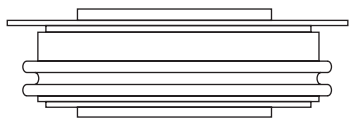


### Standard Recovery Diodes (Hockey PUK Version), 1400 A



B-43

#### FEATURES

- Wide current range
- High voltage ratings up to 3200 V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style B-43
- Lead (Pb)-free



**RoHS**  
COMPLIANT

#### PRODUCT SUMMARY

|             |        |
|-------------|--------|
| $I_{F(AV)}$ | 1400 A |
|-------------|--------|

#### TYPICAL APPLICATIONS

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

#### MAJOR RATINGS AND CHARACTERISTICS

| PARAMETER    | TEST CONDITIONS | SD1100C..C  |              | UNITS             |
|--------------|-----------------|-------------|--------------|-------------------|
|              |                 | 04 TO 20    | 25 TO 32     |                   |
| $I_{F(AV)}$  |                 | 1400        | 1100         | A                 |
|              | $T_{hs}$        | 55          | 55           | °C                |
| $I_{F(RMS)}$ |                 | 2500        | 2000         | A                 |
|              | $T_{hs}$        | 25          | 25           | °C                |
| $I_{FSM}$    | 50 Hz           | 13 000      | 10 500       | A                 |
|              | 60 Hz           | 13 600      | 11 000       |                   |
| $I^2t$       | 50 Hz           | 846         | 551          | kA <sup>2</sup> s |
|              | 60 Hz           | 772         | 503          |                   |
| $V_{RRM}$    | Range           | 400 to 2000 | 2500 to 3200 | V                 |
| $T_J$        |                 | - 40 to 180 | - 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 |
|-------------|--------------|----------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------|
| SD1100C..C  | 04           | 400                                                      | 500                                                          | 35                                             |
|             | 08           | 800                                                      | 900                                                          |                                                |
|             | 12           | 1200                                                     | 1300                                                         |                                                |
|             | 16           | 1600                                                     | 1700                                                         |                                                |
|             | 20           | 2000                                                     | 2100                                                         |                                                |
|             | 25           | 2500                                                     | 2600                                                         |                                                |
|             | 30           | 3000                                                     | 3100                                                         |                                                |
|             | 32           | 3200                                                     | 3300                                                         |                                                |

# Vishay High Power Products Standard Recovery Diodes (Hockey PUK Version), 1400 A

| FORWARD CONDUCTION                                      |                     |                                                                                                             |                                  |                                                                       |            |            |                    |
|---------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------|------------|------------|--------------------|
| PARAMETER                                               | SYMBOL              | TEST CONDITIONS                                                                                             |                                  |                                                                       | SD1100C..C |            | UNITS              |
|                                                         |                     |                                                                                                             |                                  |                                                                       | 04 TO 20   | 25 TO 32   |                    |
| Maximum average forward current at heatsink temperature | I <sub>F(AV)</sub>  | 180° conduction, half sine wave<br>Double side (single side) cooled                                         |                                  |                                                                       | 1400 (795) | 1100 (550) | A                  |
|                                                         |                     |                                                                                                             |                                  |                                                                       | 55 (85)    | 55 (85)    | °C                 |
| Maximum RMS forward current                             | I <sub>F(RMS)</sub> | 25 °C heatsink temperature double side cooled                                                               |                                  |                                                                       | 2500       | 2000       |                    |
| Maximum peak, one-cycle forward, non-repetitive current | I <sub>FSM</sub>    | t = 10 ms                                                                                                   | No voltage reapplied             | Sinusoidal half wave, initial T <sub>J</sub> = T <sub>J</sub> maximum | 13 000     | 10 500     | A                  |
|                                                         |                     | t = 8.3 ms                                                                                                  |                                  |                                                                       | 13 600     | 11 000     |                    |
|                                                         |                     | t = 10 ms                                                                                                   | 100 % V <sub>RRM</sub> reapplied |                                                                       | 10 930     | 8830       |                    |
|                                                         |                     | t = 8.3 ms                                                                                                  |                                  |                                                                       | 11 450     | 9250       |                    |
| Maximum I <sup>2</sup> t for fusing                     | I <sup>2</sup> t    | t = 10 ms                                                                                                   | No voltage reapplied             |                                                                       | 846        | 551        | kA <sup>2</sup> s  |
|                                                         |                     | t = 8.3 ms                                                                                                  |                                  |                                                                       | 772        | 503        |                    |
|                                                         |                     | t = 10 ms                                                                                                   | 100 % V <sub>RRM</sub> reapplied |                                                                       | 598        | 390        |                    |
|                                                         |                     | t = 8.3 ms                                                                                                  |                                  |                                                                       | 546        | 356        |                    |
| Maximum I <sup>2</sup> √t for fusing                    | I <sup>2</sup> √t   | t = 0.1 to 10 ms, no voltage reapplied                                                                      |                                  |                                                                       | 8460       | 5510       | 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   |                                  |                                                                       | 0.78       | 0.84       | 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                                      |                                  |                                                                       | 0.94       | 0.88       |                    |
| 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   |                                  |                                                                       | 0.35       | 0.40       | 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                                      |                                  |                                                                       | 0.26       | 0.38       |                    |
| Maximum forward voltage drop                            | V <sub>FM</sub>     | I <sub>pk</sub> = 1500 A, T <sub>J</sub> = T <sub>J</sub> maximum<br>t <sub>p</sub> = 10 ms sinusoidal wave |                                  |                                                                       | 1.31       | 1.44       | V                  |

