

Dual Common-Cathode Schottky Rectifier



TO-247AD (TO-3P)



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, free-wheeling diodes, dc-to-dc converters or polarity protection application.

MECHANICAL DATA

Case: TO-247AD (TO-3P)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated (E3 Suffix) leads, solderable per J-STD-002B and JESD22-B102D

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAJOR RATINGS AND CHARACTERISTICS

$I_{F(AV)}$	30 A
V_{RRM}	35 V to 60 V
I_{FSM}	200 A
V_F	0.60 V, 0.65 V
$T_J \text{ max.}$	175 °C

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ 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 (see 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 per diode ⁽¹⁾	I _{RRM}	2.0		1.0		A
Voltage rate of change at (rated V _R)	dv/dt	10000				V/μs
Operating junction temperature range	T _J	- 65 to + 150				°C
Storage temperature range	T _{STG}	- 65 to + 175				°C

Note:

(1) 2.0 μ s pulse width, $f = 1.0 \text{ kHz}$

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT
Maximum instantaneous forward voltage per diode ⁽¹⁾	$I_F = 20\text{ A}$, $T_C = 25\text{ }^{\circ}\text{C}$	V_F	-	-	0.75	-	V
	$I_F = 20\text{ A}$, $T_C = 125\text{ }^{\circ}\text{C}$		0.60	-	0.65	-	
	$I_F = 30\text{ A}$, $T_C = 25\text{ }^{\circ}\text{C}$		0.76	-	-	-	
	$I_F = 30\text{ A}$, $T_C = 125\text{ }^{\circ}\text{C}$		0.72	-	-	-	
Maximum instantaneous reverse current at rated DC blocking voltage per diode ⁽¹⁾	$T_C = 25\text{ }^{\circ}\text{C}$ $T_C = 125\text{ }^{\circ}\text{C}$	I_R	1.0 60	-	5.0 100	-	mA

Note:

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT	
Thermal resistance from junction to case per diode	$R_{\theta JC}$	1.4					$^{\circ}\text{C/W}$

