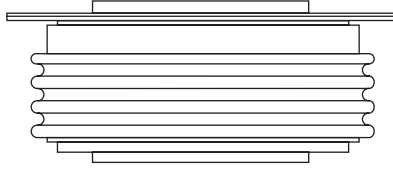


## Standard Recovery Diodes (Hockey PUK Version), 2100 A



DO-200AC (K-PUK)

**FEATURES**

- Wide current range
- High voltage ratings up to 4500 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-200AC (K-PUK)
- Lead (Pb)-free


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

|             |        |
|-------------|--------|
| $I_{F(AV)}$ | 2100 A |
|-------------|--------|

**TYPICAL APPLICATIONS**

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

**MAJOR RATINGS AND CHARACTERISTICS**

| PARAMETER    | test conditions | SD1700C..K   |              | Units             |
|--------------|-----------------|--------------|--------------|-------------------|
|              |                 | 24 TO 36     | 40 TO 45     |                   |
| $I_{F(AV)}$  |                 | 2080         | 1875         | A                 |
|              | $T_{hs}$        | 55           | 55           | °C                |
| $I_{F(RMS)}$ |                 | 3600         | 3280         | A                 |
|              | $T_{hs}$        | 25           | 25           | °C                |
| $I_{FSM}$    | 50 Hz           | 24 000       | 20 000       | A                 |
|              | 60 Hz           | 25 150       | 20 950       |                   |
| $I^2t$       | 50 Hz           | 2890         | 2000         | kA <sup>2</sup> s |
|              | 60 Hz           | 2630         | 1826         |                   |
| $V_{RRM}$    | Range           | 2400 to 3600 | 4000 to 4500 | V                 |
| $T_J$        |                 | - 40 to 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 |
|-------------|--------------|----------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------|
| SD1700C..K  | 24           | 2400                                                     | 2500                                                         | 75                                             |
|             | 30           | 3000                                                     | 3100                                                         |                                                |
|             | 36           | 3600                                                     | 3700                                                         |                                                |
|             | 40           | 4000                                                     | 4100                                                         |                                                |
|             | 45           | 4500                                                     | 4600                                                         |                                                |

# SD1700C..K Series



Vishay High Power Products Standard Recovery Diodes  
(Hockey PUK Version),  
2100 A

| FORWARD CONDUCTION                                            |               |                                                                                         |                           |                |               |                    |
|---------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------|---------------------------|----------------|---------------|--------------------|
| PARAMETER                                                     | SYMBOL        | TEST CONDITIONS                                                                         |                           | SD1700C..K     |               | UNITS              |
|                                                               |               |                                                                                         |                           | 24 TO 36       | 40 TO 45      |                    |
| Maximum average forward current at heatsink temperature       | $I_{F(AV)}$   | 180° conduction, half sine wave<br>Double side (single side) cooled                     |                           | 2080<br>(1000) | 1875<br>(920) | A                  |
|                                                               |               |                                                                                         |                           | 55 (85)        | 55 (85)       | °C                 |
| Maximum RMS forward current                                   | $I_{F(RMS)}$  | 25 °C heatsink temperature double side cooled                                           |                           | 3600           | 3280          | A                  |
| Maximum peak, one cycle forward, non-repetitive surge current | $I_{FSM}$     | t = 10 ms                                                                               | No voltage reappplied     | 24 000         | 20 000        |                    |
|                                                               |               | t = 8.3 ms                                                                              |                           | 25 150         | 20 950        |                    |
|                                                               |               | t = 10 ms                                                                               | 50 % $V_{RRM}$ reappplied | 20 200         | 16 800        |                    |
|                                                               |               | t = 8.3 ms                                                                              |                           | 21 150         | 17 600        |                    |
| Maximum $I^2t$ for fusing                                     | $I^2t$        | t = 10 ms                                                                               | No voltage reappplied     | 2890           | 2000          | kA <sup>2</sup> s  |
|                                                               |               | t = 8.3 ms                                                                              |                           | 2630           | 1826          |                    |
|                                                               |               | t = 10 ms                                                                               | 50 % $V_{RRM}$ reappplied | 2040           | 1415          |                    |
|                                                               |               | t = 8.3 ms                                                                              |                           | 1860           | 1292          |                    |
| Maximum $I^2\sqrt{t}$ for fusing                              | $I^2\sqrt{t}$ | t = 0.1 to 10 ms, no voltage reappplied                                                 |                           | 28 900         | 20 000        | kA <sup>2</sup> √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 |                           | 0.89           | 0.88          | V                  |
| High level value of threshold voltage                         | $V_{F(TO)2}$  | (I > $\pi \times I_{F(AV)}$ ), $T_J = T_J$ maximum                                      |                           | 1.02           | 0.99          |                    |
| 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 |                           | 0.23           | 0.31          | mΩ                 |
| High level value of forward slope resistance                  | $r_{f2}$      | (I > $\pi \times I_{F(AV)}$ ), $T_J = T_J$ maximum                                      |                           | 0.21           | 0.29          |                    |
| Maximum forward voltage drop                                  | $V_{FM}$      | $I_{pk} = 4000$ A, $T_J = T_J$ maximum,<br>$t_p = 10$ ms sinusoidal wave                |                           | 1.81           | 2.11          | V                  |

