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MBR3035PT, MBR3045PT, MBR3050PT, MBR3060PT

Vishay General Semiconductor

Dual Common Cathode Schottky Rectifier



PIN 3 0 CASE

PRIMARY CHARACTERISTICS						
I _{F(AV)}	30 A					
V _{RRM}	35 V, 45 V, 50 V, 60 V					
I _{FSM}	200 A					
V _F	0.60 V, 0.65 V					
T _J max.	150 °C					
Package	TO-247AD (TO-3P)					
Diode variations	Common cathode					

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

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	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	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						
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 at $t_p = 2 \ \mu s$, 1 kHz per diode	I _{RRM} ⁽¹⁾	2.0 1.0			А			
Voltage rate of change (rated V _R)	dV/dt	10 000 V/µ						
Operating junction temperature range	TJ	-65 to +150				°C		
Storage temperature range	T _{STG}	-65 to +175			°C			

Note

(1) 2.0 µs pulse width, f = 1.0 kHz



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ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)									
PARAMETER	SYMBOL	TEST CO	ONDITIONS	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT	
Maximum instantaneous forward voltage per diode	V _F ⁽¹⁾	I _F = 20 A	T _C = 25 °C	-		0.75		- V	
		I _F = 20 A	T _C = 125 °C	0.60		0.65			
		$I_{F} = 30 \text{ A}$	T _C = 25 °C	0.76		_			
		I _F = 30 A	T _C = 125 °C	0.72		-			
Maximum instantaneous reverse current at rated DC blocking	I _B ⁽¹⁾		$T_J = 25 \ ^\circ C$	1	.0	5	.0	mA	
voltage per diode	'R''		T _J = 125 °C	6	0	1(00		

Note

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

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT	
Typical thermal resistance, junction to case per diode	$R_{ ext{ heta}JC}$	1.4			°C/W		

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

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

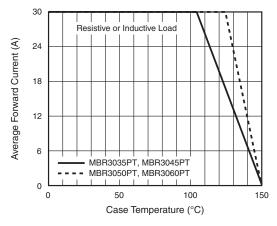


Fig. 1 - Forward Current Derating Curve

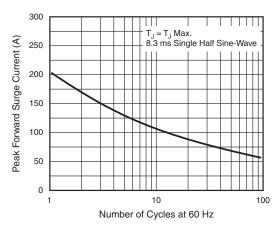


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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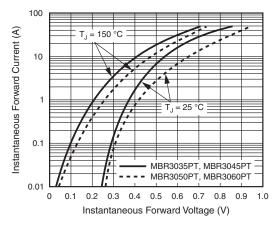


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

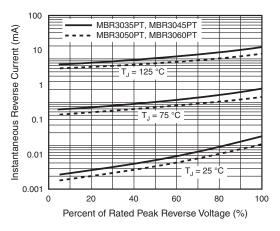


Fig. 4 - Typical Reverse Characteristics Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

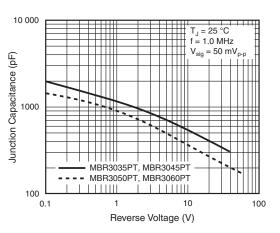


Fig. 5 - Typical Junction Capacitance Per Diode

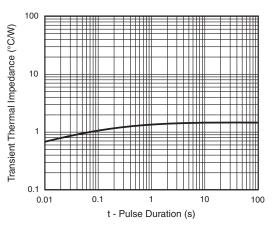
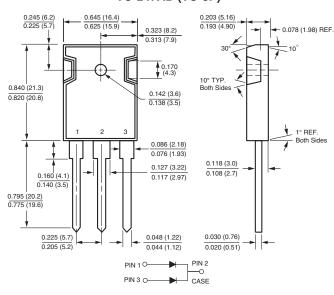


Fig. 6 - Typical Transient Thermal Impedance Per Diode



TO-247AD (TO-3P)

Revision: 17-Aug-15 3 Document Number: 88676 For technical questions within your region: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u> THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT <u>www.vishay.com/doc?91000</u>



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