

MBR4035PT, MBR4045PT, MBR4050PT, MBR4060PT

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COMPLIANT

Dual Common Cathode Schottky Rectifier



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-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 <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	YMBOL MBR4035PT MBR4045PT MBR4050PT MBR40		MBR4060PT	UNIT			
Maximum repetitive peak reverse voltage	V _{RRM}	35	45	50	60	V		
Maximum working peak reverse voltage	V_{RWM}	RWM 35 45 50 60				V		
Maximum DC blocking voltage	V_{DC}	C 35 45 50 60			60	V		
Maximum average forward rectified current T _C = 125 °C	I _{F(AV)}	40						
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			Α			
Voltage rate of change (rated V _R)	dV/dt	10 000						
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 CONDITIONS		MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT
Maximum instantaneous forward voltage per diode	V _F ⁽¹⁾	$I_F = 20 \text{ A}$	T _J = 25 °C	0.70		0.72		
		$I_F = 20 A$	T _J = 125 °C	0.60		0.62		V
		I _F = 40 A	T _J = 25 °C	0.80		-		
		$I_F = 40 \text{ A}$	T _J = 125 °C	0.75		-		
Maximum instantaneous reverse current at rated DC blocking voltage per diode	I _R ⁽¹⁾		T _J = 25 °C	1.0			mA	
			T _J = 125 °C			00		IIIA

Note

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	MBR4035PT	MBR4045PT	MBR4050PT	MBR4060PT	UNIT		
Thermal resistance, junction to case per diode	$R_{ heta JC}$		1	.2		°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 ($T_A = 25$ °C unless otherwise noted)

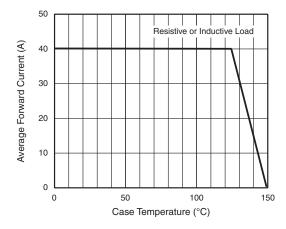


Fig. 1 - Forward Current Derating Curve

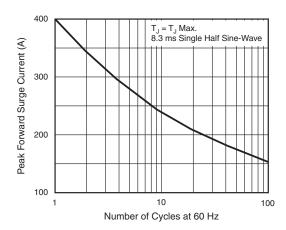


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode





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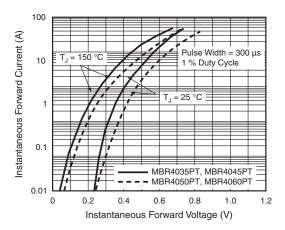


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

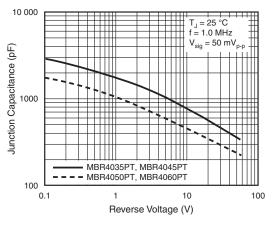


Fig. 5 - Typical Junction Capacitance Per Diode

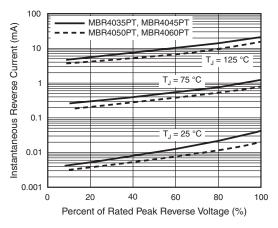


Fig. 4 - Typical Reverse Characteristics Per Diode

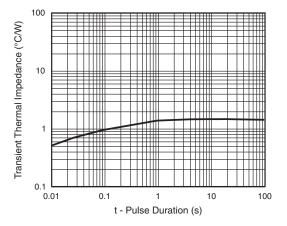
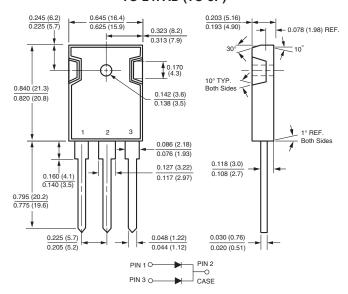


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)





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