| THERMAL AND MECHANICAL SPECIFICATIONS            |                     |                                               |             |             |        |
|--------------------------------------------------|---------------------|-----------------------------------------------|-------------|-------------|--------|
| PARAMETER                                        | SYMBOL              | TEST CONDITIONS                               | SD1100C..C  |             | UNITS  |
|                                                  |                     |                                               | 04 TO 20    | 25 TO 32    |        |
| 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 heatsink | R <sub>thJ-hs</sub> | DC operation single side cooled               | 0.076       |             | K/W    |
|                                                  |                     | DC operation double side cooled               | 0.038       |             |        |
| Mounting force, ± 10 %                           |                     |                                               | 9800 (1000) |             | N (kg) |
| Approximate weight                               |                     |                                               | 83          |             | g      |
| Case style                                       |                     | See dimensions - link at the end of datasheet | B-43        |             |        |

| $\Delta R_{thJ-hs}$ CONDUCTION |                       |             |                        |             |                                         |       |
|--------------------------------|-----------------------|-------------|------------------------|-------------|-----------------------------------------|-------|
| CONDUCTION ANGLE               | SINUSOIDAL CONDUCTION |             | RECTANGULAR CONDUCTION |             | TEST CONDITIONS                         | UNITS |
|                                | SINGLE SIDE           | DOUBLE SIDE | SINGLE SIDE            | DOUBLE SIDE |                                         |       |
| 180°                           | 0.007                 | 0.007       | 0.005                  | 0.005       | T <sub>J</sub> = T <sub>J</sub> maximum | K/W   |
| 120°                           | 0.008                 | 0.008       | 0.008                  | 0.008       |                                         |       |
| 90°                            | 0.010                 | 0.010       | 0.011                  | 0.011       |                                         |       |
| 60°                            | 0.015                 | 0.015       | 0.016                  | 0.016       |                                         |       |
| 30°                            | 0.026                 | 0.026       | 0.026                  | 0.026       |                                         |       |

