

## Product Summary (@T<sub>A</sub> = +25°C)

V <sub>RRM</sub> (V)	I <sub>o</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)
1000	2	0.95	5

## Description and Applications

Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

## Features and Benefits

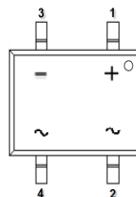
- Glass Passivated Die Construction
- Miniature Package Saves Space on PC Boards
- Low Leakage Current
- Ideal for SMT Manufacturing
- Low Forward Voltage Drop
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

## Mechanical Data

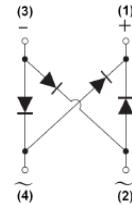
- Case: HDS
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: As Marked on Body
- Weight: 0.0923 grams (Approximate)



Top View



Pin Diagram



Internal Schematic

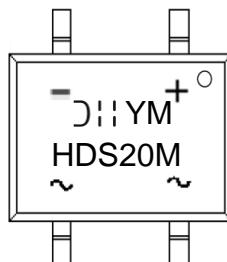
## Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
HDS20M-13	Commercial	HDS	5,000/Tape & Reel

Notes:

1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



HDS20M = Product Type Marking Code

DYM = Manufacturers' Code Marking

YM = Date Code Marking

Y = Last Digit of Year (ex: 7 = 2017)

M = See Month/Code Table Below

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

## Maximum Ratings (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	1000	V
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_R(\text{RMS})$	700	V
Average Rectified Output Current (Note 5) @ $T_C = +88^\circ\text{C}$	$I_O$	2.0	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	55	A
Non-Repetitive Peak Forward Surge Current, 1ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	110	A
$I^2t$ Rating for Fusing (1ms < $t$ < 8.3ms)	$I^2t$	8.03	$\text{A}^2\text{s}$

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 6) (Per Element)	$R_{\theta JA}$	20	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Case (Per Element)	$R_{\theta JC}$	16	$^\circ\text{C}/\text{W}$
Typical Thermal Resistance, Junction to Lead (Per Element)	$R_{\theta JL}$	18	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

## Electrical Characteristics (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	1,000	—	—	V	$I_R = 5\mu\text{A}$
Forward Voltage (Per Element)	$V_F$	—	0.92	0.95	V	$I_F = 1\text{A}, T_A = +25^\circ\text{C}$
Leakage Current (Note 7) (Per Element)	$I_R$	—	0.11 45	5 100	$\mu\text{A}$	$V_R = 1,000\text{V}, T_A = +25^\circ\text{C}$ $V_R = 1,000\text{V}, T_A = +125^\circ\text{C}$
Total Capacitance (Per Element)	$C_T$	—	13	—	pF	$V_R = 4\text{V}, f = 1.0\text{MHz}$

Notes:

5. Perform static test after the temperature of oven is steady 20 minutes.
6. Device mounted on glass epoxy substrate with 1oz/ft<sup>2</sup>, 30mmx30mm copper pad per pin.
7. Short duration pulse test used to minimize self-heating effect.

