



HDS10M

#### 1A SURFACE MOUNT GLASS PASSIVATED BRIDGE RECTIFIER

## Product Summary (@TA = +25°C)

V <sub>RRM</sub> (V)	I <sub>0</sub> (A)	V <sub>F</sub> (V)	I <sub>R</sub> (μA)
1000	1	0.95	5

### **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)

## **Description and Applications**

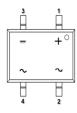
Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

### **Mechanical Data**

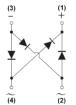
- Case: HDS
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (€3)
- Polarity: As Marked on Body
- Weight: 0.0923 grams (Approximate)



Top View



Pin Diagram



Internal Schematic

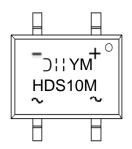
### Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
HDS10M-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.
- See 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**



HDS10M = Product Type Marking Code

O!!= Manufacturers' Code Marking

YM = Date Code Marking

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

M = See Month/Code Table Below

Ī	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Code	1	2	3	4	5	6	7	8	9	0	N	D



# **Maximum Ratings** (@ $T_A = +25^{\circ}C$ , 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> = +95°C	Io	1.0	Α
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	30	Α
Non-Repetitive Peak Forward Surge Current, 1ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	60	А
I <sup>2</sup> t Rating for Fusing (1ms < t < 8.3ms)	l <sup>2</sup> t	2.39	A <sup>2</sup> S

## **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 6) (Per Element)	$R_{\theta JA}$	40	°C/W
Typical Thermal Resistance, Junction to Case (Per Element)	$R_{\theta JC}$	30	°C/W
Typical Thermal Resistance, Junction to Lead (Per Element)	$R_{\theta JL}$	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	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	1,000	_	_	V	$I_R = 5\mu A$
Forward Voltage (Per Element)	V <sub>F</sub>	_	0.92	0.95	V	$I_F = 0.5A, T_A = +25^{\circ}C$
Leakage Current (Note 7) (Per Element)	I <sub>R</sub>		0.08 20	5 100	μA	$V_R = 1,000V, T_A = +25$ °C $V_R = 1,000V, T_A = +125$ °C
Total Capacitance (Per Element)	Ст		8.2	_	pF	$V_R = 4V$ , $f = 1.0MHz$

Notes:

- 5. Device mounted on glass epoxy PC board with 1.3mm² solder pad.
  6. Device mounted on glass epoxy substrate with 1oz/ft², 15mm x15mm copper pad per pin.
  7. Short duration pulse test used to minimize self-heating effect.



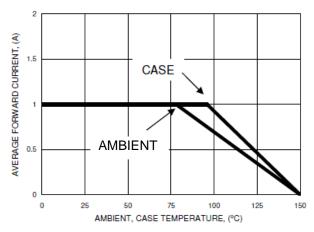


FIG.1- FORWARD CURRENT DERATING CURVE

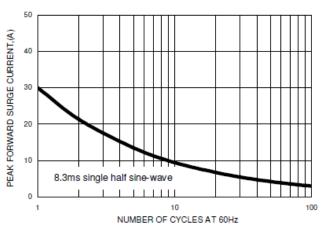


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

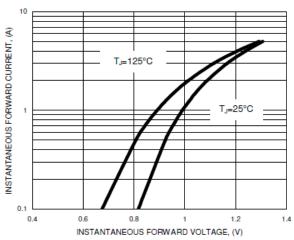


FIG.3- TYPICAL FORWARD CHARACTERISTICS

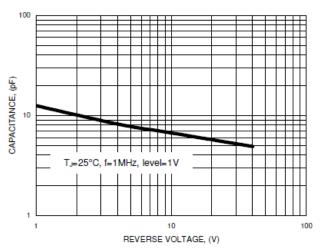


FIG.4- TYPICAL JUNCTION CAPACITANCE

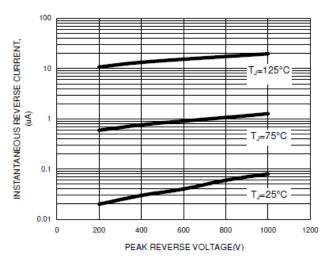


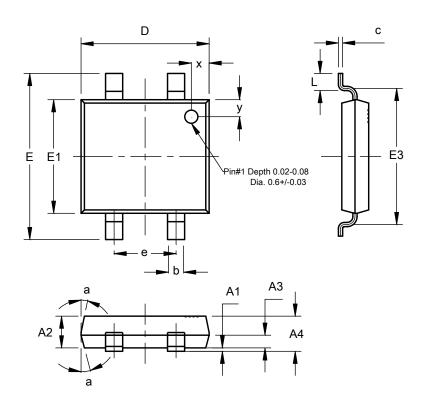
FIG.5- TYPICAL REVERSE CHARACTERISTICS



## **Package Outline Dimensions**

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

HDS

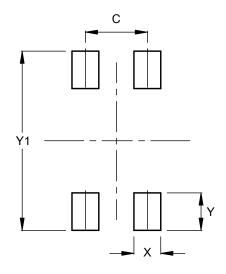


HDS						
Dim	Min	Max	Тур			
A1	0.00	0.15				
A2	1.20	1.30				
A3	0.43	0.63				
A4	1.20	1.40				
b	0.45	0.75				
C	0.10	0.30				
D	4.85	5.25				
Е	6.40	6.80				
E1	4.25	4.65				
E3	5.20	5.60				
е			2.54			
L	0.40	0.80				
X	0.45	0.85				
у	0.45	0.85				
а			7°			
All Dimensions in mm						

# **Suggested Pad Layout**

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

HDS



Dimensions	Value (in mm)
С	2.54
Х	1.00
Y	1.50
Y1	7.10



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