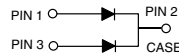
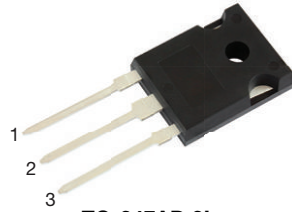




Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Power pack
- 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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-247AD 3L

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - RoHS-compliant, halogen-free, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A
V_{RRM}	35 V, 45 V, 50 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
Package	TO-247AD 3L
Circuit configuration	Common cathode

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	25				kV
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, $f = 1.0\text{ kHz}$

**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	$V_F^{(1)}$	$I_F = 20\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$	-	0.66	-	0.74	V
		$I_F = 20\text{ A}$	$T_J = 125\text{ }^{\circ}\text{C}$	0.54	0.58	0.60	0.63	
		$I_F = 30\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$	-	0.73	-	0.83	
		$I_F = 30\text{ A}$	$T_J = 125\text{ }^{\circ}\text{C}$	0.62	0.66	0.66	0.70	
Maximum reverse current at rated V_R per diode	$I_R^{(2)}$			$T_J = 25\text{ }^{\circ}\text{C}$	-	150	150	μA
				$T_J = 125\text{ }^{\circ}\text{C}$	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 3L	MBR30H45PT-M3/P	5.83	P	25/tube	Tube



