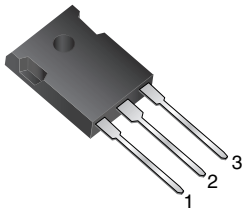
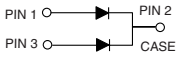
Dual Common-Cathode Schottky Rectifier



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 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY 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 max.	150 °C

MECHANICAL DATA

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

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, 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 per diode (1)	I_{RRM}	2.0		1.0		A
Voltage rate of change at (rated V_R)	dV/dt	10 000				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 µs pulse width, f = 1.0 kHz

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT
Maximum instantaneous forward voltage per diode (1)	I_F = 20 A I_F = 20 A I_F = 30 A I_F = 30 A	T_C = 25 °C T_C = 125 °C T_C = 25 °C T_C = 125 °C	V_F	- 0.60 0.76 0.72		0.75 0.65 - -		V
Maximum instantaneous reverse current at rated DC blocking voltage per diode (1)		T_C = 25 °C T_C = 125 °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 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR3035PT	MBR3045PT	MBR3050PT	MBR3060PT	UNIT
Thermal resistance from junction to case per diode	$R_{\theta JC}$	1.4				°C/W

ORDERING INFORMATION (Example)					
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 °C unless otherwise specified)

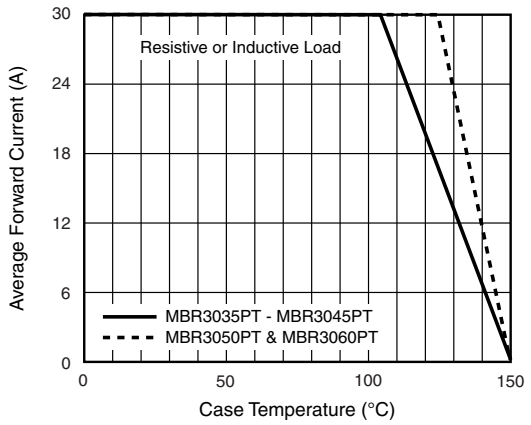


Figure 1. Forward Current Derating Curve

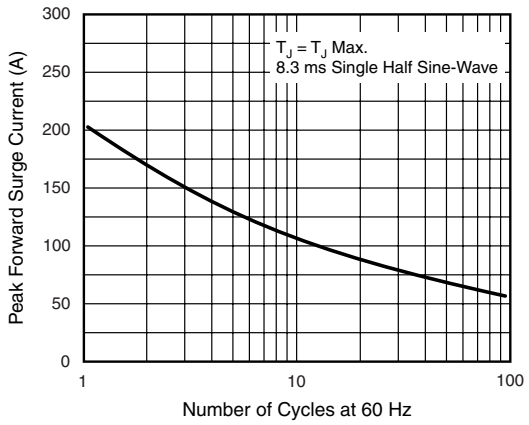


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

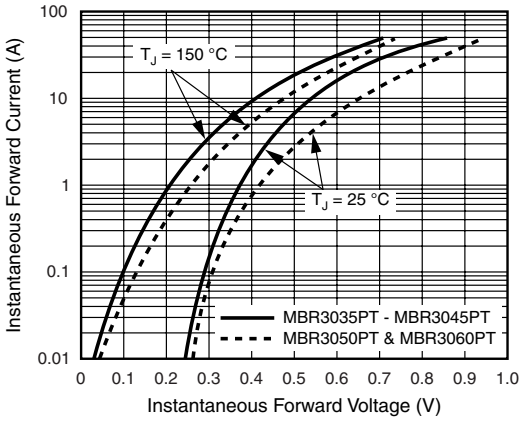


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

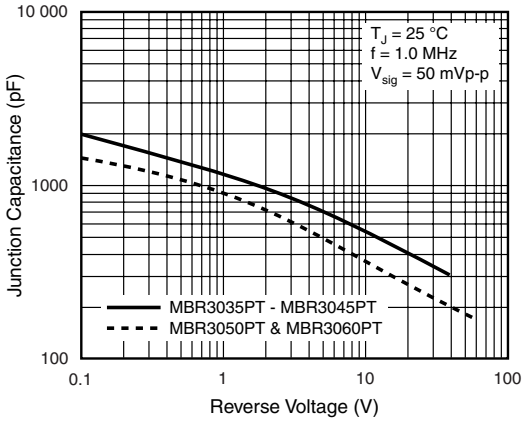


Figure 5. Typical Junction Capacitance Per Diode

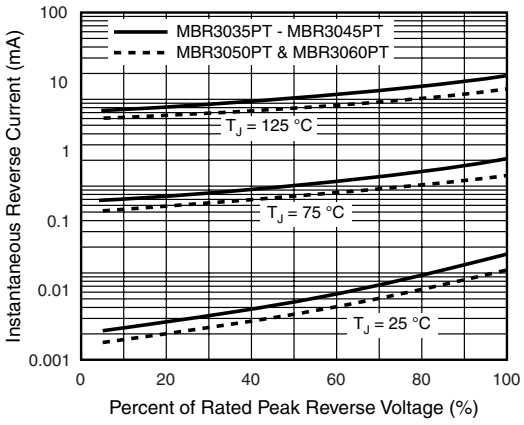


Figure 4. Typical Reverse Characteristics Per Diode

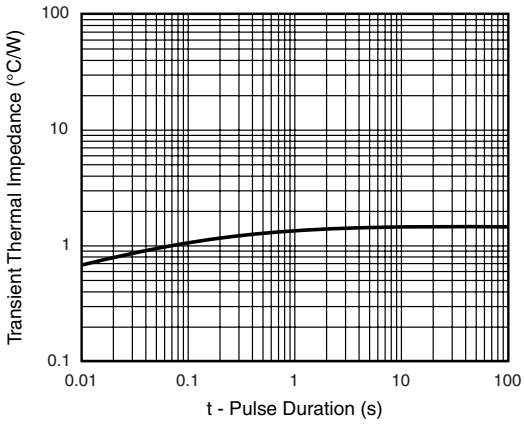


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)