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FAIRCHILD SEMICONDUCTOR®

October 2013

MBR4035PT - MBR4060PT
40 A Schottky Barrier Rectifiers

Features

- Low Power Loss, High Efficiency
- High Surge Capacity
- Metal Silicon Junction, Majority Carrier Conduction
- High Current Capacity, Low Forward Voltage Drop
- Guard Ring for Over-Voltage Protection (OVP)

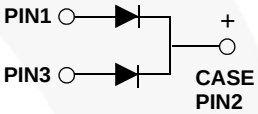
Applications

- Low-Voltage
- High-Frequency Inverters
- Free Wheeling
- Polarity Protection

Description

This center-tap Schottky rectifier is optimal for secondary rectification and free-wheeling applications for high-efficiency DC-DC convertor design, which features very low forward voltage drop and low leakage current.

TO-3P/TO-247AD



Ordering Information

Part Number	Marking	Package	Packing Method
MBR4035PT	MBR4035PT	TO-247 3L	Rail
MBR4045PT	MBR4045PT		
MBR4050PT	MBR4050PT		
MBR4060PT	MBR4060PT		

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value				Units
		MBR 4035PT	MBR 4045PT	MBR 4050PT	MBR 4060PT	
V_{RRM}	Maximum Repetitive Reverse Voltage	35	45	50	60	V
$I_{F(AV)}$	Average Rectified Forward Current .375-inch Lead Length at T_A = 125°C	40				A
I_{FSM}	Non-Repetitive Peak Forward Surge Current: 8.3 ms Single Half-Sine-Wave	400				A
T_{STG}	Storage Temperature Range	-65 to +175				°C
T_J	Operating Junction Temperature Range	-65 to +150				°C

Thermal Characteristics

Symbol	Parameter	Value	Units
P_D	Power Dissipation	3.0	W
$R_{\theta JL}$	Thermal Resistance, Junction to Lead	1.2	°C/W

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Value				Units
			MBR 4035PT	MBR 4045PT	MBR 4050PT	MBR 4060PT	
V_F	Maximum Forward Voltage, per Leg	I_F = 20 A, T_C = 25°C	0.70		0.72		V
		I_F = 20 A, T_C = 125°C	0.60		0.62		
		I_F = 40 A, T_C = 25°C	0.80				
		I_F = 40 A, T_C = 125°C	0.75				
I_R	Maximum Reverse Current at Rated V_R	T_A = 25°C	1.0				mA
		T_A = 125°C	100.0				
I_{RRM}	Peak Repetitive Reverse Surge Current, per Leg 2.0 µs Pulse Width, f = 1.0 kHz		2.0		1.0		A