| THERMAL AND MECHANICAL SPECIFICATIONS            |              |                                               |                  |        |
|--------------------------------------------------|--------------|-----------------------------------------------|------------------|--------|
| PARAMETER                                        | SYMBOL       | TEST CONDITIONS                               | VALUES           | UNITS  |
| Maximum junction operating temperature range     | $T_J$        |                                               | - 40 to 150      | °C     |
| Maximum storage temperature range                | $T_{Stg}$    |                                               | - 55 to 200      |        |
| Maximum thermal resistance, junction to heatsink | $R_{thJ-hs}$ | DC operation single side cooled               | 0.042            | K/W    |
|                                                  |              | DC operation double side cooled               | 0.020            |        |
| Mounting force, ± 10 %                           |              |                                               | 22 250 (2250)    | N (kg) |
| Approximate weight                               |              |                                               | 425              | g      |
| Case style                                       |              | See dimensions - link at the end of datasheet | DO-200AC (K-PUK) |        |

| $\Delta R_{thJ-hs}$ CONDUCTION |                       |             |                        |             |                     |       |
|--------------------------------|-----------------------|-------------|------------------------|-------------|---------------------|-------|
| CONDUCTION ANGLE               | SINUSOIDAL CONDUCTION |             | RECTANGULAR CONDUCTION |             | TEST CONDITIONS     | UNITS |
|                                | SINGLE SIDE           | DOUBLE SIDE | SINGLE SIDE            | DOUBLE SIDE |                     |       |
| 180°                           | 0.002                 | 0.002       | 0.001                  | 0.001       | $T_J = T_J$ maximum | K/W   |
| 120°                           | 0.002                 | 0.002       | 0.002                  | 0.002       |                     |       |
| 90°                            | 0.003                 | 0.003       | 0.003                  | 0.003       |                     |       |
| 60°                            | 0.004                 | 0.004       | 0.004                  | 0.004       |                     |       |
| 30°                            | 0.007                 | 0.007       | 0.007                  | 0.007       |                     |       |

