

## Stud-Mounted Silicon Rectifier Diodes, 15 A



DO-203AB (DO-5)

**DESCRIPTION/FEATURES**

- Low thermal impedance
- High case temperature
- Excellent reliability
- Maximum design flexibility
- Can be made to meet stringent military, aerospace and other high reliability requirements
- Compliant to RoHS directive 2002/95/EC


**RoHS  
COMPLIANT**
**PRODUCT SUMMARY**

|             |      |
|-------------|------|
| $I_{F(AV)}$ | 15 A |
|-------------|------|

**MAJOR RATINGS AND CHARACTERISTICS**

| PARAMETER     | TEST CONDITIONS | VALUES             | UNITS             |
|---------------|-----------------|--------------------|-------------------|
| $I_{F(AV)}$   |                 | 15 <sup>(1)</sup>  | A                 |
|               | $T_C$           | 150 <sup>(1)</sup> | °C                |
| $I_{FSM}$     | 50 Hz           | 239                | A                 |
|               | 60 Hz           | 250 <sup>(1)</sup> |                   |
| $I^2t$        | 50 Hz           | 286                | A <sup>2</sup> s  |
|               | 60 Hz           | 260                |                   |
| $I^2\sqrt{t}$ |                 | 3870               | A <sup>2</sup> √s |
| $V_{RRM}$     | Range           | 50 to 600          | V                 |
| $T_J$         |                 | - 65 to 175        | °C                |

**Note**
<sup>(1)</sup> JEDEC registered values

**ELECTRICAL SPECIFICATIONS**
**VOLTAGE RATINGS**

| TYPE NUMBER | $V_{RRM}$ , MAXIMUM REPETITIVE PEAK<br>REVERSE VOLTAGE<br>( $T_J = - 65\text{ °C}$ TO $175\text{ °C}$ )<br>V | $V_{RM}$ , MAXIMUM DIRECT<br>REVERSE VOLTAGE<br>( $T_J = - 65\text{ °C}$ TO $175\text{ °C}$ )<br>V |
|-------------|--|--|
| 1N3208      | 50 <sup>(1)</sup>  | 50 <sup>(1)</sup>  |
| 1N3209      | 100 <sup>(1)</sup>   | 100 <sup>(1)</sup>   |
| 1N3210      | 200 <sup>(1)</sup>   | 200 <sup>(1)</sup>   |
| 1N3211      | 300 <sup>(1)</sup>   | 300 <sup>(1)</sup>   |
| 1N3212      | 400 <sup>(1)</sup>   | 400 <sup>(1)</sup>   |
| 1N3213      | 500 <sup>(1)</sup>   | 500 <sup>(1)</sup>   |
| 1N3214      | 600 <sup>(1)</sup>   | 600 <sup>(1)</sup>   |

**Notes**
<sup>(1)</sup> JEDEC registered values

- Basic type number indicates cathode to case. For anode to case, add "R" to part number, e.g. 1N3208R, 1N3209R

