

**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	1.3	1

**Features and Benefits**

- Glass Passivated Die Construction
- Filter Rectifier with EMI Design Friendly
- Miniature Package Saves Space on PC Boards
- High Surge Current Capability
- Negligible Leakage Current
- Ideal for SMT Manufacturing
- Rated at 1000V PRV
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative.**  
<https://www.diodes.com/quality/product-definitions/>

**Description and Applications**

- Low Voltage Full Bridge Rectification
- Wireless Charging

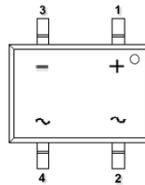
**Mechanical Data**

- Case: SOPA-4
- Case Material: Molded Plastic, "Green" Molding Compound. 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: 0.88 grams (Approximate)

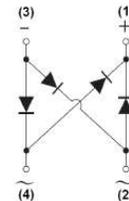
SOPA-4 (Type WX)



Top View



Pin Diagram

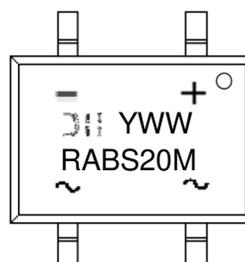


Internal Schematic

**Ordering Information** (Note 4)

Part Number	Compliance	Case	Packaging
RABS20M-13	Commercial	SOPA-4 (Type WX)	3000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See <https://www.diodes.com/quality/lead-free/> 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**


- RABS20M = Product Type Marking Code
- 311 = Manufacturer's Code Marking
- YWW = Date Code Marking
- Y = Last Digit of Year (ex: 1 = 2021)
- WW = Week Code (01 to 53)

**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
Average Rectified Output Current @ T <sub>C</sub> = +120°C	I <sub>O</sub>	2	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	60	A
I <sup>2</sup> t Rating for Fusing (1ms < t < 8.3ms)	I <sup>2</sup> t	14.9	A <sup>2</sup> s

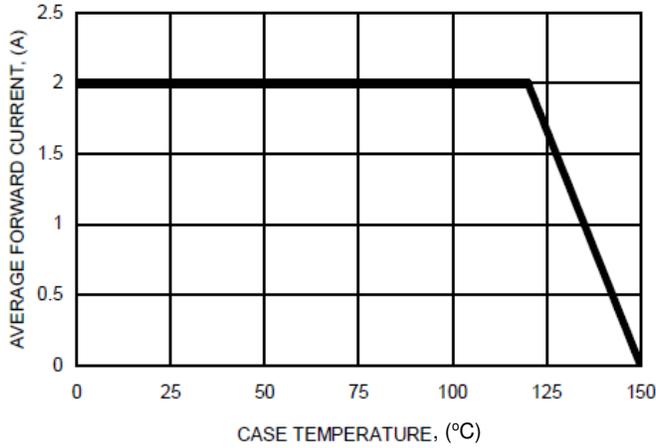
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Lead (Note 5) (Per Element)	R <sub>θJL</sub>	15	°C/W
Typical Thermal Resistance, Junction to Case (Note 5) (Per Element)	R <sub>θJC</sub>	6	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

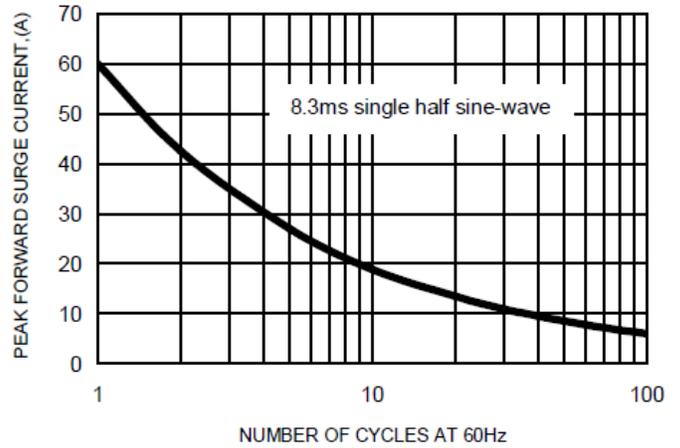
**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	1000	—	—	V	I <sub>R</sub> = 1μA
Forward Voltage (Note 7) (Per Element)	V <sub>F</sub>	—	— 1.0	1.3 —	V	I <sub>F</sub> = 2A, T <sub>A</sub> = +25°C I <sub>F</sub> = 2A, T <sub>A</sub> = +125°C
Leakage Current (Note 6) (Per Element)	I <sub>R</sub>	—	— 51	1 200	μA	V <sub>R</sub> = 1000V, T <sub>A</sub> = +25°C V <sub>R</sub> = 1000V, T <sub>A</sub> = +125°C
Total Capacitance (Per Element)	C <sub>T</sub>	—	27	—	pF	V <sub>R</sub> = 4V, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	—	—	250	ns	I <sub>F</sub> = 0.5A, I <sub>RR</sub> = 0.25A, I <sub>R</sub> = 1.0A

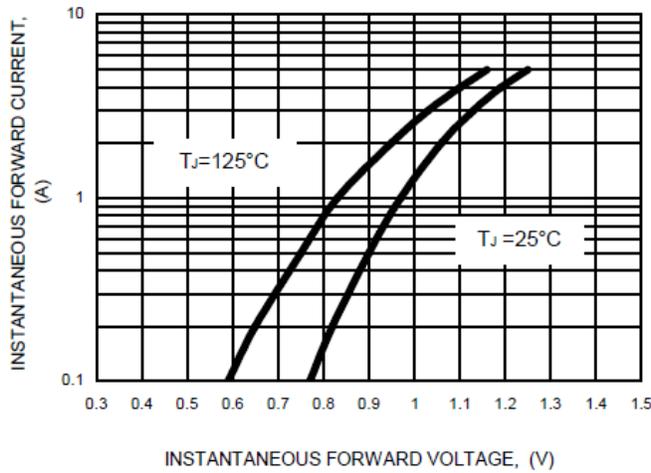
Notes: 5. Thermal Resistance test performed in accordance with JESD-51. The unit mounted on glass-epoxy substrate with 2oz/ft<sup>2</sup> 30mm x 30mm copper pad.  
6. Short duration pulse test used to minimize self-heating effect.  
7. 300μs pulse width, 2% duty cycle.