**Note**

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



# SD1700C..K Series

## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 2100 A

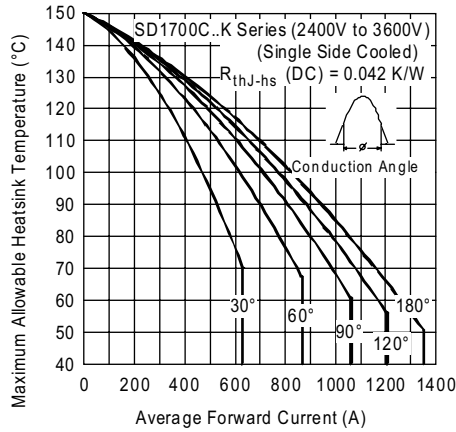


Fig. 1 - Current Ratings Characteristics

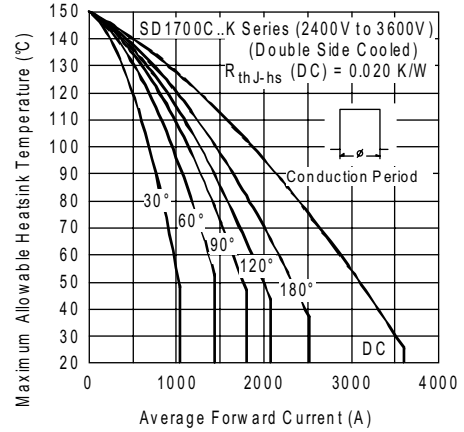


Fig. 4 - Current Ratings Characteristics

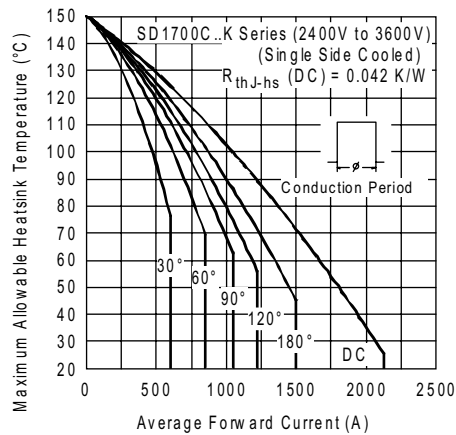


Fig. 2 - Current Ratings Characteristics

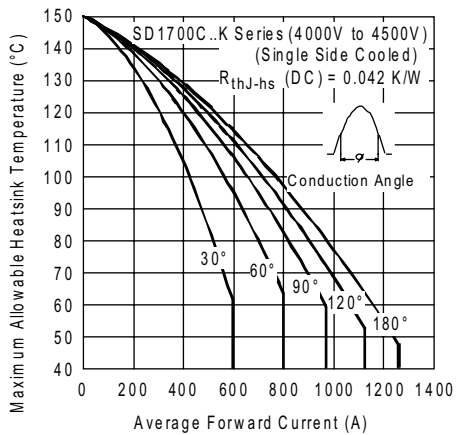


Fig. 5 - Current Ratings Characteristics

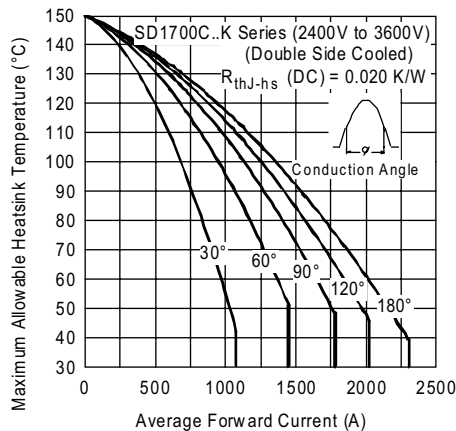


Fig. 3 - Current Ratings Characteristics

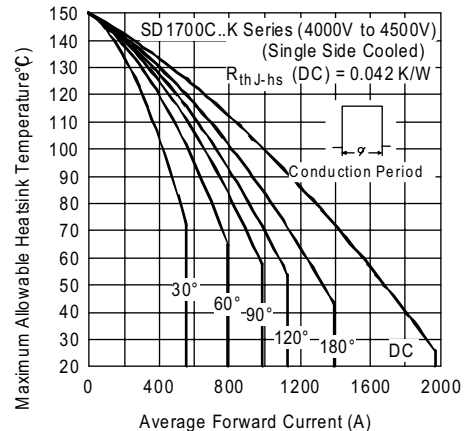


Fig. 6 - Current Ratings Characteristics

