

MBR30H35PT, MBR30H45PT, MBR30H50PT, MBR30H60PT

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Vishay General Semiconductor

RoHS

Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



PRIMARY CHARACTERISTICS						
I _{F(AV)}	30 A					
V _{RRM}	35 V, 45 V, 50 V, 60 V					
I _{FSM}	200 A					
V _F	0.58 V, 0.63 V					
I _R	150 µA					
T _J max.	175 °C					
Package	TO-247AD					
Diode variations	Dual Common Cathode					

FEATURES

- Power pack
- · 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 <u>www.vishay.com/doc?99912</u>

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 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

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						
Non-repetitive avalanche energy per diode at 25 °C, I _{AS} = 1.5 A, L = 10 mH	E _{AS}	80						
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	200						
Peak repetitive reverse surge current per diode	I _{RRM} ⁽¹⁾	2.0 1.0						
Peak non-repetitive reverse energy (8/20 µs waveform)	E _{RSM}	30 20			mJ			
Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 Ω	V _C	m.						
Voltage rate of change (rated V _R)	dV/dt	10 000						
Operating junction temperature range	TJ	- 65 to + 175						
Storage temperature range	T _{STG}	- 65 to + 175 °C						

Note

(1) 2.0 μ s pulse width, f = 1.0 kHz

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ELECTRICAL CHARACTERISTICS (T _A = 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 _E ⁽¹⁾	$I_F = 20 A$	$T_J = 25 ^{\circ}C$	ı	0.66	ı	0.74	V	
		$I_F = 20 A$	T _J = 125 °C	0.54	0.58	0.60	0.63		
	v F 、 ′	$I_F = 30 \text{ A}$	$T_J = 25 ^{\circ}C$	ı	0.73	ı	0.83		
		$I_F = 30 A$	T _J = 125 °C	0.62	0.66	0.66	0.70		
Maximum reverse current at rated $\ensuremath{V_{R}}$ per diode	I _R ⁽²⁾		$T_J = 25 ^{\circ}C$	ı	150	ı	150	μΑ	
	'H'		T _J = 125 °C	6.0	25	4.0	25	mA	

Notes

⁽²⁾ Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	MBOL MBR30H35PT MBR30H45PT MBR30H50PT MBR30H60PT UNIT						
Thermal resistance, junction to case per diode	$R_{ heta JC}$	1.4				°C/W		

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

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

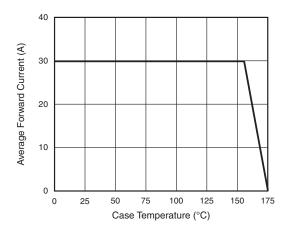


Fig. 1 - Forward Current Derating Curve

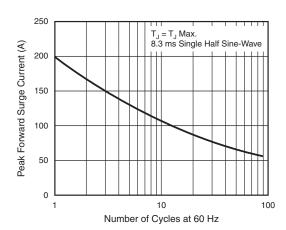


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

⁽¹⁾ Pulse test: 300 µs pulse width, 1 % duty cycle



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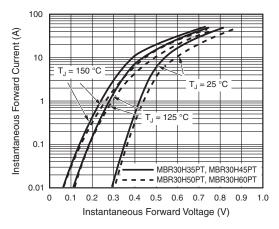


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

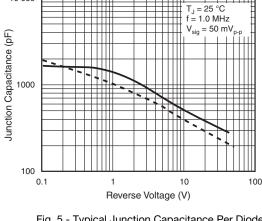


Fig. 5 - Typical Junction Capacitance Per Diode

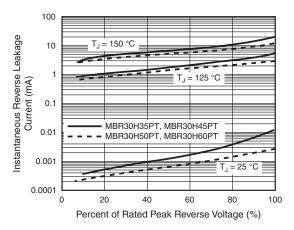


Fig. 4 - Typical Reverse Characteristics Per Diode

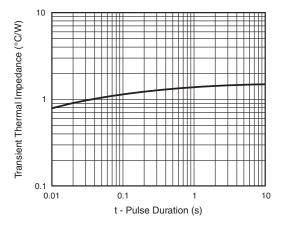
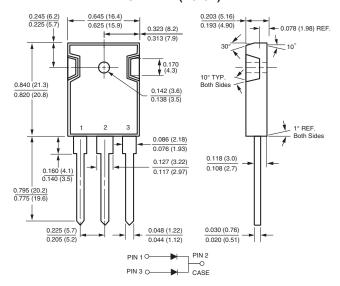


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)





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