



THE DATASHEET OF RABS20M



Product Summary (@T_A = +25°C)

| V _{RRM} (V) | I _O (A) | V _F (V) | I _R (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

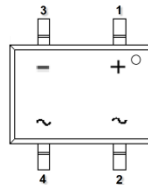
Mechanical Data

- 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)

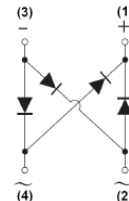
SOPA-4 (Type WX)



Top View



Pin Diagram

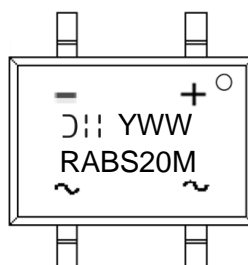


Internal Schematic

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
 D = 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_A = +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 _{RRM} V _{RWM} V _R | 1000 | V |
| Average Rectified Output Current @ T _C = +120°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 ² t Rating for Fusing (1ms < t < 8.3ms) | I ² t | 14.9 | A ² s |

Thermal Characteristics

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

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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

Notes: 5. Thermal Resistance test performed in accordance with JE5D-51. The unit mounted on glass-epoxy substrate with 2oz/ft² 30mm x 30mm copper pad.
6. Short duration pulse test used to minimize self-heating effect.
7. 300μs pulse width, 2% duty cycle.