# SD1700C..K Series



## Vishay High Power Products Standard Recovery Diodes (Hockey PUK Version), 2100 A

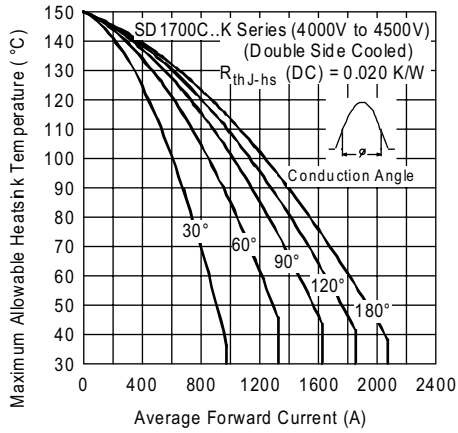


Fig. 7 - Current Ratings Characteristics

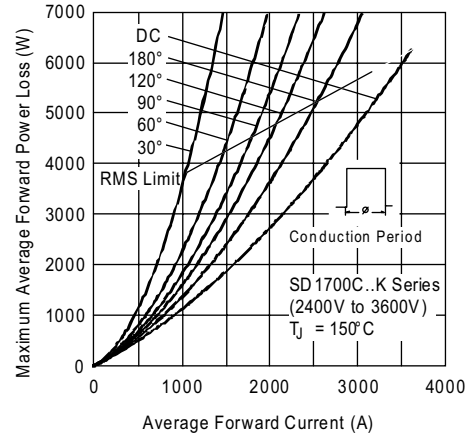


Fig. 10 - Forward Power Loss Characteristics

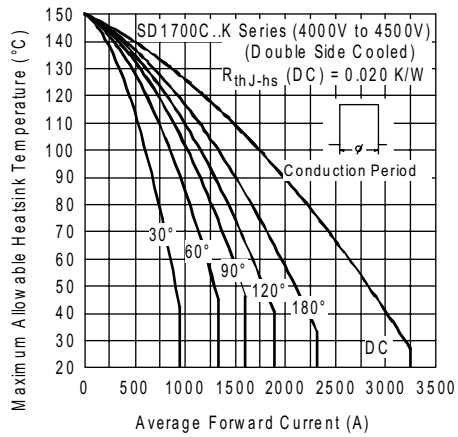


Fig. 8 - Current Ratings Characteristics

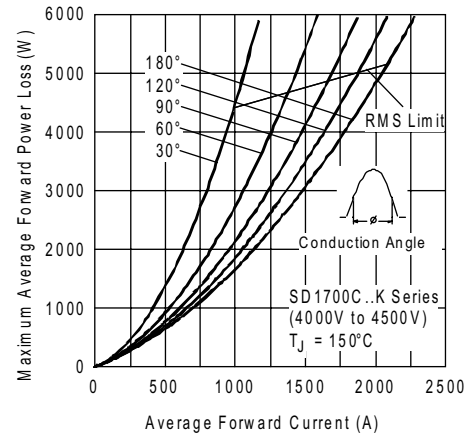


Fig. 11 - Forward Power Loss Characteristics

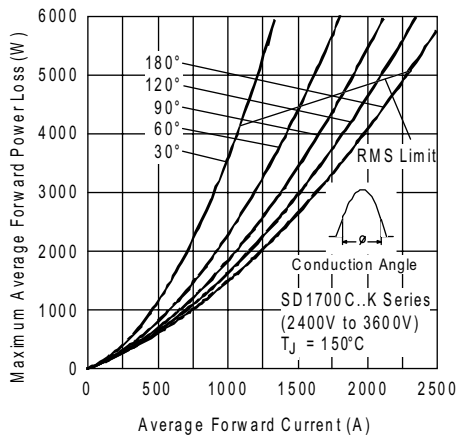


Fig. 9 - Forward Power Loss Characteristics

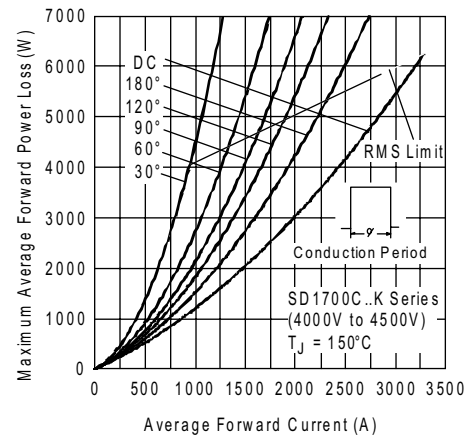


Fig. 12 - Forward Power Loss Characteristics



## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 2100 A

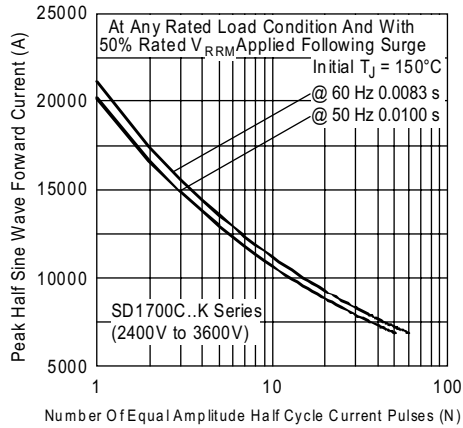


