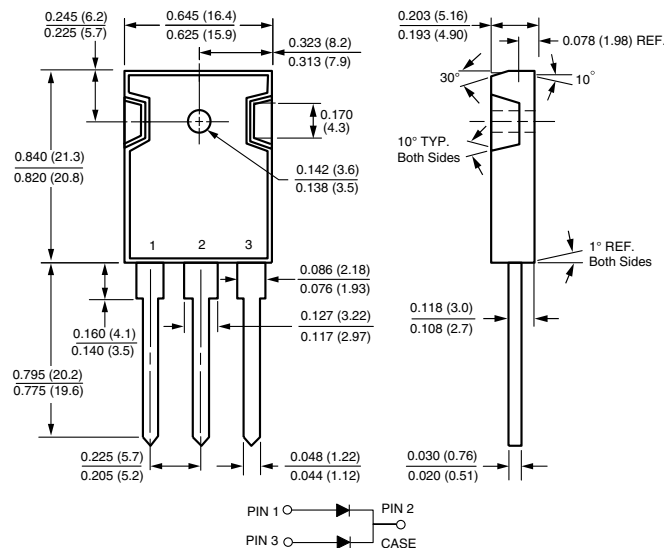


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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