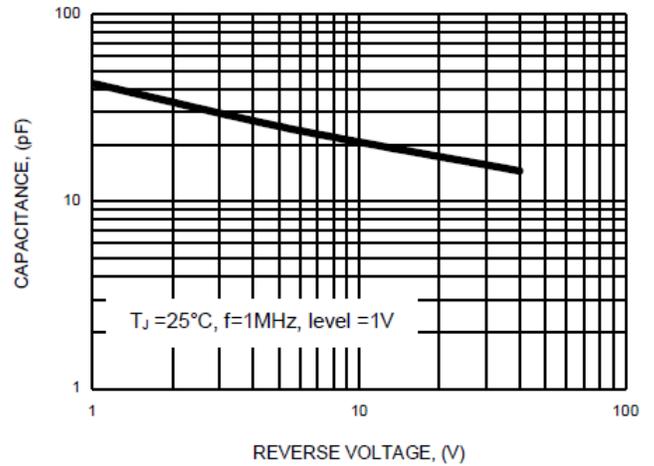
**FIG.1-FORWARD CURRENT DERATING CURVE**



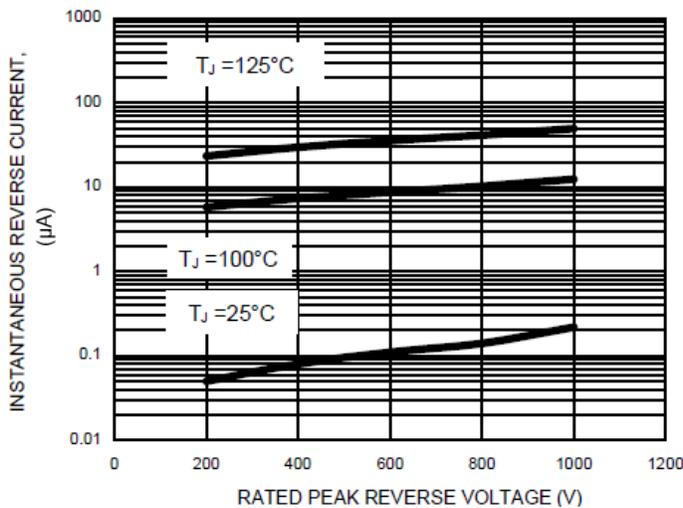
**FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3-TYPICAL FORWARD CHARACTERISTICS**



**FIG.4-TYPICAL JUNCTION CAPACITANCE**

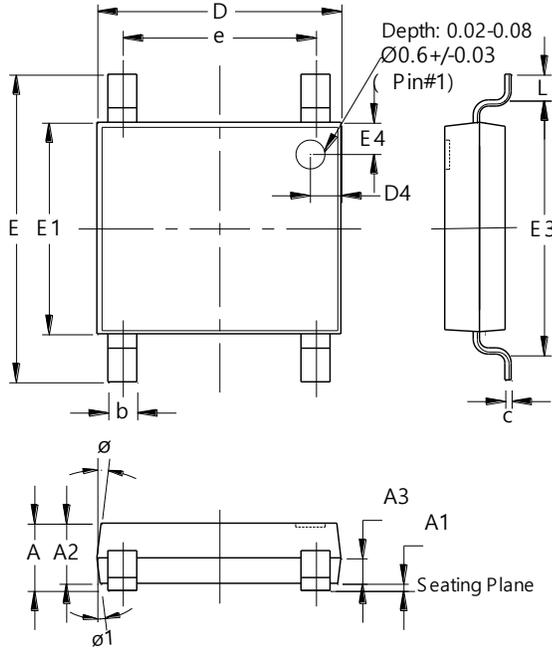


**FIG.5-TYPICAL REVERSE CHARACTERISTICS**

**Package Outline Dimensions**

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

**SOPA-4 (Type WX)**

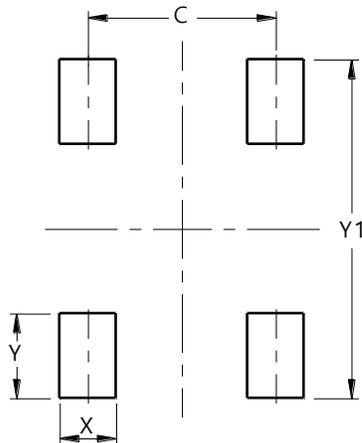


SOPA-4 (Type WX)			
Dim	Min	Max	Typ
A	1.20	1.40	--
A1	0.00	0.15	--
A2	1.20	1.30	--
A3	0.43	0.63	--
b	0.50	0.80	--
c	0.10	0.30	--
D	4.85	5.25	--
D4	0.45	0.85	--
e	3.80	4.20	--
E	6.40	6.80	--
E1	4.25	4.65	--
E3	5.20	5.60	--
E4	0.45	0.85	--
L	0.40	0.80	--
Ø	--	--	7°
Ø1	--	--	7°
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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

**SOPA-4 (Type WX)**



Dimensions	Value (in mm)
C	4.00
X	1.20
Y	1.80
Y1	7.20

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