

## 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
- 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>V | $V_{RM}$ , MAXIMUM DIRECT<br>REVERSE VOLTAGE<br>V |
|-----------------|---------------|---|---|
| CATHODE TO CASE | ANODE TO CASE | $T_J = - 65\text{ °C TO }175\text{ °C}$                     | $T_J = - 65\text{ °C TO }175\text{ °C}$           |
| 1N3208          | 1N3208R       | 50 <sup>(1)</sup>   | 50 <sup>(1)</sup>                                 |
| 1N3209          | 1N3209R       | 100 <sup>(1)</sup>  | 100 <sup>(1)</sup>                                |
| 1N3210          | 1N3210R       | 200 <sup>(1)</sup>  | 200 <sup>(1)</sup>                                |
| 1N3211          | 1N3211R       | 300 <sup>(1)</sup>  | 300 <sup>(1)</sup>                                |
| 1N3212          | 1N3212R       | 400 <sup>(1)</sup>  | 400 <sup>(1)</sup>                                |
| 1N3213          | 1N3213R       | 500 <sup>(1)</sup>  | 500 <sup>(1)</sup>                                |
| 1N3214          | 1N3214R       | 600 <sup>(1)</sup>  | 600 <sup>(1)</sup>                                |

**Note**

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

| 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 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                       |                     |
| Mounting torque  | minimum        | Non-lubricated threads                     |      | 2.3 (20)                   | N · m<br>(lbf · in) |
|  | maximum        |  |      | 3.5 (30)                   |                     |
| Weight   |                |  | 28.5 |                            | g                   |
|  |                |  | 1    |                            | oz.                 |
| Case style   |                | JEDEC                                      |      | DO-203AB (DO-5)            |                     |

### Note

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

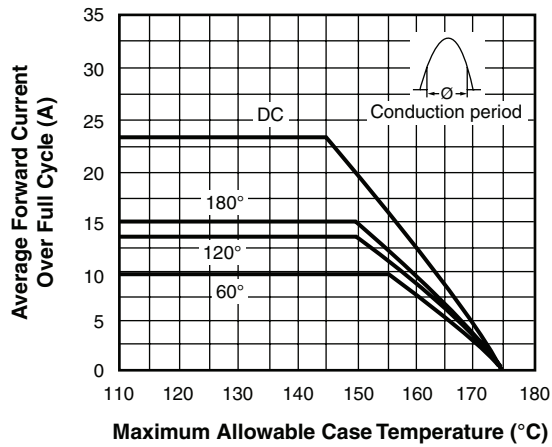


Fig. 1 - Average Forward Current vs. Maximum Allowable Case Temperature

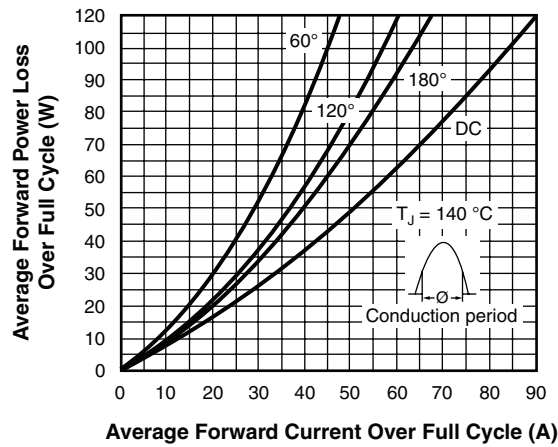


Fig. 3 - Maximum Low Level Forward Power Loss vs. Average Forward Current

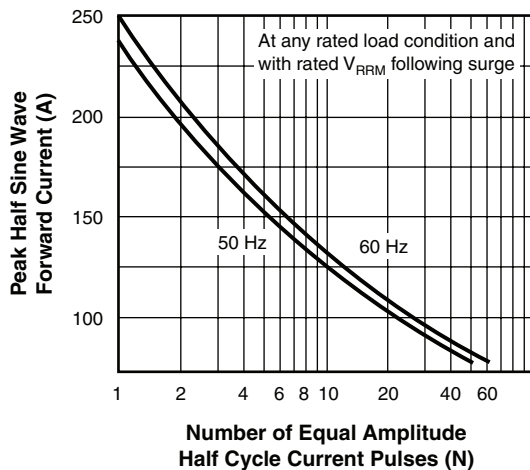


Fig. 2 - Maximum Non-Repetitive Surge Current vs. Number of Current Pulses

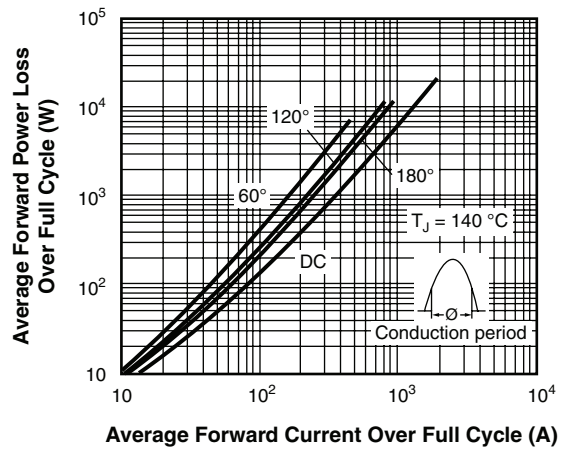


Fig. 4 - Maximum High Level Forward Power Loss vs. Average Forward Current

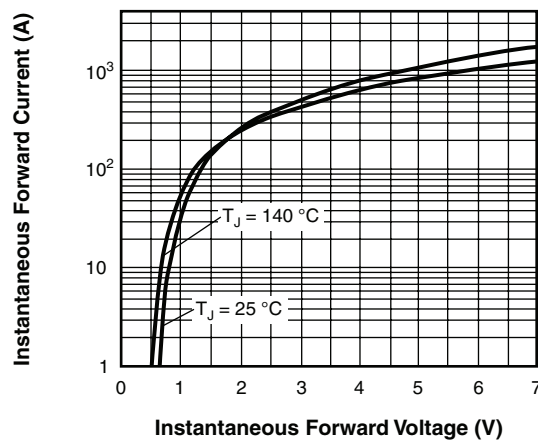


Fig. 5 - Maximum Forward Voltage vs. Forward Current

### LINKS TO RELATED DOCUMENTS

Dimensions

<http://www.vishay.com/doc?95360>



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