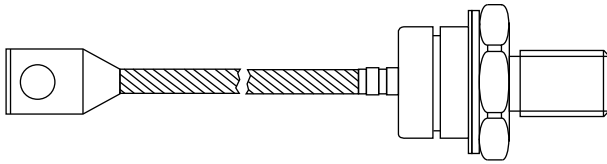


## Standard Recovery Diodes (Stud Version), 200 A


**DO-205AC (DO-30)**
**FEATURES**

- Wide current range
- High voltage ratings up to 2400 V
- High surge current capabilities
- Stud cathode and stud anode version
- Standard JEDEC® types
- Compression bonded encapsulations
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


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

|                       |                  |
|-----------------------|------------------|
| $I_{F(AV)}$           | 200 A            |
| Package               | DO-205AC (DO-30) |
| Circuit configuration | Single diode     |

**TYPICAL APPLICATIONS**

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

**MAJOR RATINGS AND CHARACTERISTICS**

| PARAMETER    | TEST CONDITIONS | VS-SD200N/R  |      | UNITS             |
|--------------|-----------------|--------------|------|-------------------|
|              |                 | 1600 to 2000 | 2400 |                   |
| $I_{F(AV)}$  |                 | 200          |      | A                 |
|              | $T_C$           | 110          |      | °C                |
| $I_{F(RMS)}$ |                 | 314          |      | A                 |
| $I_{FSM}$    | 50 Hz           | 4700         |      |                   |
|              | 60 Hz           | 4920         |      |                   |
| $I^2t$       | 50 Hz           | 110          |      | kA <sup>2</sup> s |
|              | 60 Hz           | 101          |      |                   |
| $V_{RRM}$    | Range           | 1600 to 2000 | 2400 | V                 |
| $T_J$        |                 | -40 to 180   | 150  | °C                |

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

| TYPE NUMBER | VOLTAGE CODE | $V_{RRM}$ : MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE<br>V | $V_{RSM}$ : MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE<br>V | $I_{RRM}$ MAXIMUM AT $T_J = T_J$ MAXIMUM<br>mA |
|-------------|--------------|--|--|--|
| VS-SD200N/R | 16           | 1600   | 1700   | 15   |
|             | 20           | 2000   | 2100   |  |
|             | 24           | 2400   | 2500   |  |



| FORWARD CONDUCTION  |                     |  |                                  |        |                    |
|---|---------------------|--|----------------------------------|--------|--------------------|
| PARAMETER   | SYMBOL              | TEST CONDITIONS  |                                  | VALUES | UNITS              |
| Maximum average forward current at case temperature           | I <sub>F(AV)</sub>  | 180° conduction, half sine wave  |                                  | 200    | A                  |
|   |                     |  |                                  | 110    | °C                 |
| Maximum average forward current at case temperature           |                     |  |                                  | 220    | A                  |
|   |                     |  |                                  | 100    | °C                 |
| Maximum RMS forward current                                   | I <sub>F(RMS)</sub> | DC at 95 °C case temperature   |                                  | 314    | A                  |
| Maximum peak, one-cycle forward, non-repetitive surge current | I <sub>FSM</sub>    | t = 10 ms  | No voltage reapplied             | 4700   |                    |
|   |                     | t = 8.3 ms   | No voltage reapplied             | 4920   |                    |
|   |                     | t = 10 ms  | 100 % V <sub>RRM</sub> reapplied | 3950   |                    |
|   |                     | t = 8.3 ms   | 100 % V <sub>RRM</sub> reapplied | 4140   |                    |
| Maximum I <sup>2</sup> t for fusing                           | I <sup>2</sup> t    | t = 10 ms  | No voltage reapplied             | 110    | kA <sup>2</sup> s  |
|   |                     | t = 8.3 ms   | No voltage reapplied             | 101    |                    |
|   |                     | t = 10 ms  | 100 % V <sub>RRM</sub> reapplied | 78     |                    |
|   |                     | t = 8.3 ms   | 100 % V <sub>RRM</sub> reapplied | 71     |                    |
| Maximum I <sup>2</sup> √t for fusing                          | I <sup>2</sup> √t   | t = 0.1 to 10 ms, no voltage reapplied   |                                  | 1100   | kA <sup>2</sup> √s |
| Low level value of threshold voltage                          | V <sub>F(TO)1</sub> | (16.7 % × π × I <sub>F(AV)</sub> < I < π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> maximum |                                  | 0.90   | V                  |
| High level value of threshold voltage                         | V <sub>F(TO)2</sub> | (I > π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> maximum                                   |                                  | 1.00   |                    |
| Low level value of forward slope resistance                   | r <sub>f1</sub>     | (16.7 % × π × I <sub>F(AV)</sub> < I < π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> maximum |                                  | 0.79   | mΩ                 |
| High level value of forward slope resistance                  | r <sub>f2</sub>     | (I > π × I <sub>F(AV)</sub> ), T <sub>J</sub> = T <sub>J</sub> maximum                                   |                                  | 0.64   |                    |
| Maximum forward voltage drop                                  | V <sub>FM</sub>     | I <sub>pk</sub> = 630 A, T <sub>J</sub> = T <sub>J</sub> maximum, t <sub>p</sub> = 10 ms sinusoidal wave |                                  | 1.40   | V                  |