Fig. 13 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

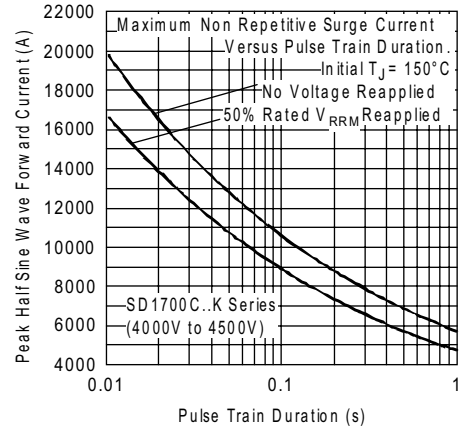


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

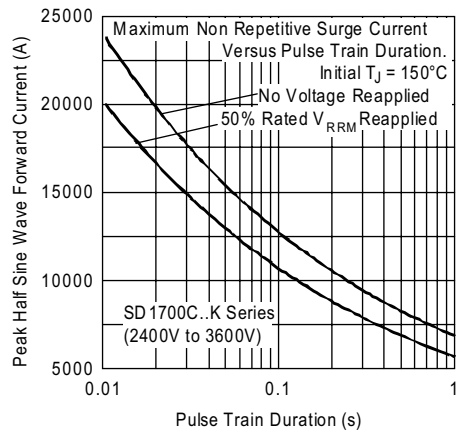


Fig. 14 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

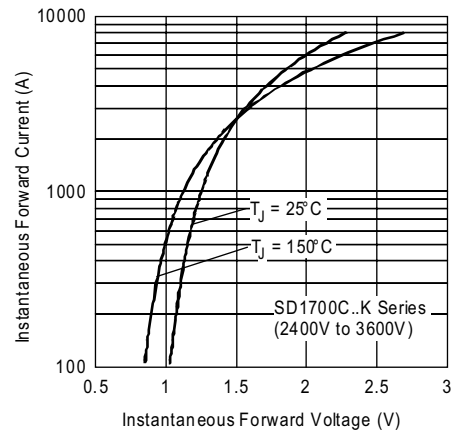


Fig. 17 - Forward Voltage Drop Characteristics

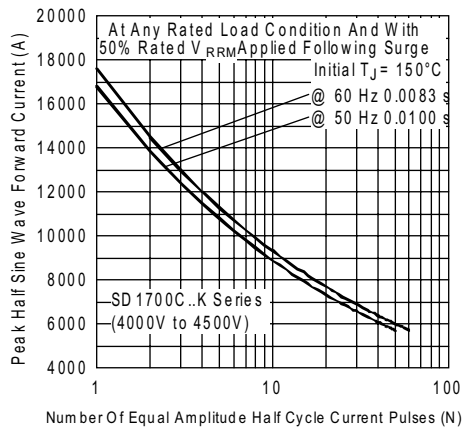


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

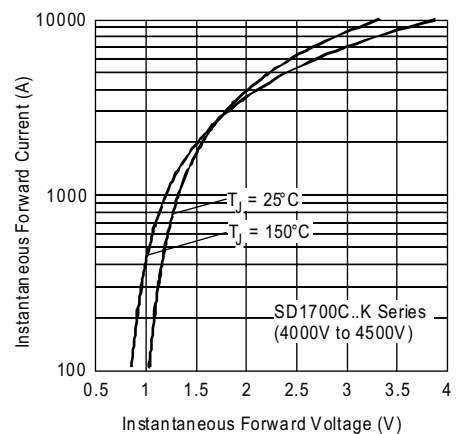


Fig. 18 - Forward Voltage Drop Characteristics

# SD1700C..K Series



Vishay High Power Products Standard Recovery Diodes  
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2100 A

