



Standard Recovery Diodes (Hockey PUK Version), 800 A



DO-200AA

FEATURES

- Wide current range
- High voltage ratings up to 2400 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-200AA
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

| PRODUCT SUMMARY | |
|-----------------------|--------------|
| $I_{F(AV)}$ | 800 A |
| Package | DO-200AA |
| 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 | VALUES | UNITS |
| $I_{F(AV)}$ | | 800 | A |
| | T_{hs} | 55 | °C |
| $I_{F(RMS)}$ | | 1435 | A |
| | T_{hs} | 25 | °C |
| I_{FSM} | 50 Hz | 8250 | A |
| | 60 Hz | 8640 | |
| I^2t | 50 Hz | 340 | kA ² s |
| | 60 Hz | 311 | |
| V_{RRM} | Range | 400 to 2400 | V |
| T_J | | - 40 to 190 | °C |

ELECTRICAL SPECIFICATIONS

| VOLTAGE RATINGS | | | | |
|-----------------|--------------|--|--|--|
| TYPE NUMBER | VOLTAGE CODE | V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V | V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V | I_{RRM} MAXIMUM AT $T_J = 150\text{ °C}$ mA |
| VS-SD400C..C | 04 | 400 | 500 | 15 |
| | 08 | 800 | 900 | |
| | 12 | 1200 | 1300 | |
| | 16 | 1600 | 1700 | |
| | 20 | 2000 | 2100 | |
| | 24 | 2400 | 2500 | |



| FORWARD CONDUCTION | | | | | |
|---|---------------|---|---------------------------|-----------|--------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum average forward current at heatsink temperature | $I_{F(AV)}$ | 180° conduction, half sine wave Double side (single side) cooled | | 800 (425) | A |
| | | | | 55 (85) | °C |
| Maximum RMS forward current | $I_{F(RMS)}$ | 25 °C heatsink temperature double side cooled | | 1435 | |
| Maximum peak, one-cycle forward, non-repetitive surge current | I_{FSM} | t = 10 ms | No voltage reappplied | 8250 | A |
| | | t = 8.3 ms | | 8640 | |
| | | t = 10 ms | 50 % V_{RRM} reappplied | 6940 | |
| | | t = 8.3 ms | | 7265 | |
| Maximum I^2t for fusing | I^2t | t = 10 ms | No voltage reappplied | 340 | kA ² s |
| | | t = 8.3 ms | | 311 | |
| | | t = 10 ms | 50 % V_{RRM} reappplied | 241 | |
| | | t = 8.3 ms | | 220 | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | t = 0.1 to 10 ms, no voltage reappplied | | 3400 | kA ² √s |
| Low level value of threshold voltage | $V_{F(TO)1}$ | (16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$, $T_J = T_J$ maximum) | | 0.80 | V |
| High level value of threshold voltage | $V_{F(TO)2}$ | (I $> \pi \times I_{F(AV)}$, $T_J = T_J$ maximum) | | 0.83 | |
| Low level value of forward slope resistance | r_{f1} | (16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$, $T_J = T_J$ maximum) | | 0.55 | mΩ |
| High level value of forward slope resistance | r_{f2} | (I $> \pi \times I_{F(AV)}$, $T_J = T_J$ maximum) | | 0.53 | |
| Maximum forward voltage drop | V_{FM} | $I_{pk} = 1930$ A, $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave | | 1.86 | V |

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | | |
|--|--------------|---------------------------------|--|-------------|--------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum junction operating temperature range | T_J | | | - 40 to 190 | °C |
| Maximum storage temperature range | T_{Stg} | | | - 55 to 200 | |
| Maximum thermal resistance, junction to heatsink | R_{thJ-hs} | DC operation single side cooled | | 0.163 | K/W |
| | | DC operation double side cooled | | 0.073 | |
| Mounting force, ± 10 % | | | | 4900 (500) | N (kg) |
| Approximate weight | | | | 70 | g |
| Case style | | See dimensions - link on page 5 | | DO-200AA | |