| THERMAL AND MECHANICAL SPECIFICATIONS        |                   |   |                  |            |       |
|--|-------------------|---|------------------|------------|-------|
| PARAMETER                                    | SYMBOL            | TEST CONDITIONS                               | SD200N/R         |            | UNITS |
|  |                   |   | 1600 to 2000     | 2400       |       |
| Maximum junction operating temperature range | T <sub>J</sub>    |   | -40 to 180       | -40 to 150 | °C    |
| Maximum storage temperature range            | T <sub>Stg</sub>  |   | - 55 to 200      |            |       |
| Maximum thermal resistance, junction to case | R <sub>thJC</sub> | DC operation                                  | 0.23             |            | K/W   |
| Maximum thermal resistance, case to heatsink | R <sub>thCS</sub> | Mounting surface, smooth, flat and greased    | 0.08             |            |       |
| Maximum allowed mounting torque ± 10 %       |                   | Not-lubricated threads                        | 14               |            | Nm    |
| Approximate weight                           |                   |   | 120              |            | g     |
| Case style                                   |                   | See dimensions (link at the end of datasheet) | DO-205AC (DO-30) |            |       |



| $\Delta R_{thJC}$ CONDUCTION |                       |                        |   |       |
|------------------------------|-----------------------|------------------------|---|-------|
| CONDUCTION ANGLE             | SINUSOIDAL CONDUCTION | RECTANGULAR CONDUCTION | TEST CONDITIONS                         | UNITS |
| 180°                         | 0.041                 | 0.030                  | T <sub>J</sub> = T <sub>J</sub> maximum | K/W   |
| 120°                         | 0.049                 | 0.051                  |   |       |
| 90°                          | 0.063                 | 0.068                  |   |       |
| 60°                          | 0.093                 | 0.096                  |   |       |
| 30°                          | 0.156                 | 0.157                  |   |       |

**Note**

- The table above shows the increment of thermal resistance R<sub>thJC</sub> when devices operate at different conduction angles than DC

