

**Product Summary** (@ $T_A = +25^\circ\text{C}$ )

$V_{RMM}$ (V)	$I_o$ (A)	$V_F$ (V)	$I_R$ ( $\mu\text{A}$ )
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
- UL Recognized File # E364304
- 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-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>

**Description and Applications**

- Low-voltage full bridge rectification
- Wireless charging

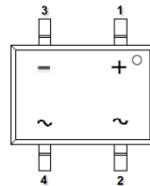
**Mechanical Data**

- Package: SOPA-4
- Package 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 208③
- Polarity: as Marked on Body
- Weight: 0.88 grams (Approximate)

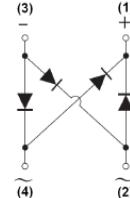
SOPA-4 (Type WX)



Top View



Pin Diagram



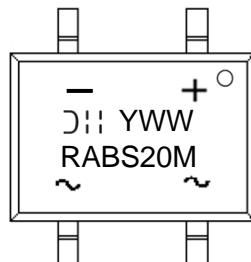
Internal Schematic

**Ordering Information** (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
RABS20M-13	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

DII = Manufacturer's Code Marking

YWW = Date Code Marking

Y = Last Digit of Year (ex: 5 = 2025)

WW = Week Code (01 to 53)

## 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	$V_R$		
Average Rectified Output Current @ $T_C = +120^\circ\text{C}$	$I_O$	2	A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load	$I_{FSM}$	60	A
$I^2t$ Rating for Fusing (1ms < $t$ < 8.3ms)	$I^2t$	14.9	$\text{A}^2\text{s}$

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Lead (Note 5) (Per Element)	$R_{\theta JL}$	15	$^\circ\text{C/W}$
Typical Thermal Resistance, Junction to Case (Note 5) (Per Element)	$R_{\theta JC}$	6	$^\circ\text{C/W}$
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 6)	$V_{(BR)R}$	1000	—	—	V	$I_R = 1\mu\text{A}$
Forward Voltage (Note 7) (Per Element)	$V_F$	—	—	1.3	V	$I_F = 2\text{A}, T_A = +25^\circ\text{C}$ $I_F = 2\text{A}, T_A = +125^\circ\text{C}$
Leakage Current (Note 6) (Per Element)	$I_R$	—	—	1 200	$\mu\text{A}$	$V_R = 1000\text{V}, T_A = +25^\circ\text{C}$ $V_R = 1000\text{V}, T_A = +125^\circ\text{C}$
Total Capacitance (Per Element)	$C_T$	—	27	—	pF	$V_R = 4\text{V}, f = 1.0\text{MHz}$
Reverse-Recovery Time	$t_{RR}$	—	—	250	ns	$I_F = 0.5\text{A}, I_{RR} = 0.25\text{A},$ $I_R = 1.0\text{A}$

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. 300 $\mu\text{s}$  pulse width, 2% duty cycle.