| ΔR_{thJ-hs} CONDUCTION | | | | | | |
|--------------------------------|-----------------------|-------------|------------------------|-------------|---------------------|-------|
| CONDUCTION ANGLE | SINUSOIDAL CONDUCTION | | RECTANGULAR CONDUCTION | | TEST CONDITIONS | UNITS |
| | SINGLE SIDE | DOUBLE SIDE | SINGLE SIDE | DOUBLE SIDE | | |
| 180° | 0.017 | 0.018 | 0.011 | 0.012 | $T_J = T_J$ maximum | K/W |
| 120° | 0.020 | 0.020 | 0.020 | 0.020 | | |
| 90° | 0.025 | 0.025 | 0.027 | 0.027 | | |
| 60° | 0.037 | 0.036 | 0.038 | 0.038 | | |
| 30° | 0.064 | 0.062 | 0.065 | 0.062 | | |

Note

- The table above shows the increment of thermal resistance R_{thJ-hs} when devices operate at different conduction angles than DC

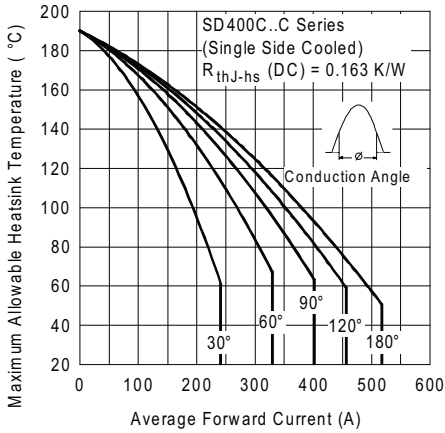


Fig. 1 - Current Ratings Characteristics

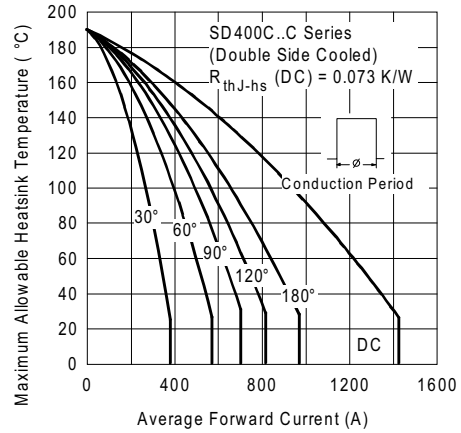