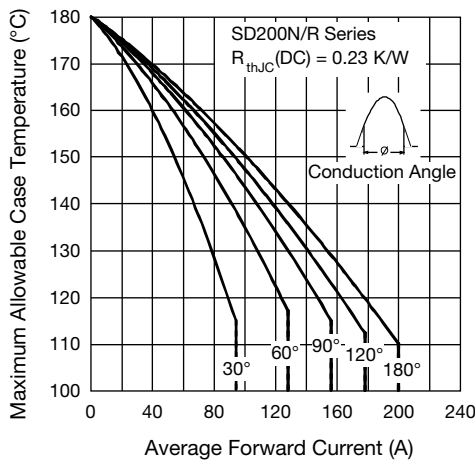


Fig. 1 - Current Ratings Characteristics

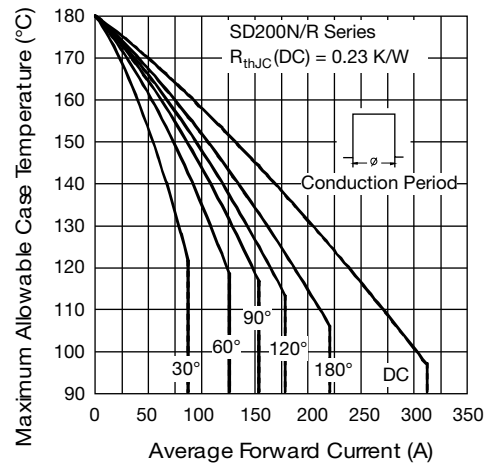


Fig. 2 - Current Ratings Characteristics

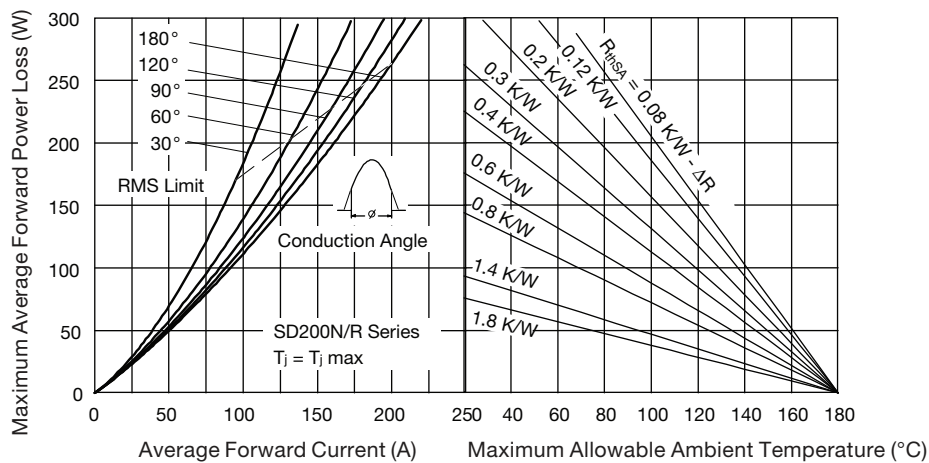


Fig. 3 - Forward Power Loss Characteristics

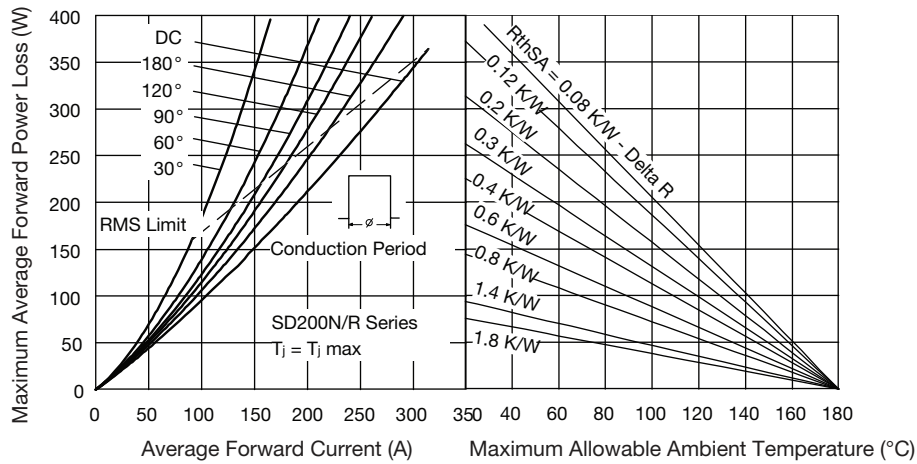


Fig. 4 - Forward Power Loss Characteristics

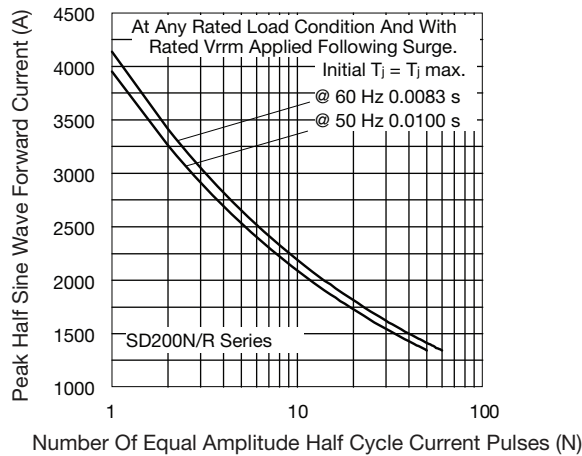


Fig. 5 - Maximum Non-Repetitive Surge Current

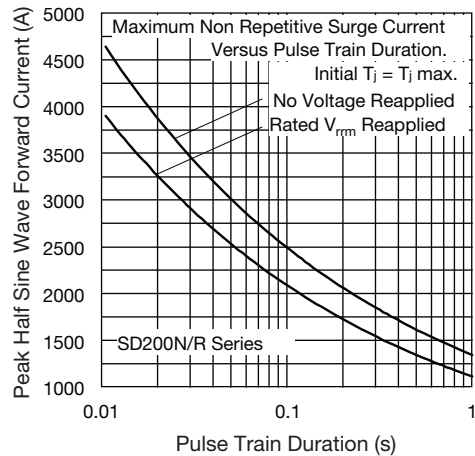


Fig. 6 - Maximum Non-Repetitive Surge Current

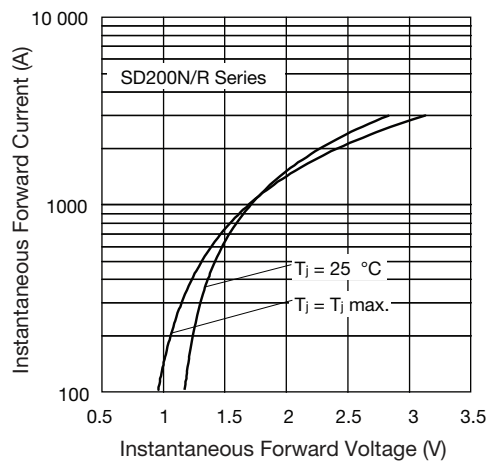


