

**2A SURFACE MOUNT GLASS PASSIVATED BRIDGE RECTIFIER**
**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**

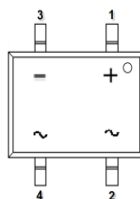
- Glass Passivated Die Construction
- Miniature Package Saves Space on PC Boards
- Low Leakage Current
- Ideal for SMT Manufacturing
- Low Forward Voltage Drop
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

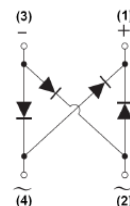
- Case: HDS
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 **(e3)**
- Polarity: As Marked on Body
- Weight: 0.0923 grams (Approximate)



Top View



Pin Diagram

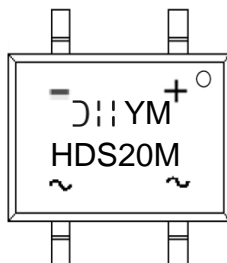


Internal Schematic

**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  
 DII = 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<sub>A</sub> = +25°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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	1000	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	700	V
Average Rectified Output Current (Note 5) @ T <sub>C</sub> = +88°C	I <sub>O</sub>	2.0	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	55	A
Non-Repetitive Peak Forward Surge Current, 1ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	110	A
I <sup>2</sup> t Rating for Fusing (1ms < t < 8.3ms)	I <sup>2</sup> t	8.03	A <sup>2</sup> S

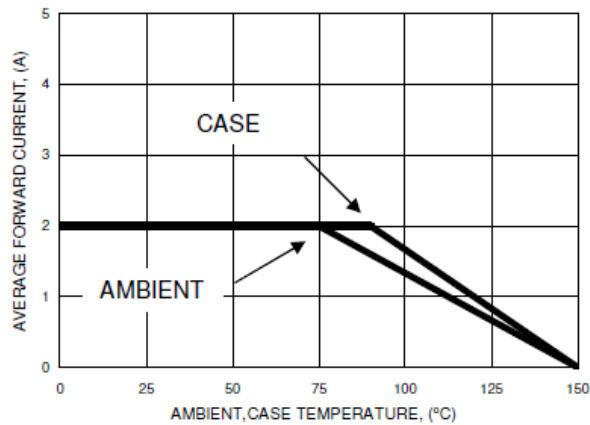
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 6) (Per Element)	R <sub>θJA</sub>	20	°C/W
Typical Thermal Resistance, Junction to Case (Per Element)	R <sub>θJC</sub>	16	°C/W
Typical Thermal Resistance, Junction to Lead (Per Element)	R <sub>θJL</sub>	18	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

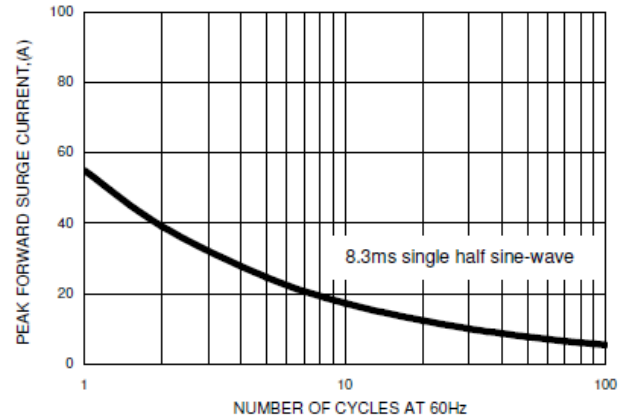
## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	1,000	—	—	V	I <sub>R</sub> = 5μA
Forward Voltage (Per Element)	V <sub>F</sub>	—	0.92	0.95	V	I <sub>F</sub> = 1A, T <sub>A</sub> = +25°C
Leakage Current (Note 7) (Per Element)	I <sub>R</sub>	—	0.11 45	5 100	μA	V <sub>R</sub> = 1,000V, T <sub>A</sub> = +25°C V <sub>R</sub> = 1,000V, T <sub>A</sub> = +125°C
Total Capacitance (Per Element)	C <sub>T</sub>	—	13	—	pF	V <sub>R</sub> = 4V, f = 1.0MHz

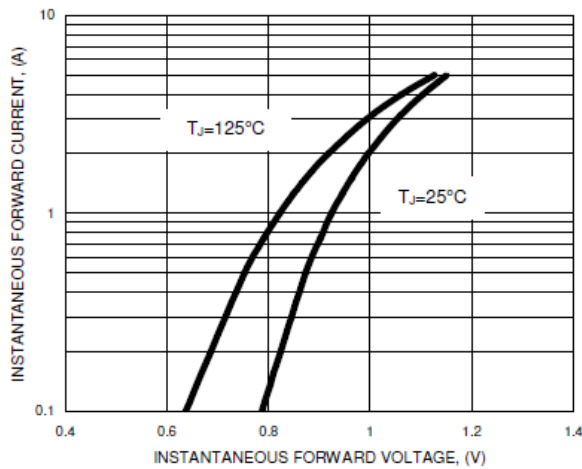
Notes: 5. Perform static test after the temperature of oven is steady 20 minutes.  
6. Device mounted on glass epoxy substrate with 1oz/ft<sup>2</sup>, 30mmx30mm copper pad per pin.  
7. Short duration pulse test used to minimize self-heating effect.



