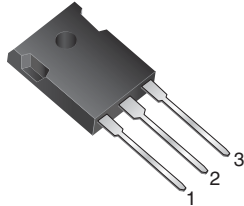
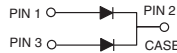


## Dual Common-Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance


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


### FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- 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.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A
$V_{RRM}$	35 V, 60 V
$I_{FSM}$	200 A
$V_F$	0.58 V, 0.63 V
$I_R$	150 $\mu$ A
$T_J$ max.	175 °C

### 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

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR30H35PT	MBR30H45PT	MBR30H50PT	MBR30H60PT	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 (Fig. 1)	$I_{F(AV)}$	30				A
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 1.5$ A, $L = 10$ mH	$E_{AS}$	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	200				A
Peak repetitive reverse surge current per diode	$I_{RRM}^{(1)}$	2.0	1.0			A
Peak non-repetitive reverse energy (8/20 $\mu$ s waveform)	$E_{RSM}$	30	20			mJ
Electrostatic discharge capacitor voltage human body model: $C = 100$ pF, $R = 1.5$ $\Omega$	$V_C$					mJ
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000				V/ $\mu$ s
Operating junction temperature range	$T_J$	- 65 to + 175				°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		MBR30H35PT MBR30H45PT		MBR30H50PT MBR30H60PT		UNIT	
				TYP.	MAX.	TYP.	MAX.		
Maximum instantaneous forward voltage per diode	V <sub>F</sub> (1)	I <sub>F</sub> = 20 A	T <sub>J</sub> = 25 °C	-	0.66	-	0.74	V	
		I <sub>F</sub> = 20 A	T <sub>J</sub> = 125 °C	0.54	0.58	0.60	0.63		
		I <sub>F</sub> = 30 A	T <sub>J</sub> = 25 °C	-	0.73	-	0.83		
		I <sub>F</sub> = 30 A	T <sub>J</sub> = 125 °C	0.62	0.66	0.66	0.70		
Maximum reverse current at rated V <sub>R</sub> per diode	I <sub>R</sub> (2)			T <sub>J</sub> = 25 °C	-	150	-	150	μA
				T <sub>J</sub> = 125 °C	6.0	25	4.0	25	mA

**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	MBR30H35PT	MBR30H45PT	MBR30H50PT	MBR30H60PT	UNIT
Thermal resistance, junction to case per diode	R <sub>θJC</sub>	1.4				°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-247AD	MBR30H45PT-E3/45	6.13	45	30/tube	Tube