Fig. 7 - Forward Voltage Drop Characteristics

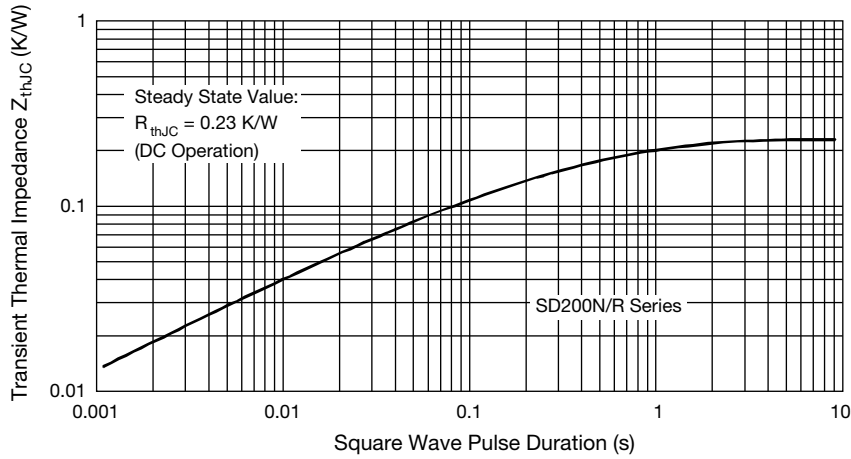


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic

**ORDERING INFORMATION TABLE**

|             |            |           |           |          |          |           |          |          |
|-------------|------------|-----------|-----------|----------|----------|-----------|----------|----------|
| Device code | <b>VS-</b> | <b>SD</b> | <b>20</b> | <b>0</b> | <b>N</b> | <b>24</b> | <b>P</b> | <b>C</b> |
|             | ①          | ②         | ③         | ④        | ⑤        | ⑥         | ⑦        | ⑧        |