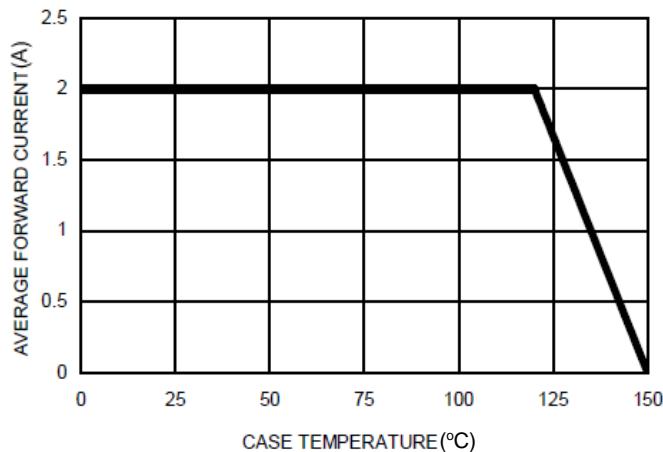


FIG.1-FORWARD CURRENT DERATING CURVE

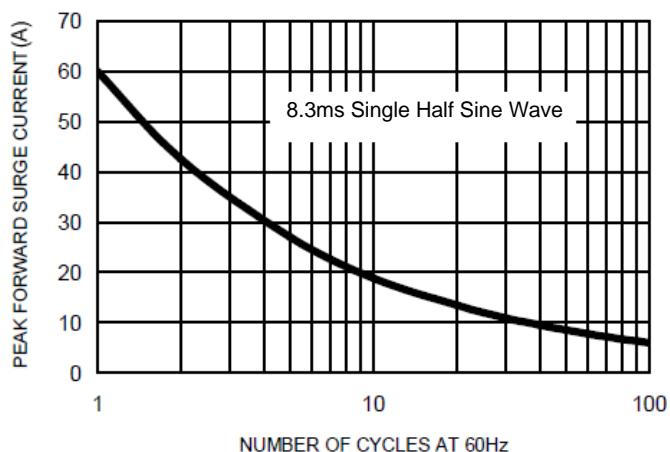


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

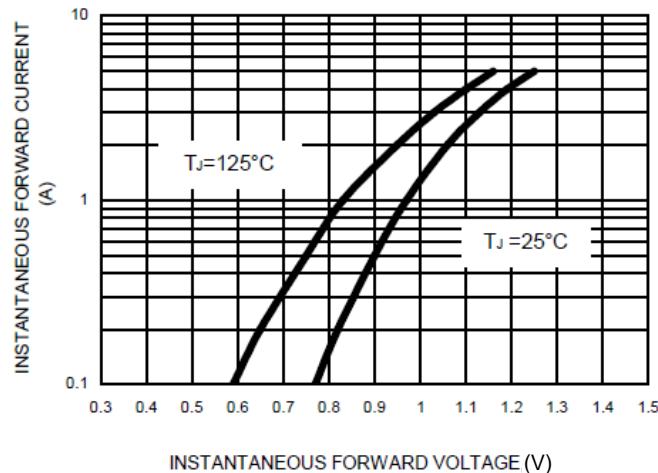


FIG.3-TYPICAL FORWARD CHARACTERISTICS

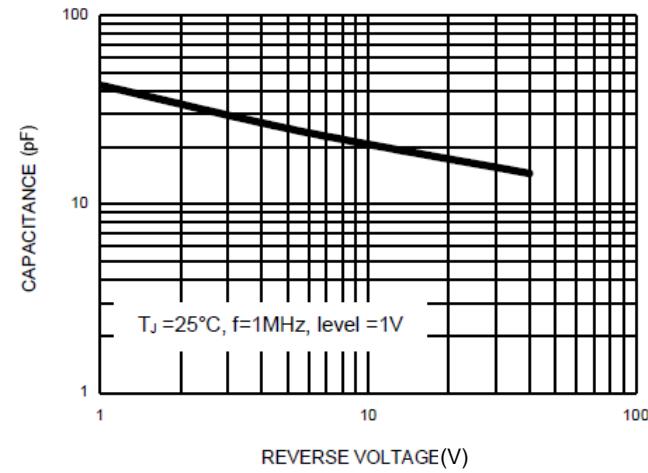


FIG.4-TYPICAL JUNCTION CAPACITANCE

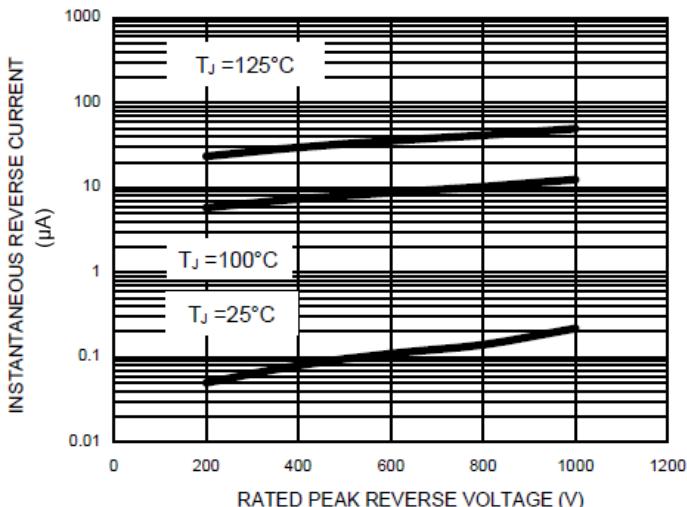
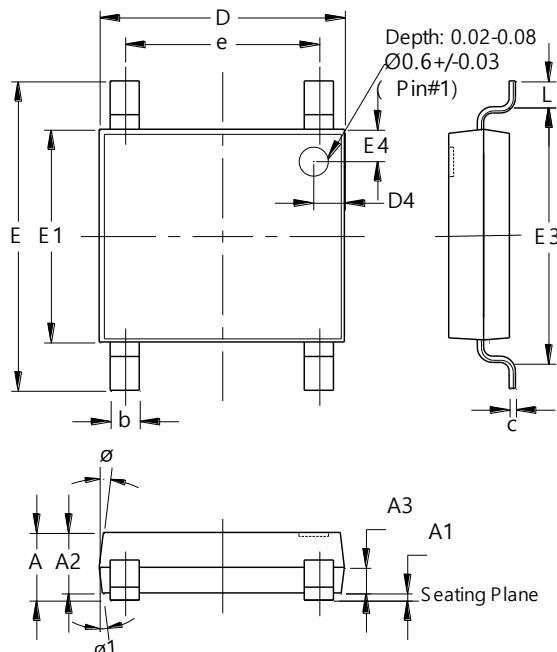


FIG.5-TYPICAL REVERSE CHARACTERISTICS

## Package Outline Dimensions

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

**SOPA-4 (Type WX)**

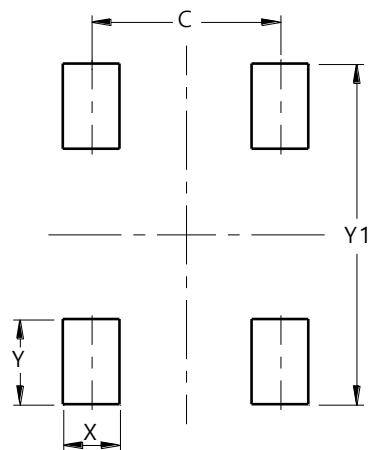


SOPA-4 (Type WX)			
Dim	Min	Max	Typ
A	1.20	1.40	--
A1	0.00	0.15	--
A2	1.20	1.30	--
A3	0.43	0.63	--
b	0.50	0.80	--
c	0.10	0.30	--
D	4.85	5.25	--
D4	0.45	0.85	--
e	3.80	4.20	--
E	6.40	6.80	--
E1	4.25	4.65	--
E3	5.20	5.60	--
E4	0.45	0.85	--
L	0.40	0.80	--
Ø	--	--	7°
Ø1	--	--	7°
All Dimensions in mm			

## 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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