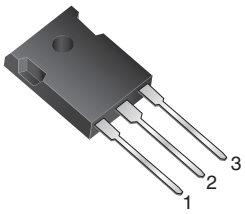
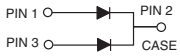
Dual Common-Cathode High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



TO-247AD (TO-3P)



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- 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

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
V_{RRM}	90 V, 100 V
I_{FSM}	265 A
V_F	0.67 V
I_R	5.0 µA
T_J max.	175 °C

MECHANICAL DATA

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

Molding compound meets UL 94V-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	MBR30H90PT	MBR30H100PT	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	90	100	V
Working peak reverse voltage		V_{RWM}	90	100	V
Maximum DC blocking voltage		V_{DC}	90	100	V
Maximum average forward rectified current	total device	$I_{F(AV)}$	30		A
	per diode		15		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	265		A
Peak repetitive reverse surge current at t_p = 2 µs, 1 kHz per diode		I_{RRM}	1.0		A
Non-repetitve avalanche energy (I_{AS} = 0.5 A, L = 60 mH) per diode		E_{AS}	7.5		mJ
Voltage rate of change (rated V_R)		dV/dt	10 000		V/µs
Operating junction and storage temperature range		T_J, T_{STG}	- 65 to + 175		°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS		MBR30H90PT	MBR30H100PT	UNIT
Maximum instantaneous forward voltage per diode	V_F (1)	I_F = 15 A	T_J = 25 °C	0.82		V
		I_F = 15 A	T_J = 125 °C	0.67		
		I_F = 30 A	T_J = 25 °C	0.93		
		I_F = 30 A	T_J = 125 °C	0.80		
Maximum instantaneous reverse current at rated DC blocking voltage per diode	I_R (1)		T_J = 25 °C	5.0		µA
			T_J = 125 °C	6.0		mA

Note

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MBR30H90PT	MBR30H100PT	UNIT
Thermal resistance, junction to case per diode	$R_{\theta JC}$	1.6		°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AD	MBR30H100PT-E3/4W	6.13	45	30/tube	Tube

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

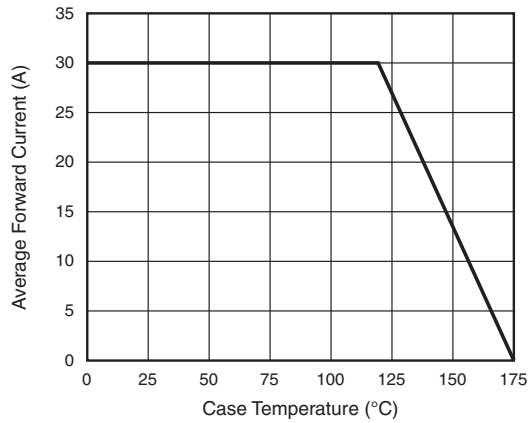


Fig. 1 - Forward Derating Curve

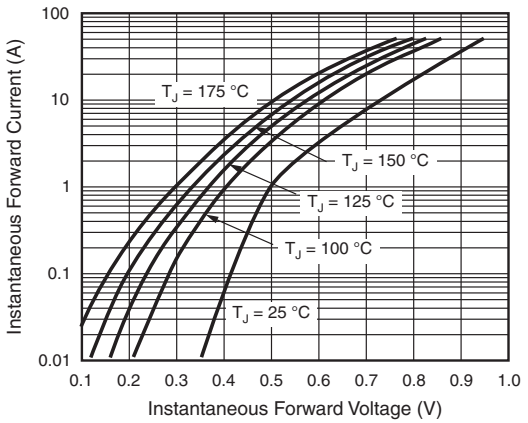


Fig. 2 - Typical Instantaneous Forward Characteristics Per Diode

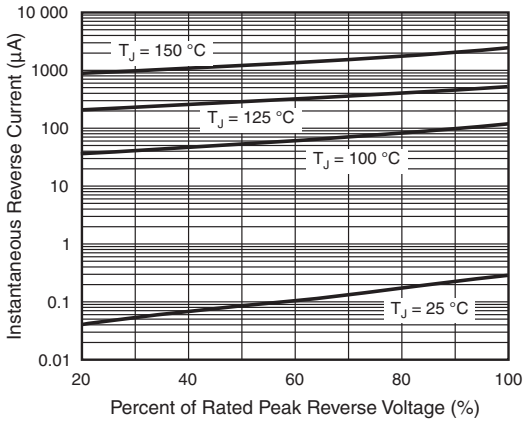


Fig. 3 - Typical Reverse Characteristics Per Diode

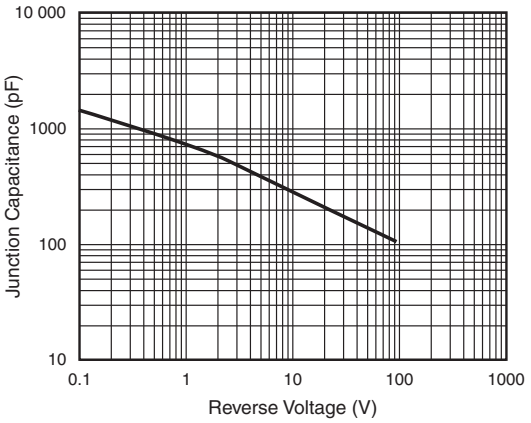
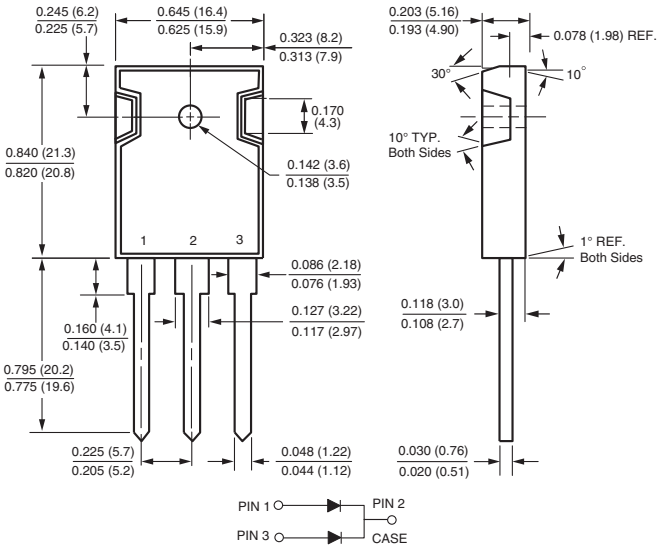


Fig. 4 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)



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