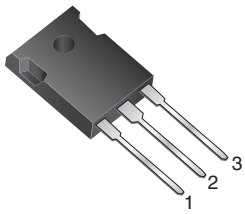
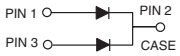
Dual Common-Cathode Schottky Rectifier

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	
$I_{F(AV)}$	30 A
V_{RRM}	35 V, 60 V
I_{FSM}	200 A
V_F	0.58 V, 0.63 V
I_R	150 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	MBR30H35PT	MBR30H45PT	MBR30H50PT	MBR30H60PT	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
Non-repetitive avalanche energy per diode at 25 °C, I_{AS} = 1.5 A, L = 10 mH	E_{AS}	80				mJ
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	I_{RRM} (1)	2.0		1.0		A
Peak non-repetitive reverse energy (8/20 µs waveform)	E_{RSM}	30		20		mJ
Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 Ω	V_C					mJ
Voltage rate of change (rated V_R)	dV/dt	10 000				V/µs
Operating junction temperature range	T_J	- 65 to + 175				°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	**SYMBOL**	**TEST CONDITIONS**		**MBR30H35PT MBR30H45PT**		**MBR30H50PT MBR30H60PT**		**UNIT**
				TYP.	**MAX.**	**TYP.**	**MAX.**	
Maximum instantaneous forward voltage per diode	V_F (1)	I_F = 20 A	T_J = 25 °C	-	0.66	-	0.74	V
		I_F = 20 A	T_J = 125 °C	0.54	0.58	0.60	0.63	
		I_F = 30 A	T_J = 25 °C	-	0.73	-	0.83	
		I_F = 30 A	T_J = 125 °C	0.62	0.66	0.66	0.70	
Maximum reverse current at rated V_R per diode	I_R (2)		T_J = 25 °C	-	150	-	150	μA
			T_J = 125 °C	6.0	25	4.0	25	mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**MBR30H35PT**	**MBR30H45PT**	**MBR30H50PT**	**MBR30H60PT**	**UNIT**
Thermal resistance, 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	MBR30H45PT-E3/45	6.13	45	30/tube	Tube