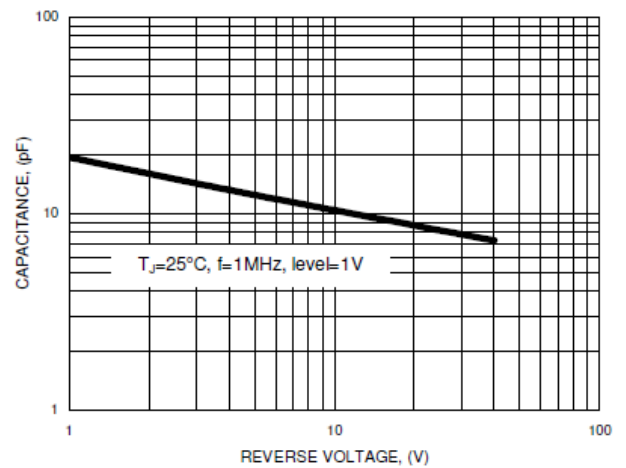
**FIG.1- FORWARD CURRENT DERATING CURVE**



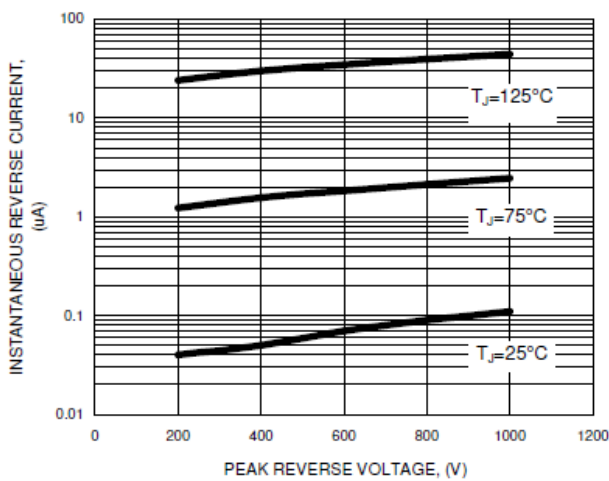
**FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3- TYPICAL FORWARD CHARACTERISTICS**



**FIG.4- TYPICAL JUNCTION CAPACITANCE**

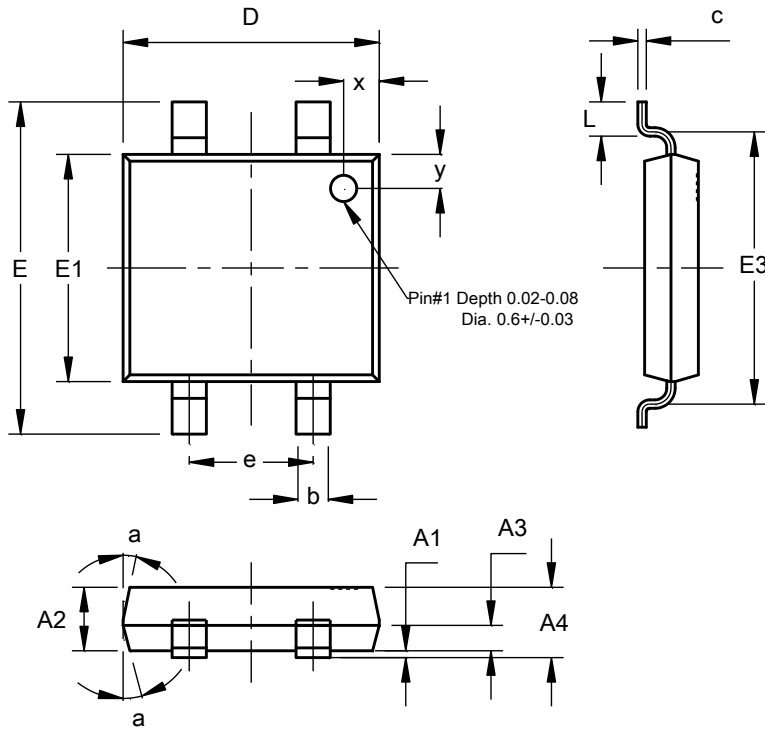


**FIG.5- TYPICAL REVERSE CHARACTERISTICS**

## Package Outline Dimensions

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

**HDS**

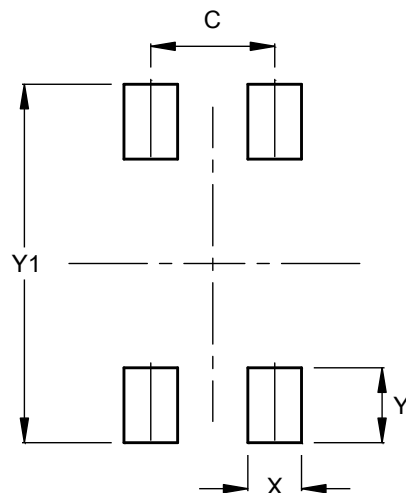


HDS			
Dim	Min	Max	Typ
A1	0.00	0.15	--
A2	1.20	1.30	--
A3	0.43	0.63	--
A4	1.20	1.40	--
b	0.45	0.75	--
c	0.10	0.30	--
D	4.85	5.25	--
E	6.40	6.80	--
E1	4.25	4.65	--
E3	5.20	5.60	--
e	--	--	2.54
L	0.40	0.80	--
x	0.45	0.85	--
y	0.45	0.85	--
a	--	--	7°
All Dimensions in mm			

## Suggested Pad Layout

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

**HDS**



Dimensions	Value (in mm)
C	2.54
X	1.00
Y	1.50
Y1	7.10

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