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

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

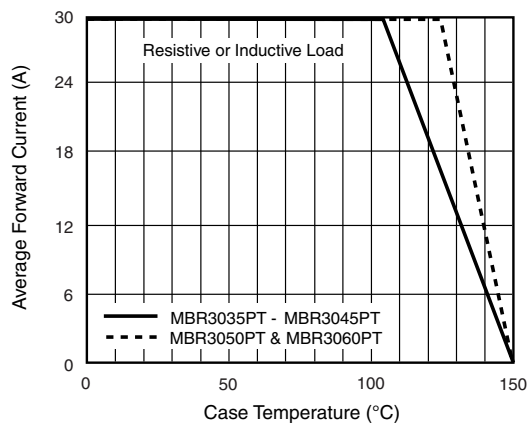


Figure 1. Forward Current Derating Curve

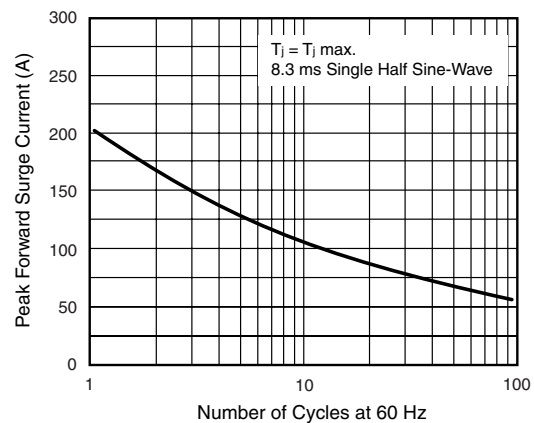


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

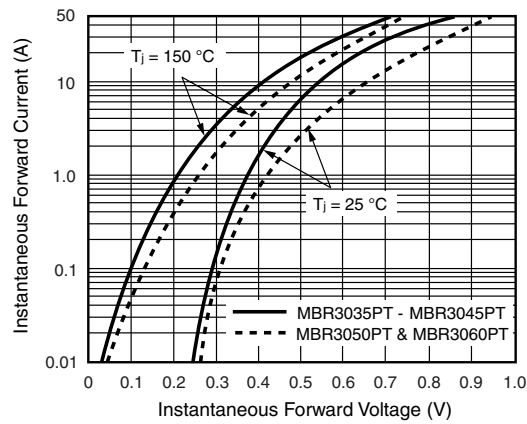


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

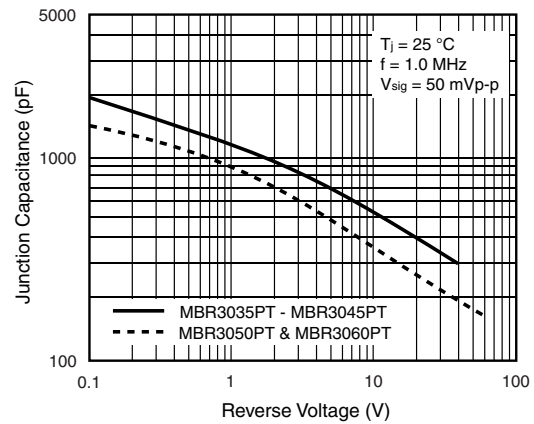


Figure 5. Typical Junction Capacitance Per Diode

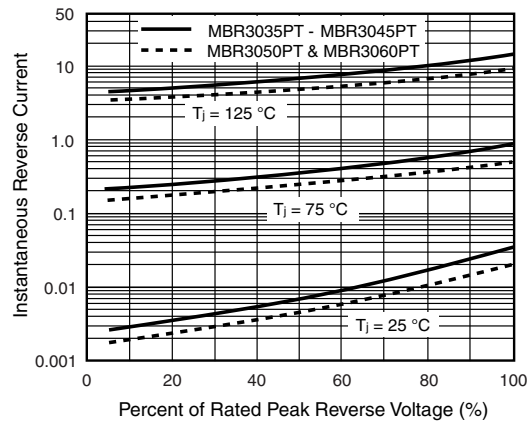


Figure 4. Typical Reverse Characteristics Per Diode

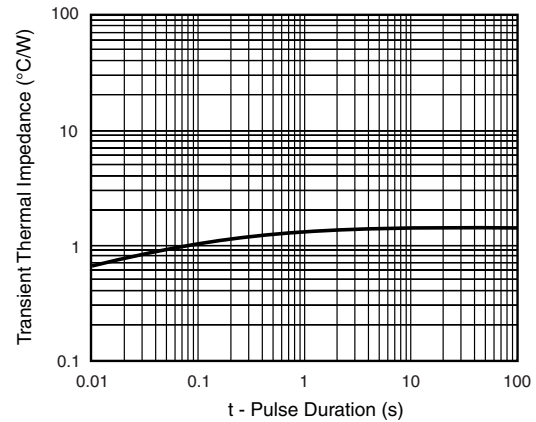
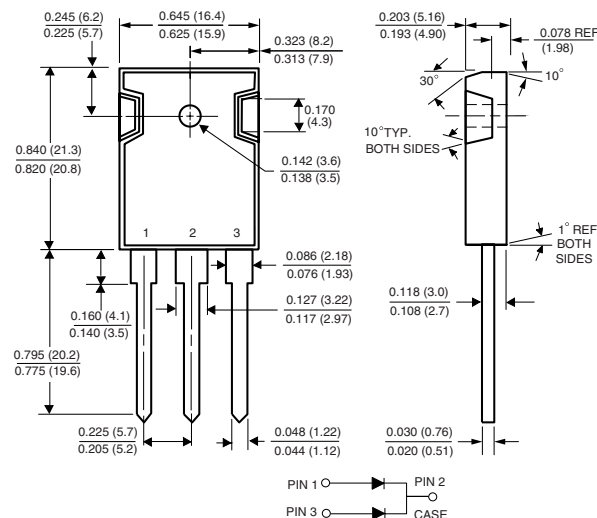


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)





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