Typical Performance Characteristics

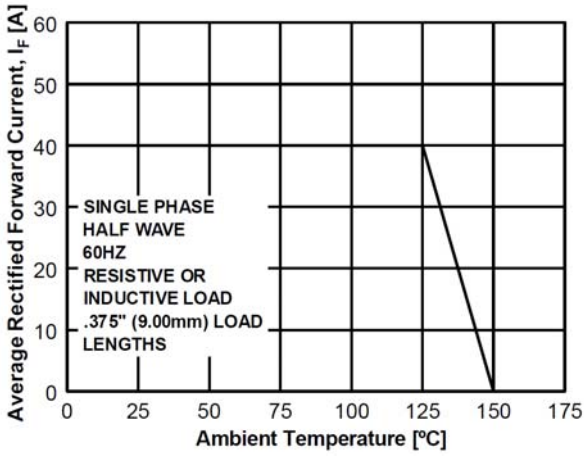


Figure 1. Forward Current Derating Curve

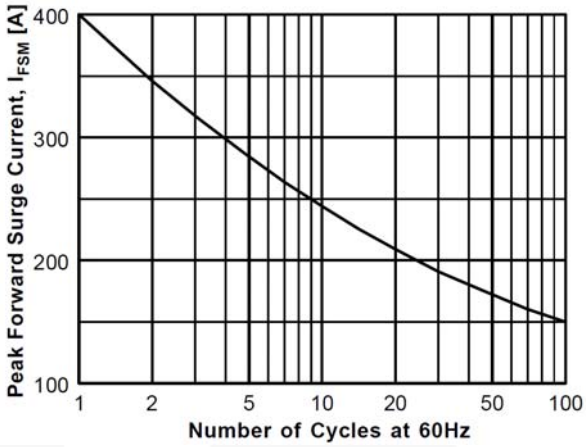


Figure 2. Non-Repetitive Surge Current

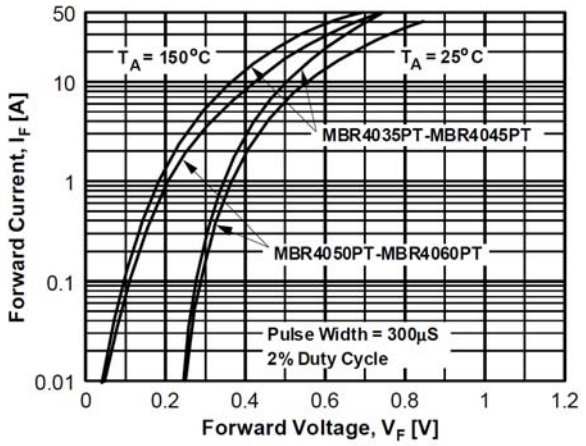


Figure 3. Forward Voltage Characteristics

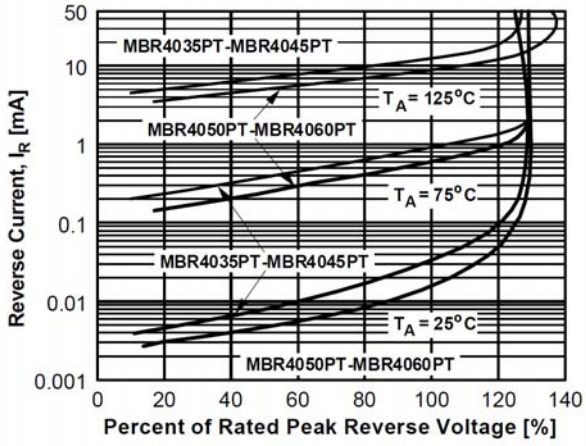


Figure 4. Reverse Current vs. Reverse Voltage

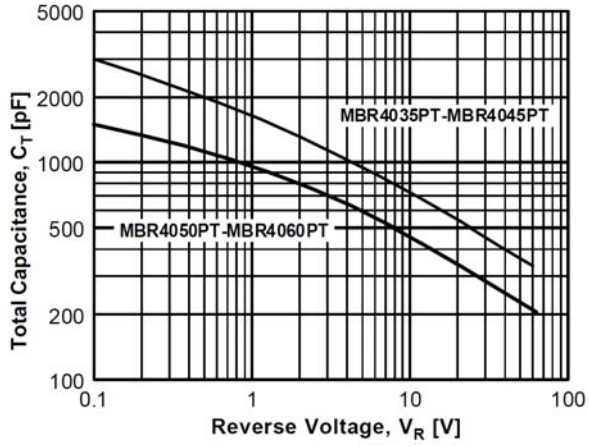


Figure 5. Total Capacitance

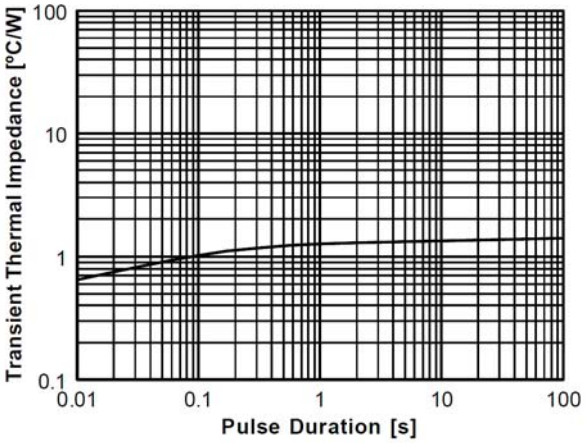
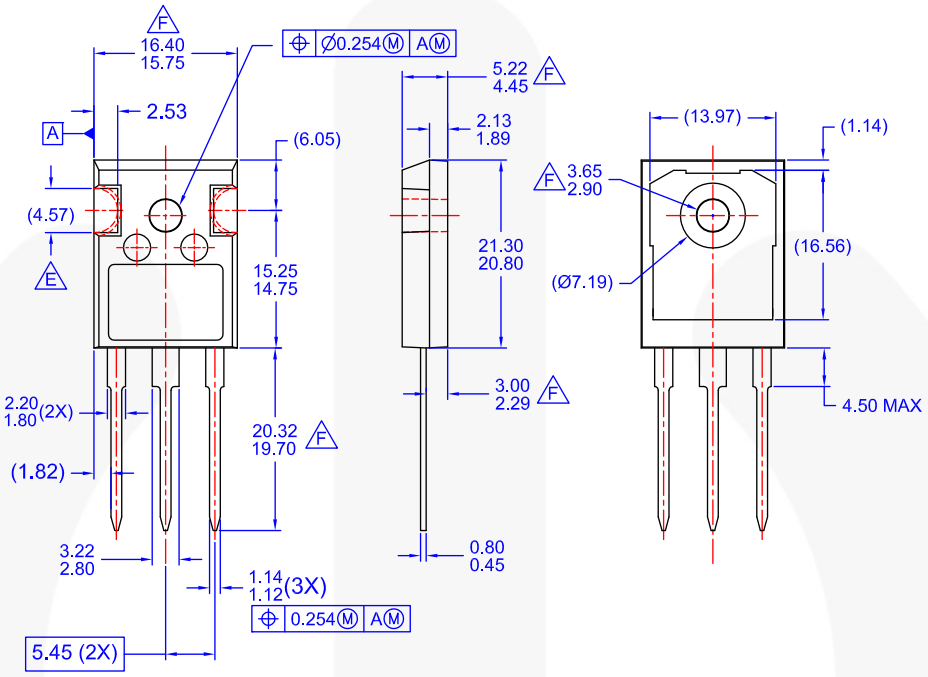


Figure 6. Thermal Impedance Characteristics

Physical Dimensions

TO-247 3L



NOTES: UNLESS OTHERWISE SPECIFIED

A. PACKAGE REFERENCE: JEDEC TO-247, ISSUE "E", VARIATION AD

B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.

C. ALL DIMENSIONS ARE IN MILLIMETERS.

D. DRAWING CONFORMS TO ASME Y14.5 - 1994

E. DOES NOT COMPLY JEDEC STANDARD VALUE.

F. NOTCH MAY BE SQUARE

G. DRAWING FILENAME: MKT-TO247E03_REV02

Figure 7. TO-247, MOLDED, 3 LEADS, JEDEC OPTION AD (ACTIVE)

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Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
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Rev. I66

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