**Note**

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

## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 1400 A

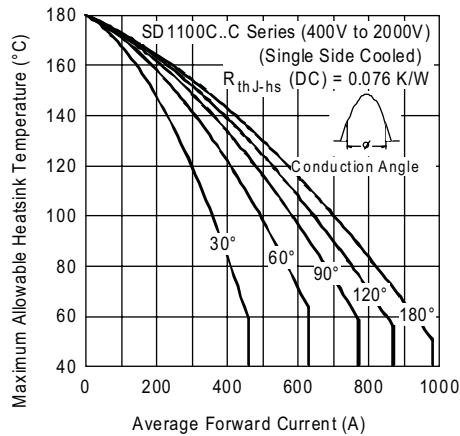


Fig. 1 - Current Ratings Characteristics

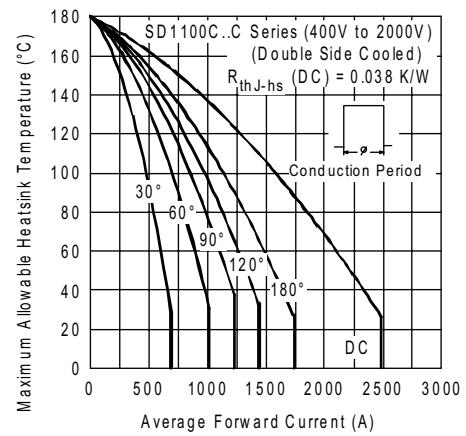


Fig. 4 - Current Ratings Characteristics

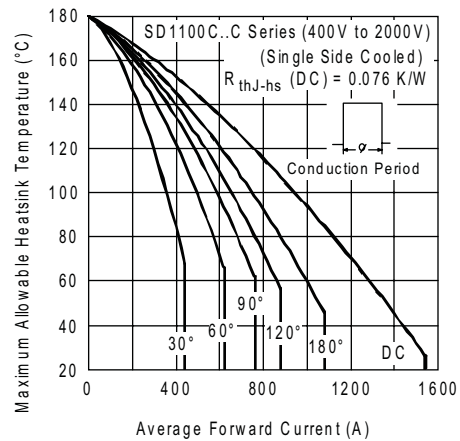


Fig. 2 - Current Ratings Characteristics

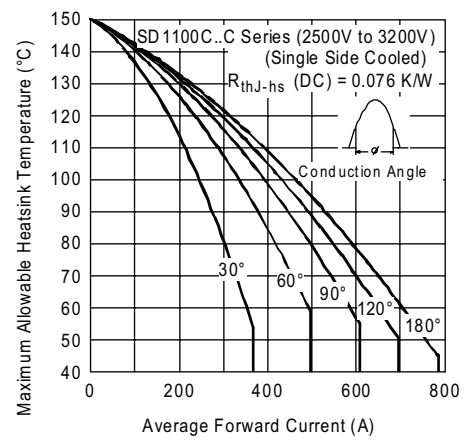


Fig. 5 - Current Ratings Characteristics

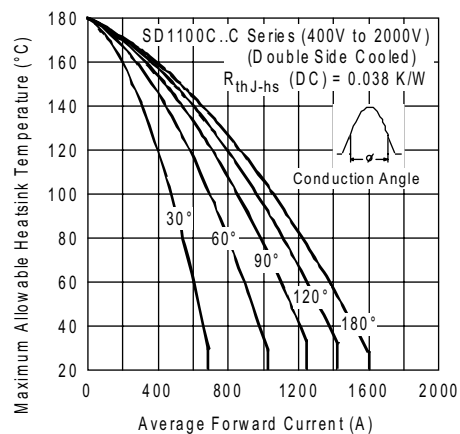


Fig. 3 - Current Ratings Characteristics

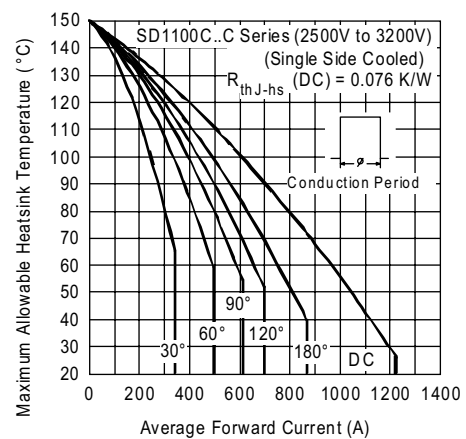


Fig. 6 - Current Ratings Characteristics

# SD1100C..C Series

Vishay High Power Products Standard Recovery Diodes  
(Hockey PUK Version),  
1400 A