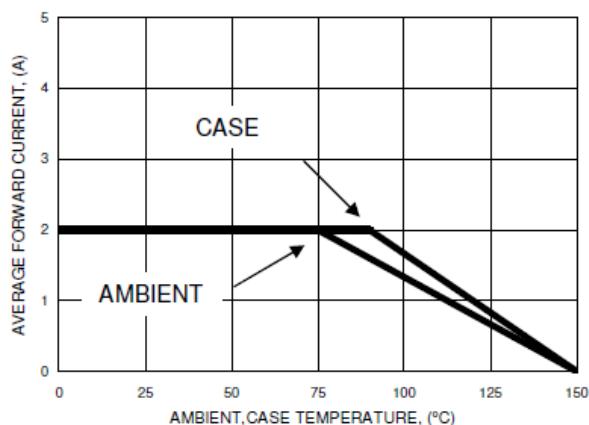


FIG.1- FORWARD CURRENT DERATING CURVE

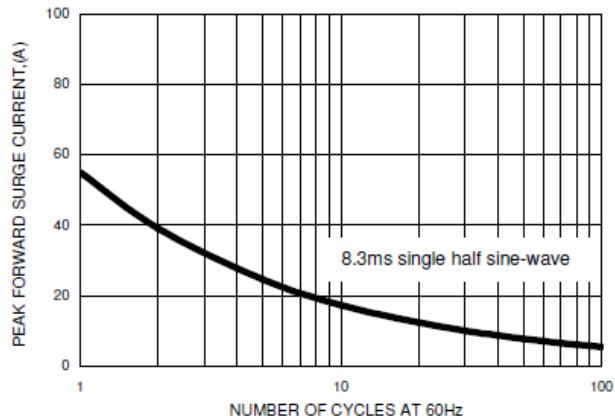


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

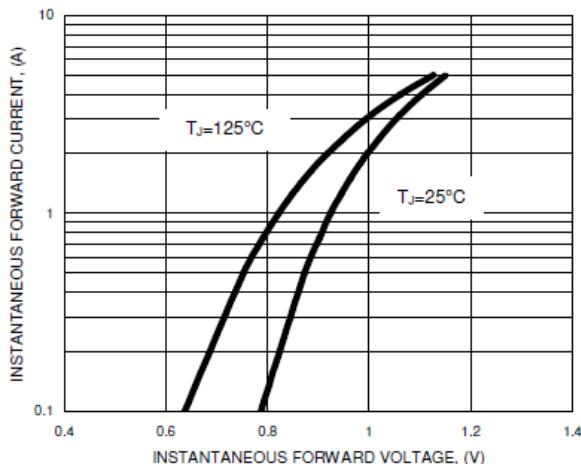


FIG.3- TYPICAL FORWARD CHARACTERISTICS

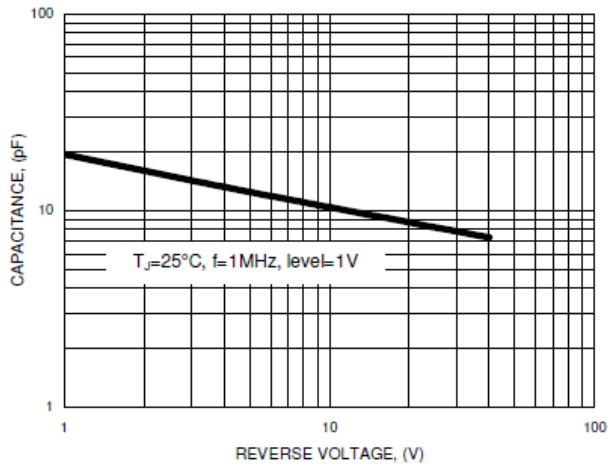


FIG.4- TYPICAL JUNCTION CAPACITANCE

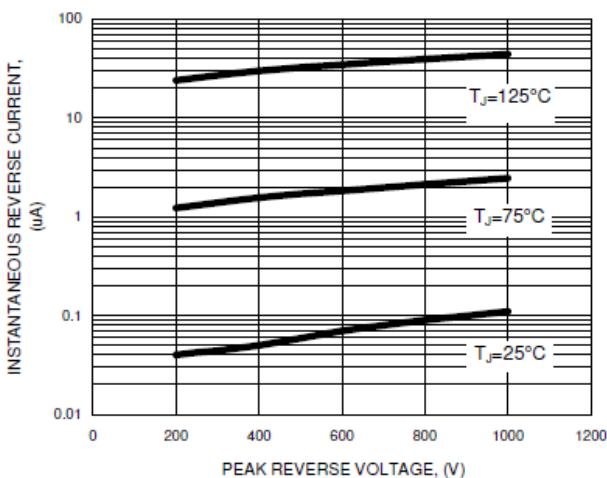
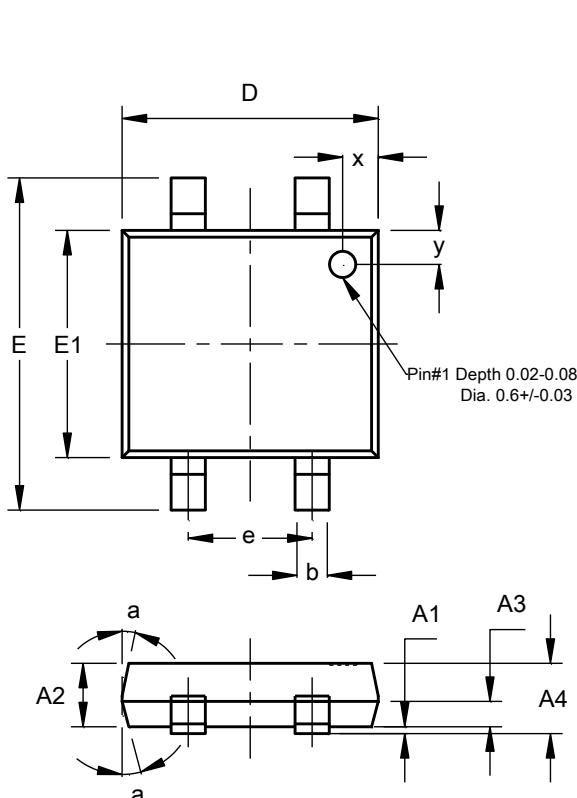


FIG.5- TYPICAL REVERSE CHARACTERISTICS

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



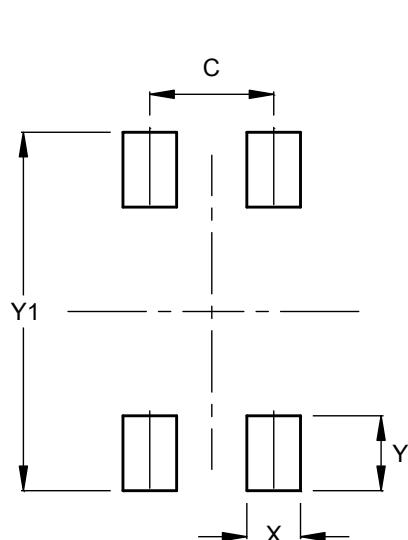
**HDS**

<b>HDS</b>			
Dim	Min	Max	Typ
<b>A1</b>	0.00	0.15	--
<b>A2</b>	1.20	1.30	--
<b>A3</b>	0.43	0.63	--
<b>A4</b>	1.20	1.40	--
<b>b</b>	0.45	0.75	--
<b>c</b>	0.10	0.30	--
<b>D</b>	4.85	5.25	--
<b>E</b>	6.40	6.80	--
<b>E1</b>	4.25	4.65	--
<b>E3</b>	5.20	5.60	
<b>e</b>	--	--	2.54
<b>L</b>	0.40	0.80	--
<b>x</b>	0.45	0.85	--
<b>y</b>	0.45	0.85	--
<b>a</b>	--	--	7°

**All Dimensions in mm**

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



**HDS**

Dimensions	Value (in mm)
<b>C</b>	2.54
<b>X</b>	1.00
<b>Y</b>	1.50
<b>Y1</b>	7.10

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