| FORWARD CONDUCTION                                  |                              |  |   |                    |                   |
|---|------------------------------|--|---|--------------------|-------------------|
| PARAMETER   | SYMBOL                       | TEST CONDITIONS  |   | VALUES             | UNITS             |
| Maximum average forward current at case temperature | $I_{F(AV)}$                  | 180° sinusoidal conduction                                     |   | 15 <sup>(1)</sup>  | A                 |
|   |                              |  |   | 150 <sup>(1)</sup> | °C                |
| Maximum peak one cycle non-repetitive surge current | $I_{FSM}$                    | Half cycle 50 Hz sine wave or 6 ms rectangular pulse           | Following any rated load condition and with rated $V_{RRM}$ applied               | 239                | A                 |
|   |                              | Half cycle 60 Hz sine wave or 5 ms rectangular pulse           |   | 250 <sup>(1)</sup> |                   |
|   |                              | Half cycle 50 Hz sine wave or 6 ms rectangular pulse           | Following any rated load condition and with $V_{RRM}$ applied following surge = 0 | 284                |                   |
|   |                              | Half cycle 60 Hz sine wave or 5 ms rectangular pulse           |   | 297                |                   |
| Maximum $I^2t$ for fusing                           | $I^2t$                       | t = 10 ms  | With rated $V_{RRM}$ applied following surge, initial $T_J = 150\text{ °C}$       | 286                | A <sup>2</sup> s  |
|   |                              | t = 8.3 ms   |   | 260                |                   |
| Maximum $I^2t$ for individual device fusing         |                              | t = 10 ms  | With $V_{RRM} = 0$ following surge, initial $T_J = 150\text{ °C}$                 | 403                |                   |
|   |                              | t = 8.3 ms   |   | 368                |                   |
| Maximum $I^2\sqrt{t}$ for individual device fusing  | $I^2\sqrt{t}$ <sup>(2)</sup> | t = 0.1 ms to 10 ms, $V_{RRM} = 0$ following surge             |   | 3870               | A <sup>2</sup> √s |
| Maximum forward voltage drop                        | $V_{FM}$                     | $I_{F(AV)} = 15\text{ A}$ (47.1 A peak), $T_C = 150\text{ °C}$ |   | 1.5 <sup>(1)</sup> | V                 |
| Maximum average reverse current                     | $I_{R(AV)}$                  | Maximum rated $I_{F(AV)}$ and $T_C = 150\text{ °C}$            |   | 10 <sup>(1)</sup>  | mA                |

### Notes

<sup>(1)</sup> JEDEC registered values

<sup>(2)</sup>  $I^2t$  for time  $t_x = I^2\sqrt{t} \times \sqrt{t_x}$

| THERMAL AND MECHANICAL SPECIFICATIONS                    |                |   |  |                            |       |
|--|----------------|---|--|----------------------------|-------|
| PARAMETER  | SYMBOL         | TEST CONDITIONS   |  | VALUES                     | UNITS |
| Maximum junction operating and storage temperature range | $T_J, T_{Stg}$ |   |  | - 65 to 175 <sup>(1)</sup> | °C    |
| Maximum internal thermal resistance, junction to case    | $R_{thJC}$     | DC operation  |  | 0.65                       | °C/W  |
| Thermal resistance, case to sink                         | $R_{thCS}$     | Mounting surface, smooth, flat and greased                  |  | 0.25                       |       |
| Maximum allowable mounting torque (+ 0 %, - 10 %)        |                | Not lubricated thread, tightening on nut <sup>(2)</sup>     |  | 3.4 (30)                   |       |
|  |                | Lubricated thread, tightening on nut <sup>(2)</sup>         |  | 2.3 (20)                   |       |
|  |                | Not lubricated thread, tightening on hexagon <sup>(3)</sup> |  | 4.2 (37)                   |       |
|  |                | Lubricated thread, tightening on hexagon <sup>(3)</sup>     |  | 3.2 (28)                   |       |
| Weight   |                |   |  | 28.5                       | g     |
|  |                |   |  | 1                          | oz.   |
| Case style   |                | JEDEC   |  | DO-203AB (DO-5)            |       |

### Notes

<sup>(1)</sup> JEDEC registered values

<sup>(2)</sup> Recommended for pass-through holes

<sup>(3)</sup> Recommended for holed threaded heatsinks

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## Vishay High Power Products