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

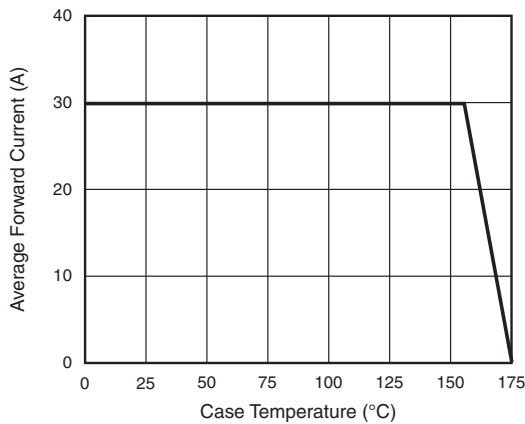


Fig. 1 - Forward Current Derating Curve

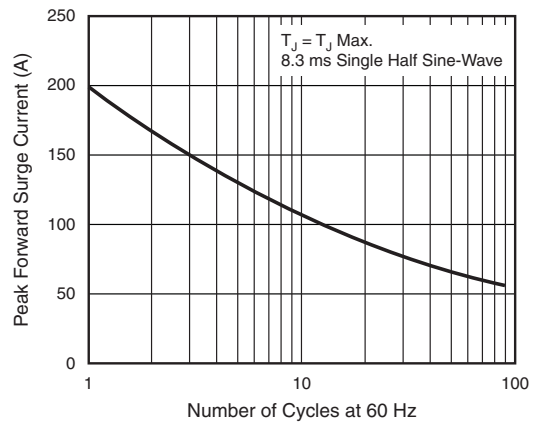


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

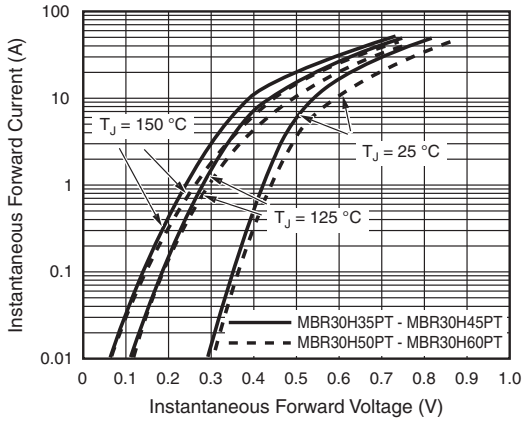


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

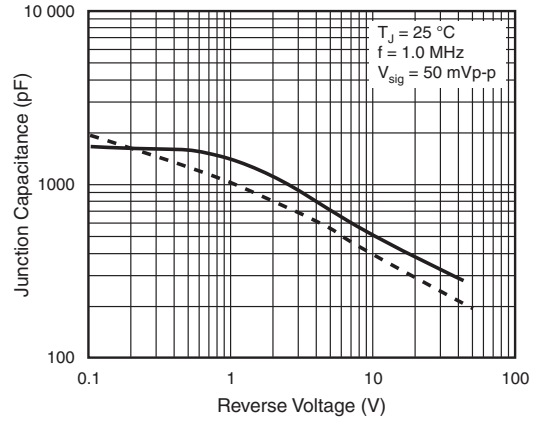


Fig. 5 - Typical Junction Capacitance Per Diode

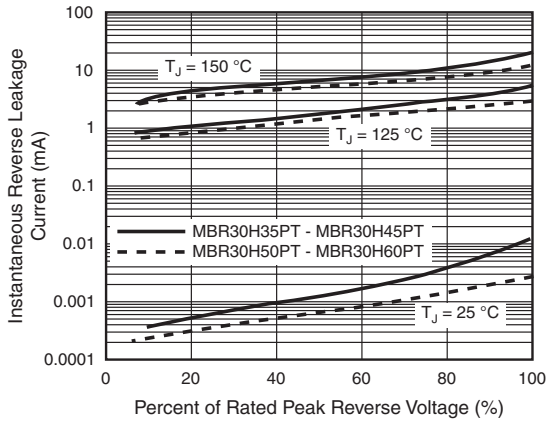


Fig. 4 - Typical Reverse Characteristics Per Diode

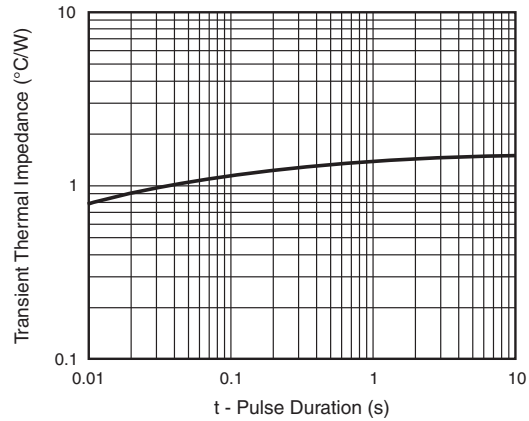
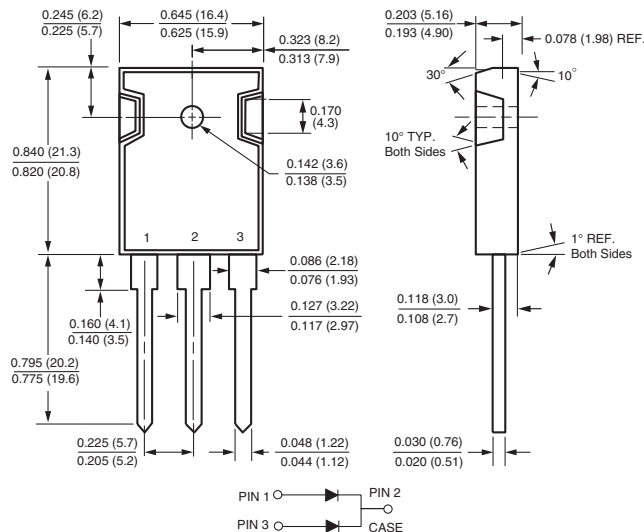


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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