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

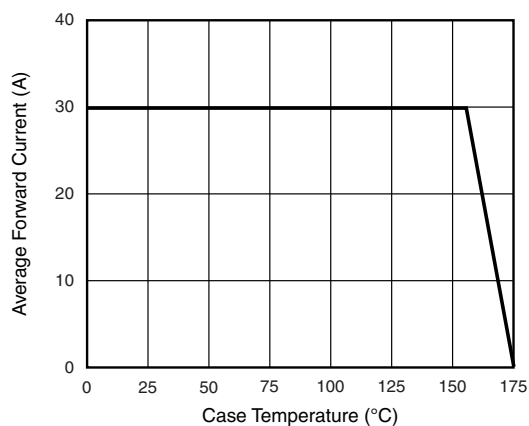


Fig. 1 - Forward Current Derating Curve

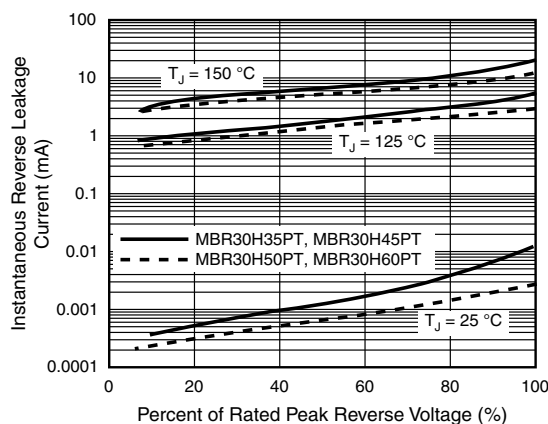


Fig. 4 - Typical Reverse Characteristics Per Diode

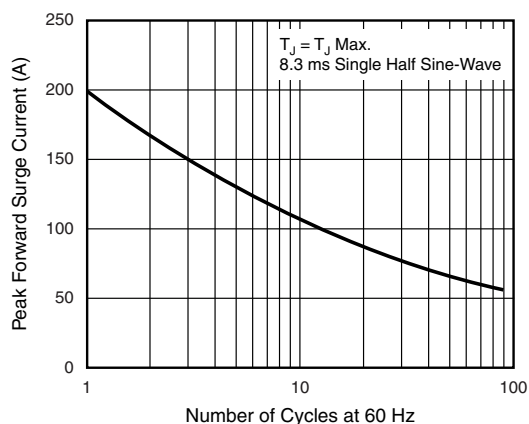


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

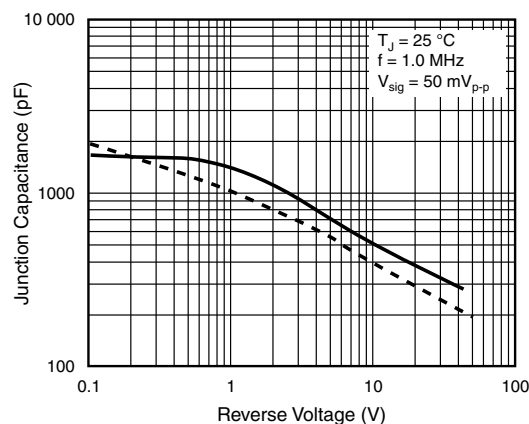


Fig. 5 - Typical Junction Capacitance Per Diode

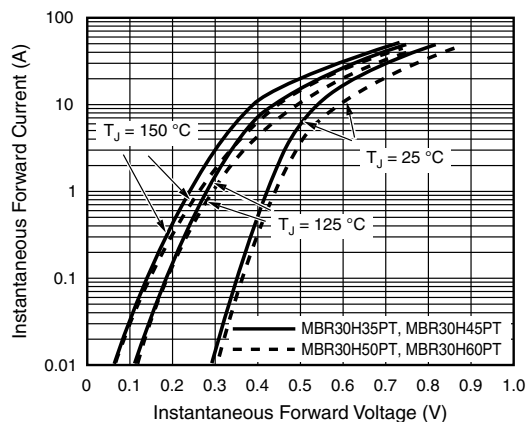


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

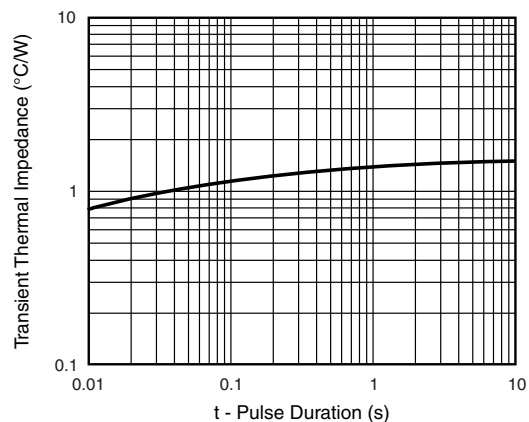
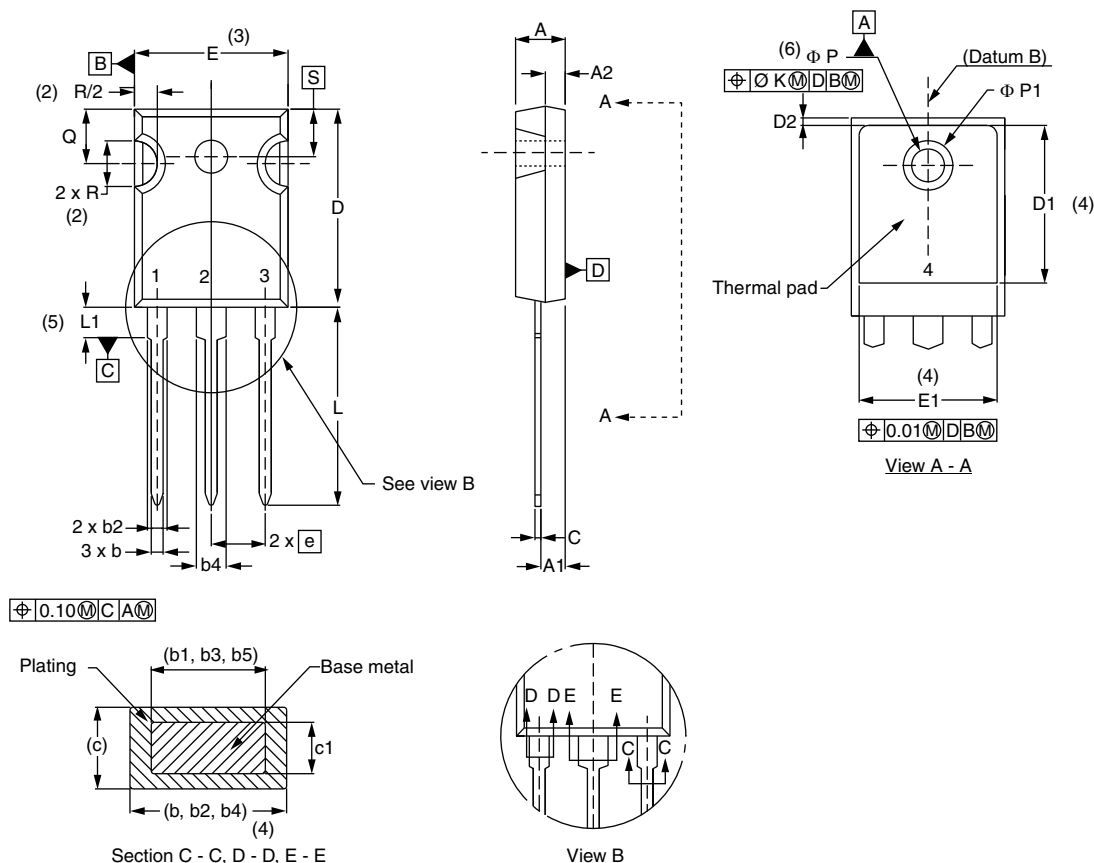


Fig. 6 - Typical Transient Thermal Impedance Per Diode



PACKAGE OUTLINE DIMENSIONS in millimeters (inches) TO-247AD 3L



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	4.65	5.31	0.183	0.209	
A1	2.21	2.59	0.087	0.102	
A2	1.50	2.49	0.059	0.098	
b	0.99	1.40	0.039	0.055	
b1	0.99	1.35	0.039	0.053	
b2	1.65	2.39	0.065	0.094	
b3	1.65	2.34	0.065	0.092	
b4	2.59	3.43	0.102	0.135	
b5	2.59	3.38	0.102	0.133	
c	0.38	0.89	0.015	0.035	
c1	0.38	0.84	0.015	0.033	
D	19.71	20.70	0.776	0.815	3
D1	13.08	-	0.515	-	4

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
D2	0.51	1.30	0.020	0.051	
E	15.29	15.87	0.602	0.625	3
E1	13.46	-	0.53	-	
e	5.46 BSC		0.215 BSC		
Ø K	0.254		0.010		
L	19.81	20.32	0.780	0.800	
L1	3.71	4.29	0.146	0.169	
Ø P	3.56	3.66	0.14	0.144	
Ø P1	-	6.98	-	0.275	
Q	5.31	5.69	0.209	0.224	
R	4.52	5.49	0.178	0.216	
S	5.51 BSC		0.217 BSC		

Notes

- Dimensioning and tolerancing per ASME Y14.5M-1994
- Contour of slot optional
- Dimension D and E do not include mold flash. These dimensions are measured at the outermost extremes of the plastic body
- Thermal pad contour optional with dimensions D1 and E1
- Lead finish uncontrolled in L1
- Ø P to have a maximum draft angle of 1.5 to the top of the part with a maximum hole diameter of 3.91 mm (0.154")
- Outline conforms to JEDEC® outline TO-247 with exception of dimension A min., D, E min., Q min., S, and note 4



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