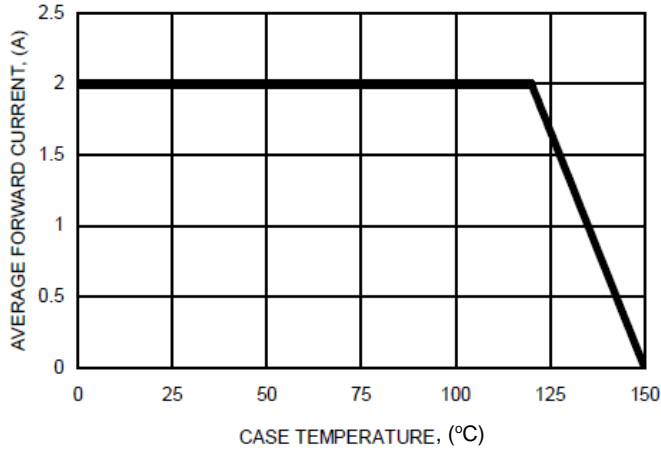


FIG.1-FORWARD CURRENT DERATING CURVE

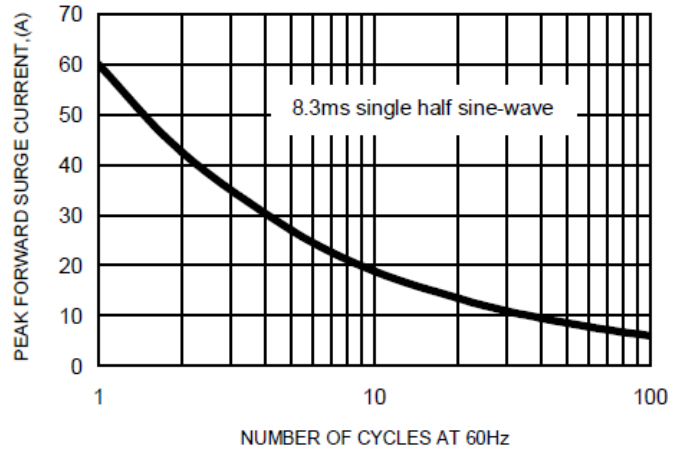


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

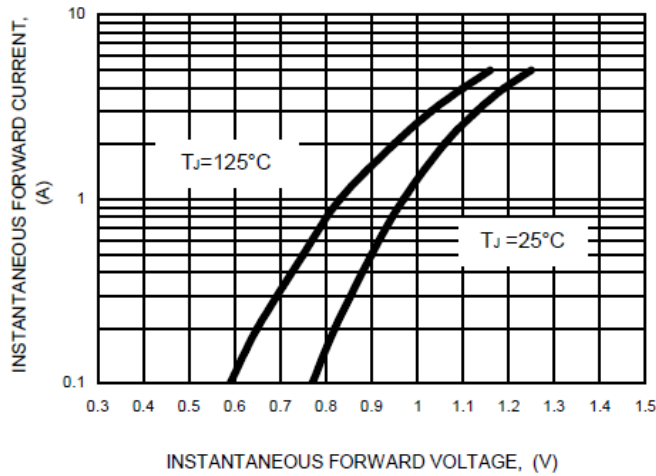


FIG.3-TYPICAL FORWARD CHARACTERISTICS

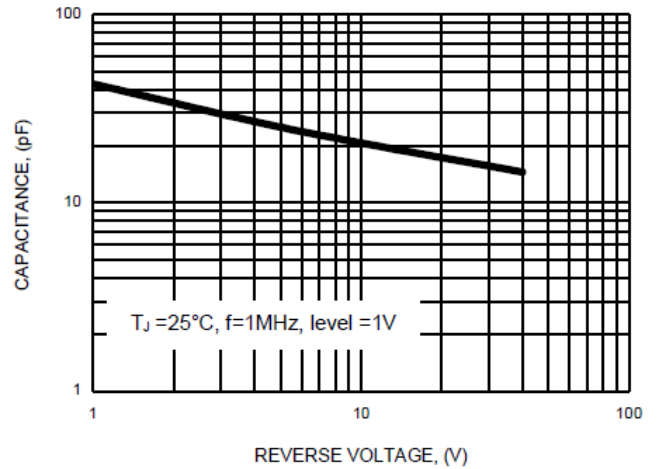


FIG.4-TYPICAL JUNCTION CAPACITANCE

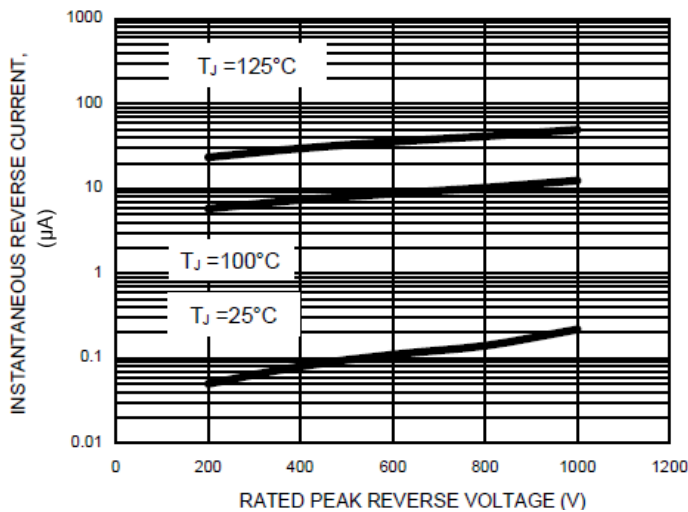
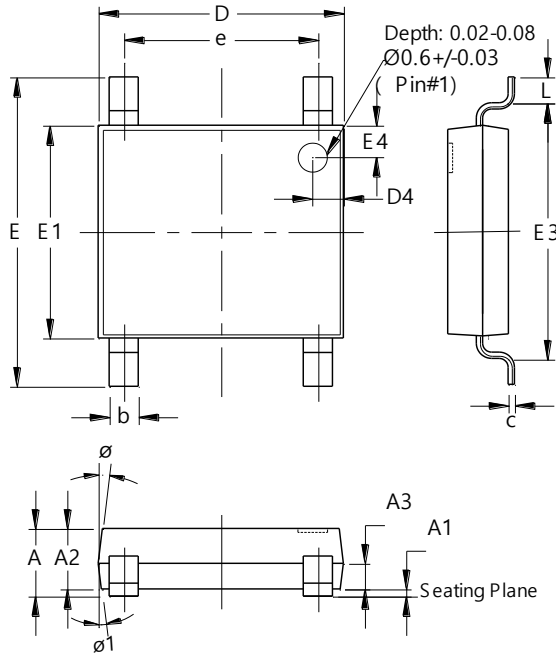


FIG.5-TYPICAL REVERSE CHARACTERISTICS

Package Outline Dimensions

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

SOPA-4 (Type WX)

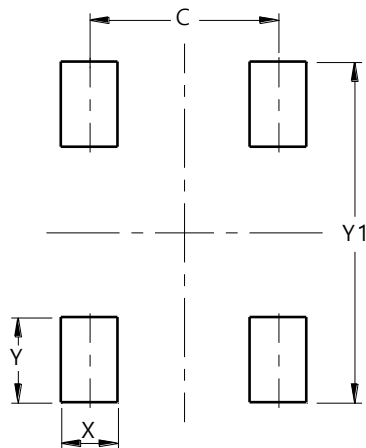


| SOPA-4 (Type WX) | | | |
|-----------------------------|------|------|-----|
| Dim | Min | Max | Typ |
| A | 1.20 | 1.40 | -- |
| A1 | 0.00 | 0.15 | -- |
| A2 | 1.20 | 1.30 | -- |
| A3 | 0.43 | 0.63 | -- |
| b | 0.50 | 0.80 | -- |
| c | 0.10 | 0.30 | -- |
| D | 4.85 | 5.25 | -- |
| D4 | 0.45 | 0.85 | -- |
| 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 | -- |
| 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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