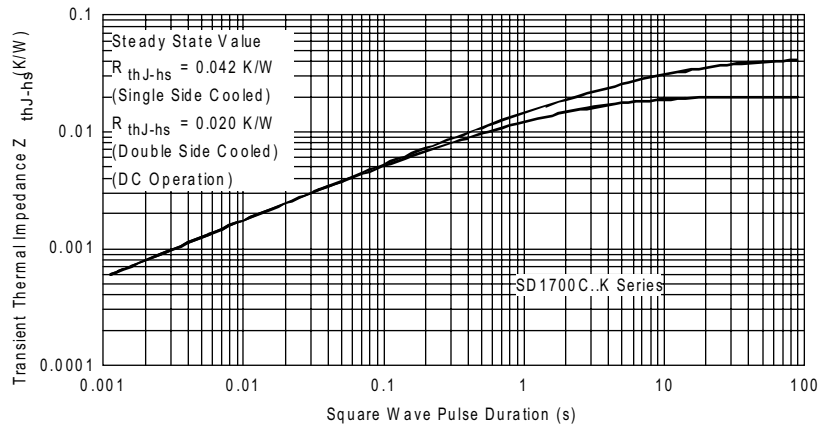


Fig. 19 - Thermal Impedance  $Z_{thJC}$  Characteristics

## ORDERING INFORMATION TABLE

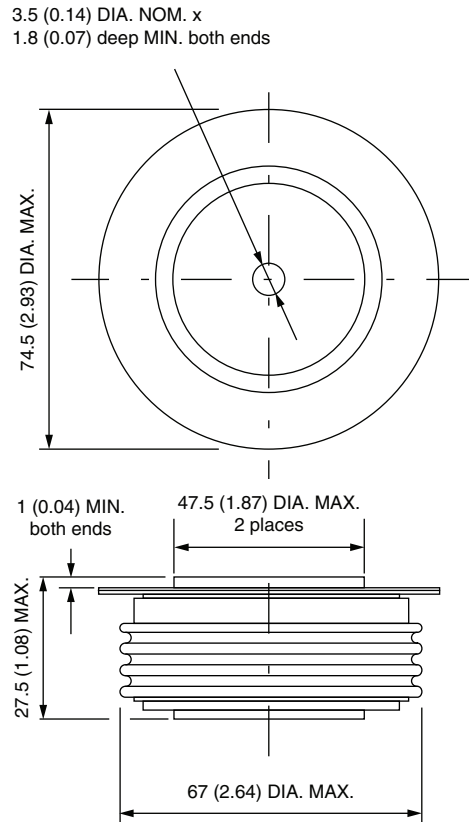
|             |           |            |                                                            |          |           |          |
|-------------|-----------|------------|------------------------------------------------------------|----------|-----------|----------|
| Device code | <b>SD</b> | <b>170</b> | <b>0</b>                                                   | <b>C</b> | <b>45</b> | <b>K</b> |
|             | ①         | ②          | ③                                                          | ④        | ⑤         | ⑥        |
|             | <b>1</b>  | -          | Diode                                                      |          |           |          |
|             | <b>2</b>  | -          | Essential part number                                      |          |           |          |
|             | <b>3</b>  | -          | 0 = Standard recovery                                      |          |           |          |
|             | <b>4</b>  | -          | C = Ceramic PUK                                            |          |           |          |
|             | <b>5</b>  | -          | Voltage code x 100 = $V_{RRM}$ (see Voltage Ratings table) |          |           |          |
|             | <b>6</b>  | -          | K = PUK case DO-200AC (K-PUK)                              |          |           |          |

### LINKS TO RELATED DOCUMENTS

|            |                                                                               |
|------------|-------------------------------------------------------------------------------|
| Dimensions | <a href="http://www.vishay.com/doc?95247">http://www.vishay.com/doc?95247</a> |
|------------|-------------------------------------------------------------------------------|

## DO-200AC (K-PUK)

**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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