Fig. 1 - Average Forward Current vs. Maximum Allowable Case Temperature



Fig. 3 - Maximum Low Level Forward Power Loss vs. Average Forward Current



Fig. 2 - Maximum Non-Repetitive Surge Current vs. Number of Current Pulses

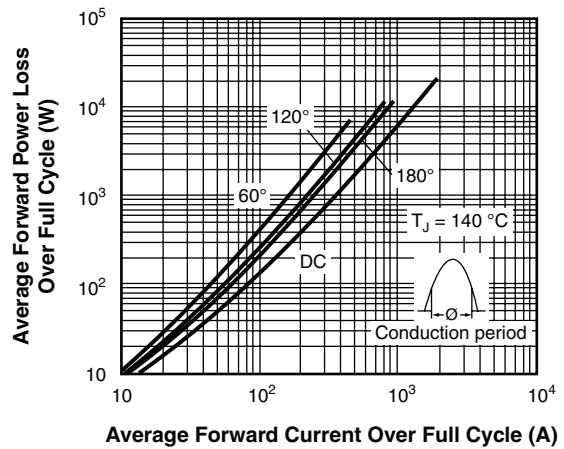


Fig. 4 - Maximum High Level Forward Power Loss vs. Average Forward Current



Fig. 5 - Maximum Forward Voltage vs. Forward Current

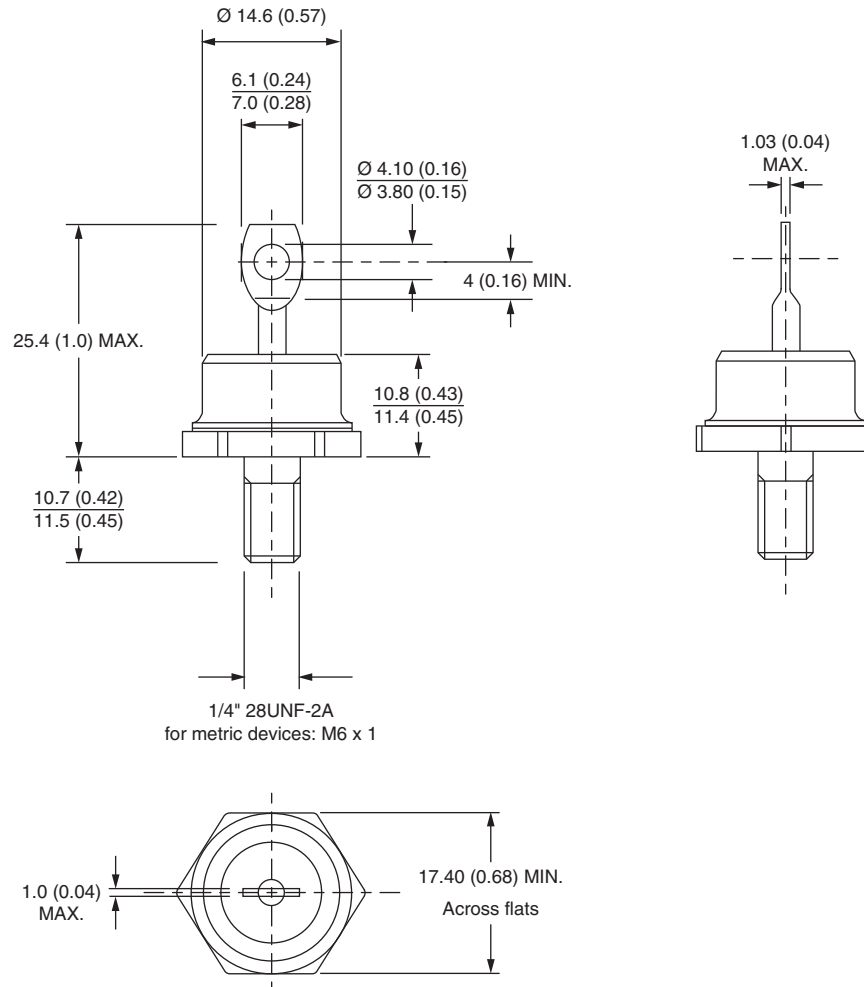
### LINKS TO RELATED DOCUMENTS

Dimensions

[www.vishay.com/doc?95360](http://www.vishay.com/doc?95360)

## DO-203AB (DO-5) for 1N1183, 1N3765, 1N1183A, 1N2128A, 1N3208 Series

**DIMENSIONS** in millimeters (inches)





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