Fig. 4 - Current Ratings Characteristics

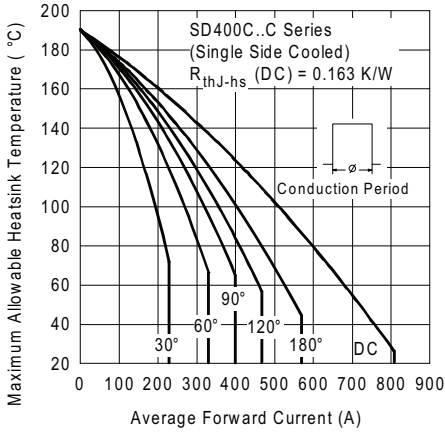


Fig. 2 - Current Ratings Characteristics

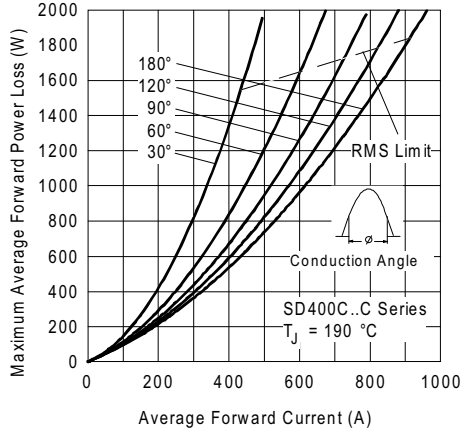


Fig. 5 - Forward Power Loss Characteristics

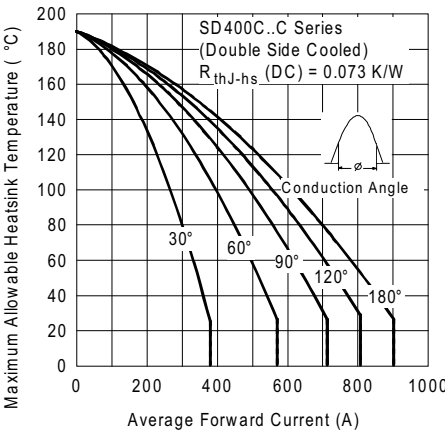


Fig. 3 - Current Ratings Characteristics

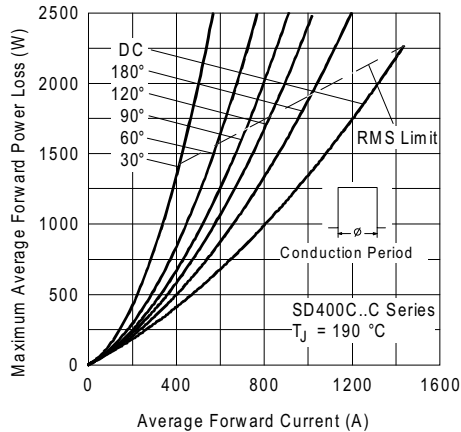


Fig. 6 - Forward Power Loss Characteristics

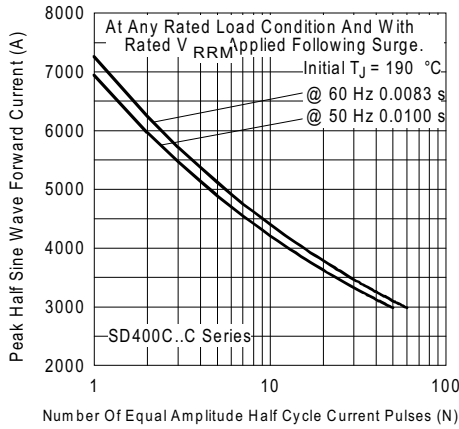


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

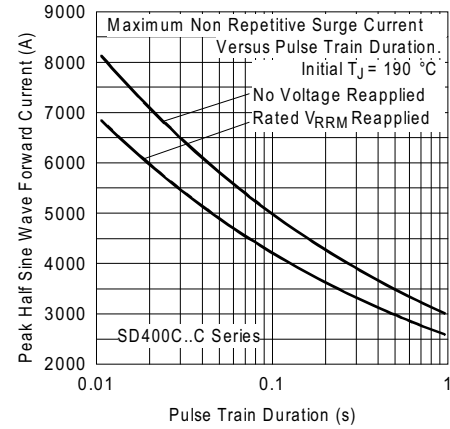


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

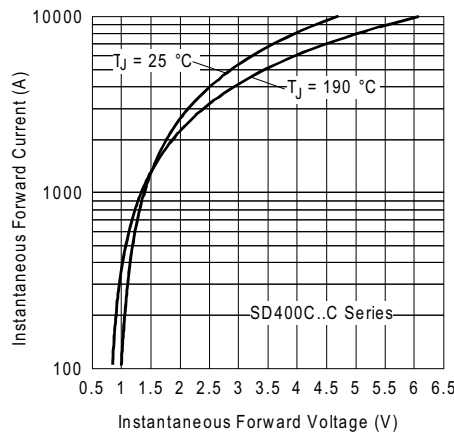


Fig. 9 - Forward Voltage Drop Characteristics

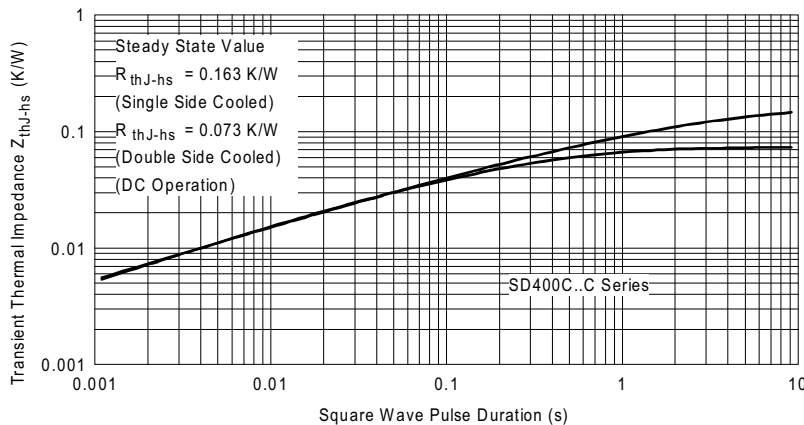
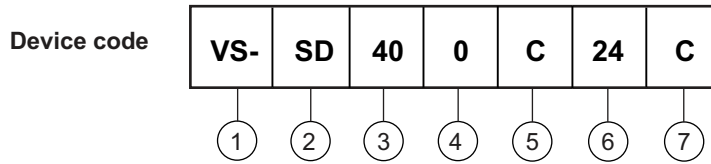


Fig. 10 - Thermal Impedance Z_{thJC} Characteristics



ORDERING INFORMATION TABLE



- | |
