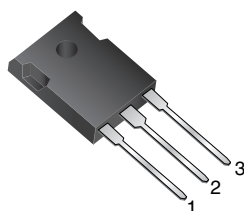


## Dual Common Cathode Schottky Rectifier



TO-3P (TO-247AD)



### 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 <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	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 T <sub>C</sub> = 125 °C	I <sub>F(AV)</sub>	40				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	400				A
Peak repetitive reverse surge current 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  $\mu$ s pulse width,  $f = 1.0\text{ kHz}$



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

PARAMETER	SYMBOL	TEST CONDITIONS		MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Maximum instantaneous forward voltage per diode	V <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

(1) 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	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Thermal resistance, junction to case per diode	$R_{\theta JC}$	1.2				$^{\circ}\text{C/W}$

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

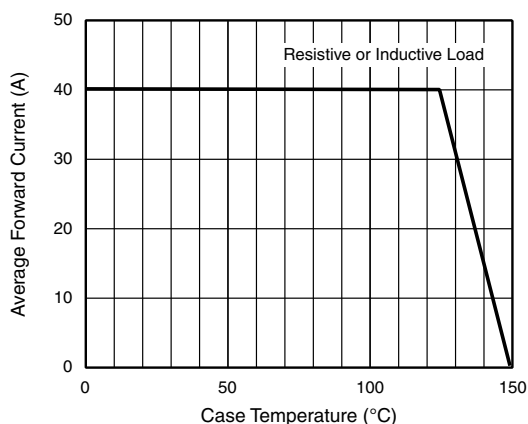


Fig. 1 - Forward Current Derating Curve

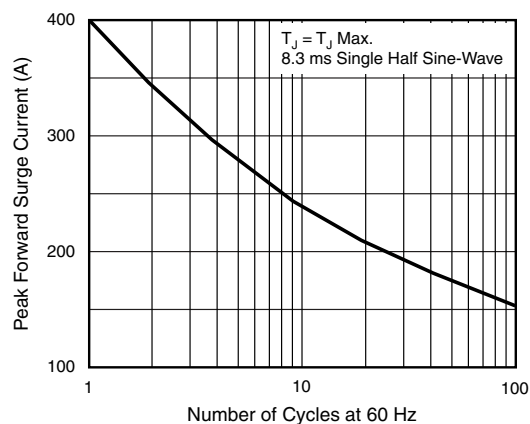


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

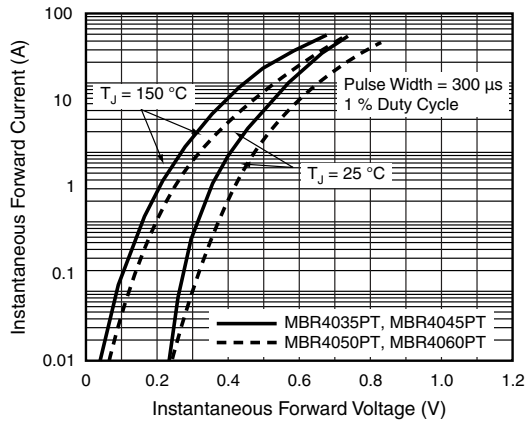


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

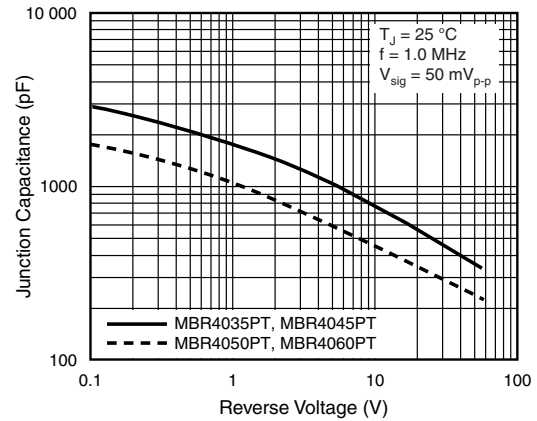


Fig. 5 - Typical Junction Capacitance Per Diode

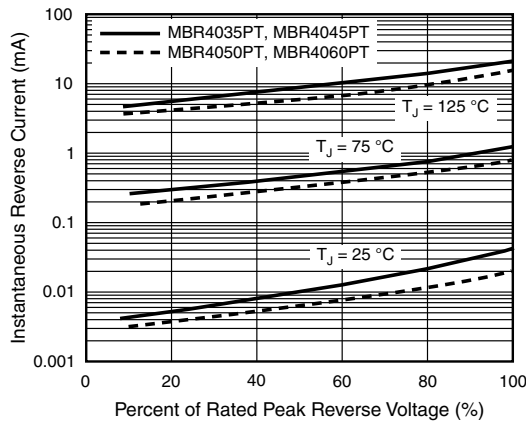


Fig. 4 - Typical Reverse Characteristics Per Diode

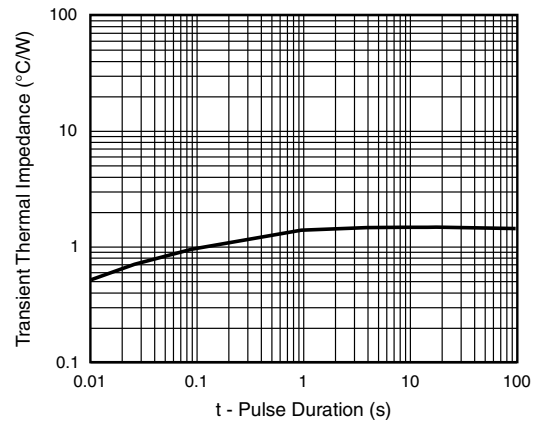
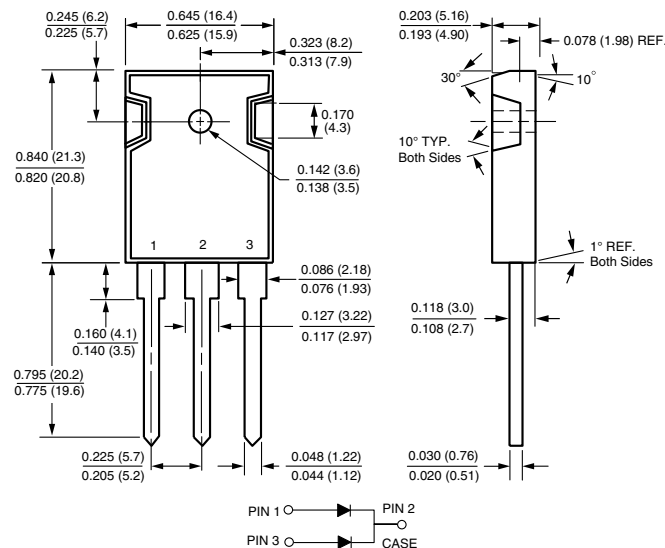


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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