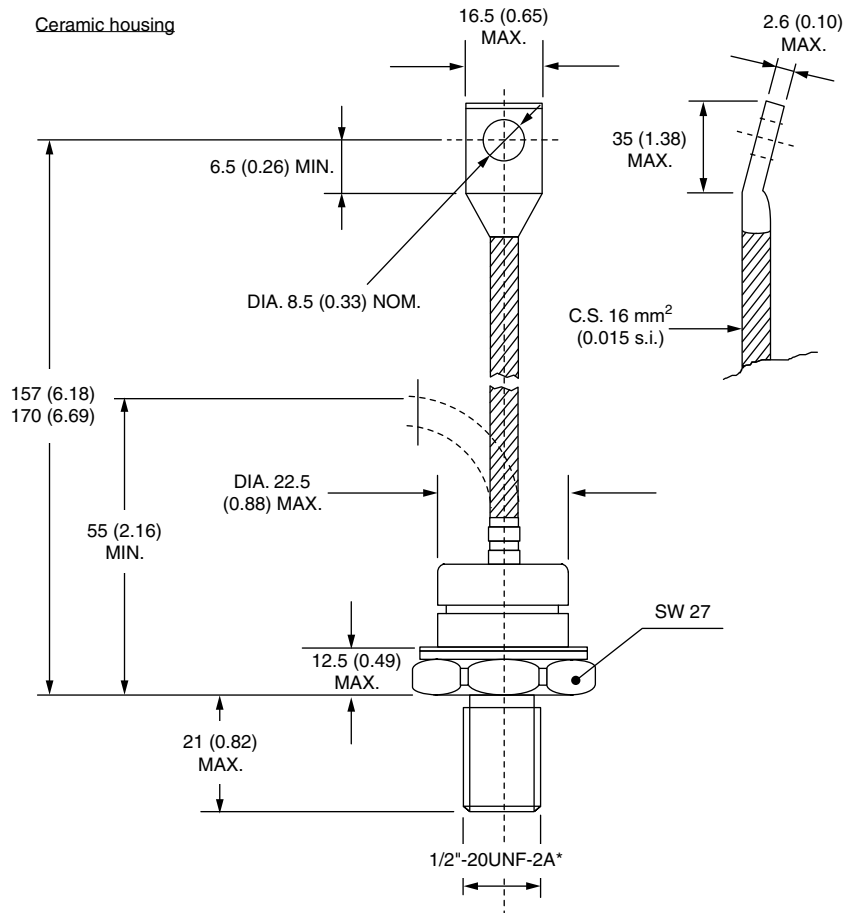
- 1** - Vishay Semiconductors product
- 2** - Diode
- 3** - Essential part number
- 4** - 0 = Standard recovery
- 5** -
  - N = Stud normal polarity (cathode to stud)
  - R = Stud reverse polarity (anode to stud)
- 6** - Voltage code x 100 =  $V_{RRM}$  (see Voltage Ratings table)
- 7** -
  - P = Stud base DO-205AC (DO-30) 1/2" 20UNF-2A
  - M = Stud base DO-205AC (DO-30) M12 x 1.75
- 8** - C = Ceramic housing

For metric device M12 x 1.75 contact factory

| LINKS TO RELATED DOCUMENTS |  |
|----------------------------|--|
| Dimensions                 | <a href="http://www.vishay.com/doc?95302">www.vishay.com/doc?95302</a> |

## DO-205AC (DO-30)

**DIMENSIONS** in millimeters (inches)



\*For metric device: M12 x 1.75 contact factory



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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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