|----------|
| 1 |
|----------|

 - Vishay Semiconductors product
- | |
|----------|
| 2 |
|----------|

 - Diode
- | |
|----------|
| 3 |
|----------|

 - Essential part number
- | |
|----------|
| 4 |
|----------|

 - 0 = Standard recovery
- | |
|----------|
| 5 |
|----------|

 - C = Ceramic PUK
- | |
|----------|
| 6 |
|----------|

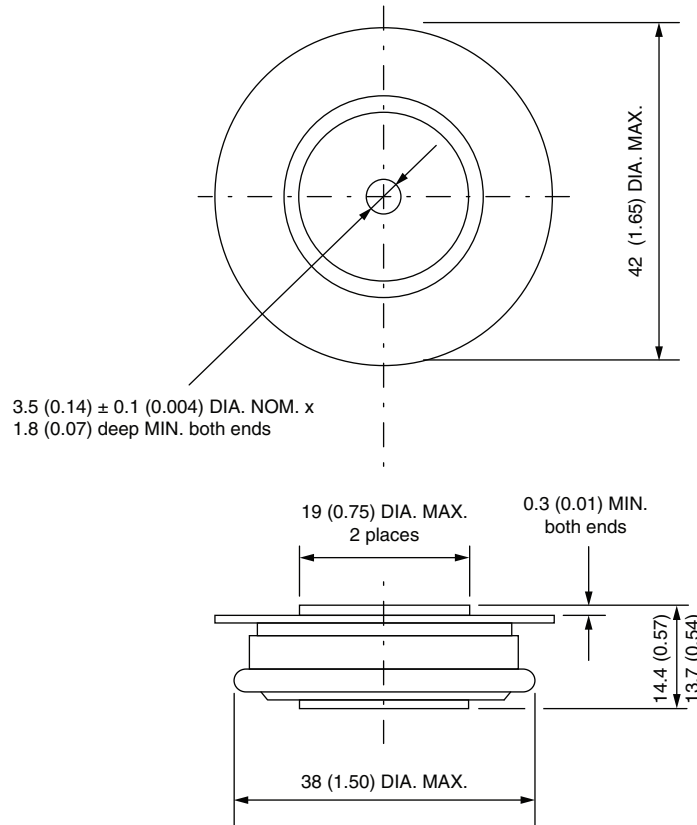
 - Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
- | |
|----------|
| 7 |
|----------|

 - C = PUK case DO-200AA

| LINKS TO RELATED DOCUMENTS | |
|----------------------------|--|
| Dimensions | www.vishay.com/doc?95248 |

DO-200AA

DIMENSIONS in millimeters (inches)



Quote between upper and lower pole pieces has to be considered after application of mounting force (see Thermal and Mechanical Specifications)



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