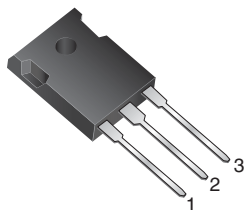


Dual Common-Cathode Schottky Rectifier

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 μ A
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 μ s pulse width, $f = 1.0$ kHz

**ELECTRICAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ 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 $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBR30H35PT	MBR30H45PT	MBR30H50PT	MBR30H60PT	UNIT
Thermal resistance, junction to case per diode	$R_{\theta JC}$	1.4				$^{\circ}\text{C/W}$

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

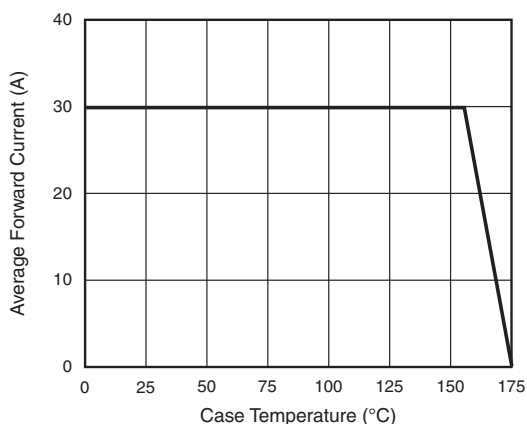
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

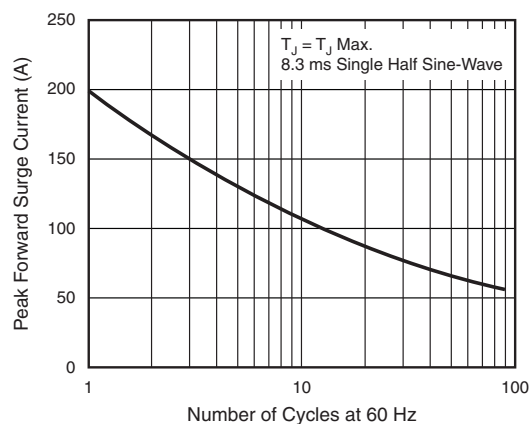


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

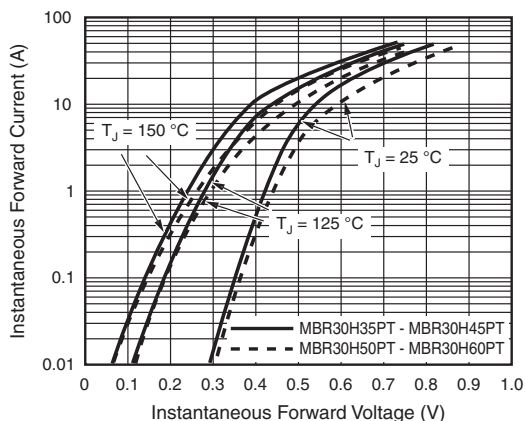


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

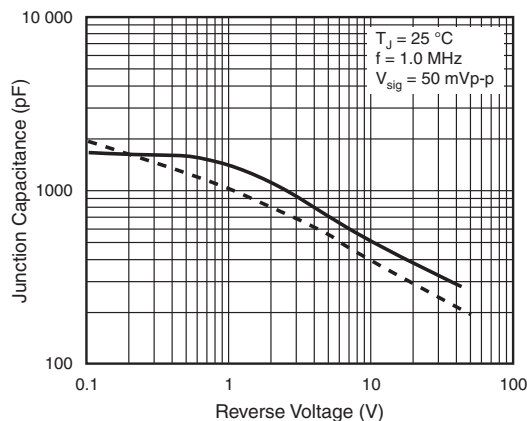


Fig. 5 - Typical Junction Capacitance Per Diode

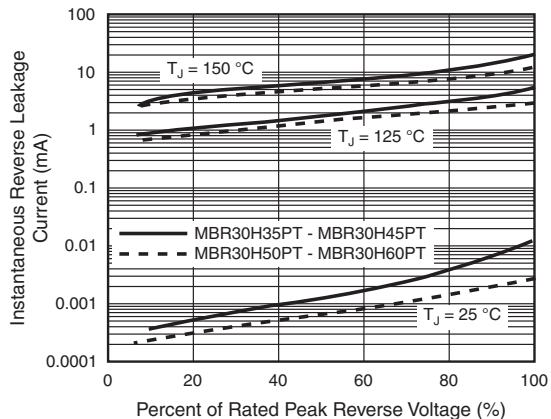


Fig. 4 - Typical Reverse Characteristics Per Diode

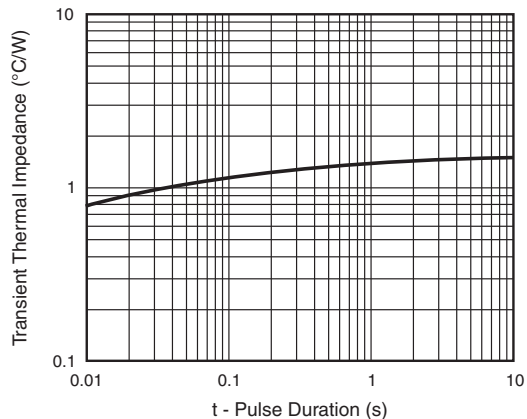
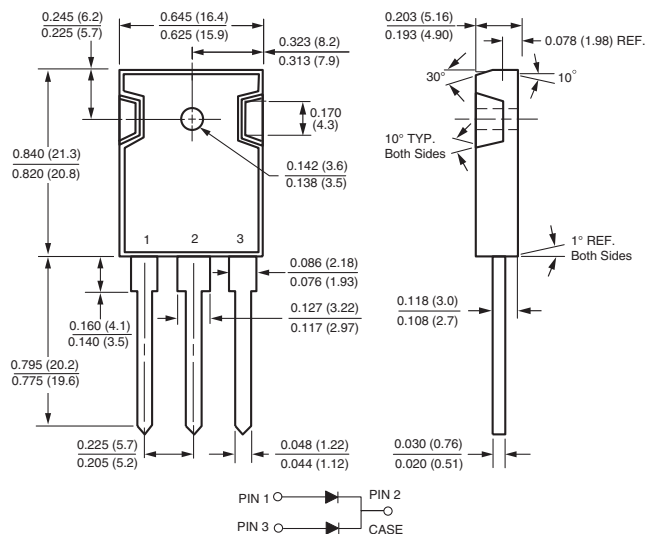


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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