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

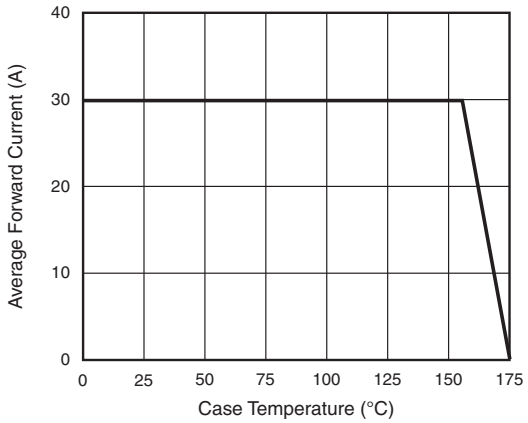


Fig. 1 - Forward Current Derating Curve

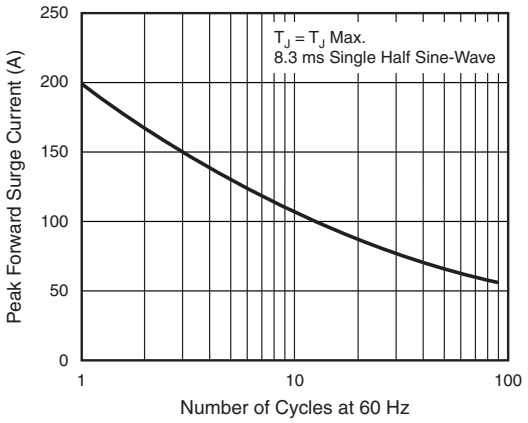


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

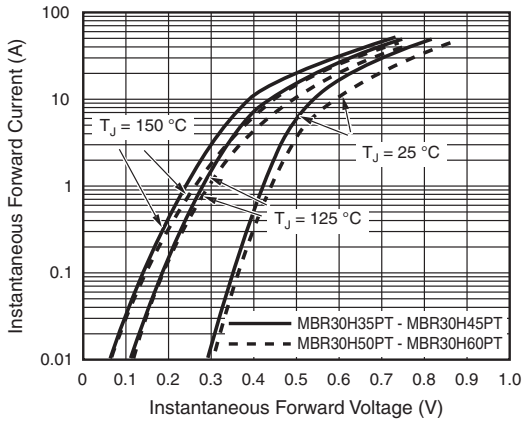


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

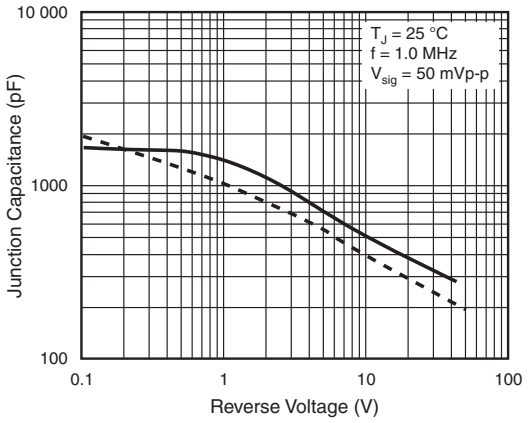


Fig. 5 - Typical Junction Capacitance Per Diode

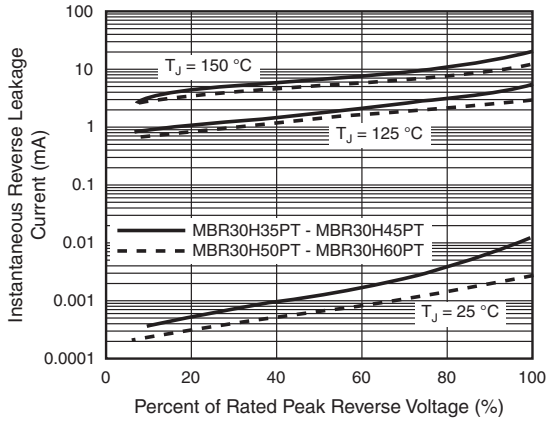


Fig. 4 - Typical Reverse Characteristics Per Diode

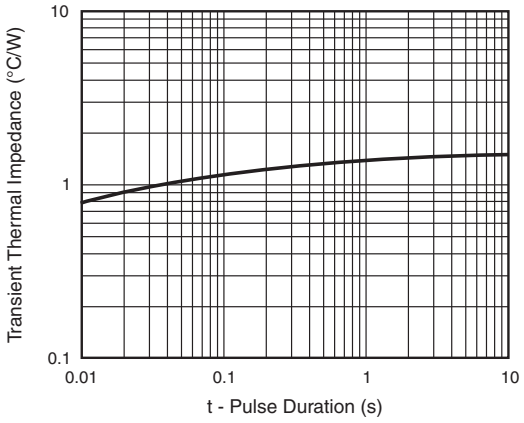
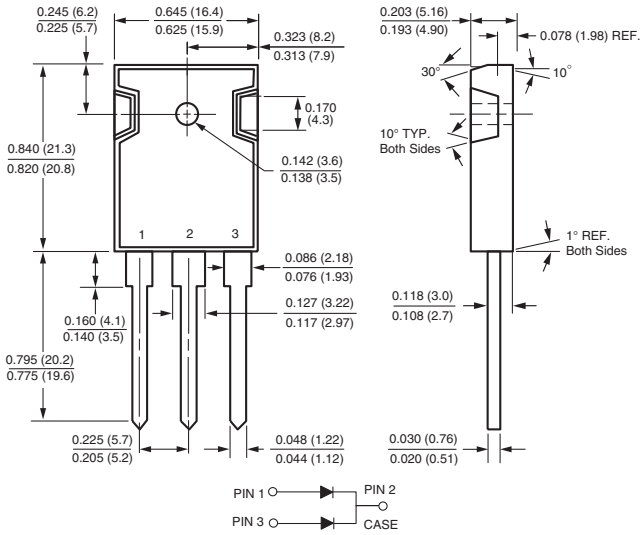


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)



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Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru

www.lifeelectronics.ru