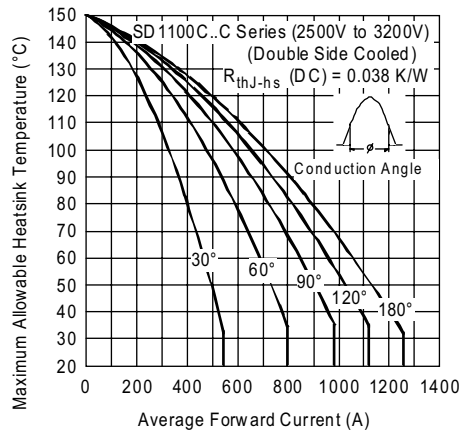


Fig. 7 - Current Ratings Characteristics

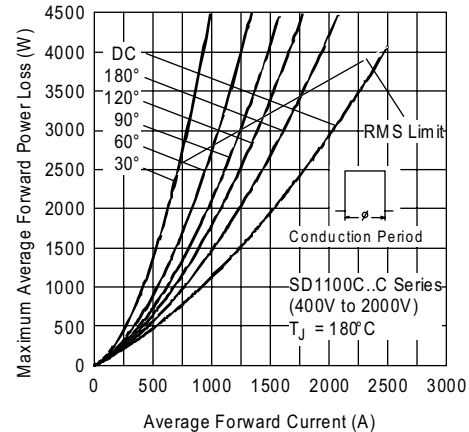


Fig. 10 - Forward Power Loss Characteristics

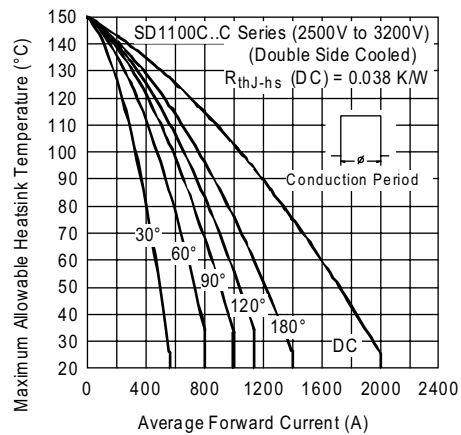


Fig. 8 - Current Ratings Characteristics

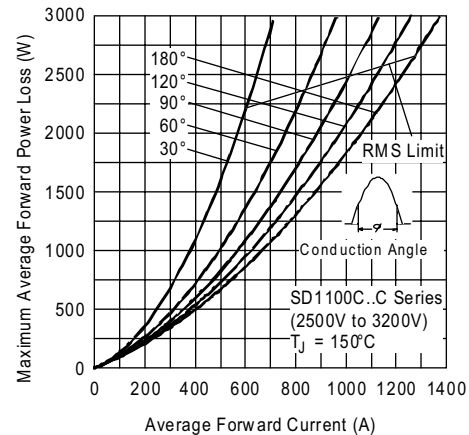


Fig. 11 - Forward Power Loss Characteristics

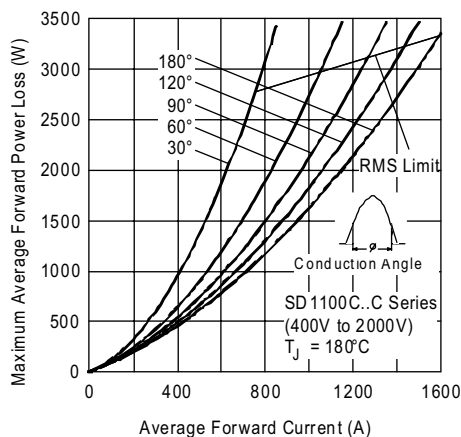


Fig. 9 - Forward Power Loss Characteristics

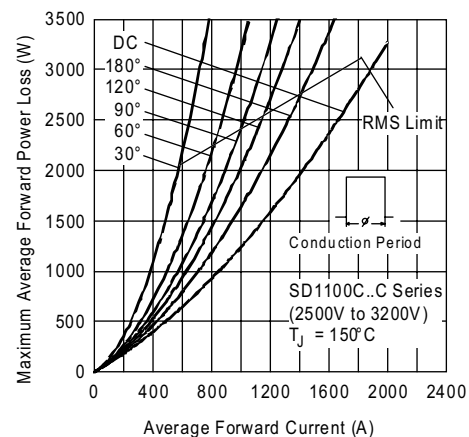


Fig. 12 - Forward Power Loss Characteristics

## Standard Recovery Diodes Vishay High Power Products (Hockey PUK Version), 1400 A

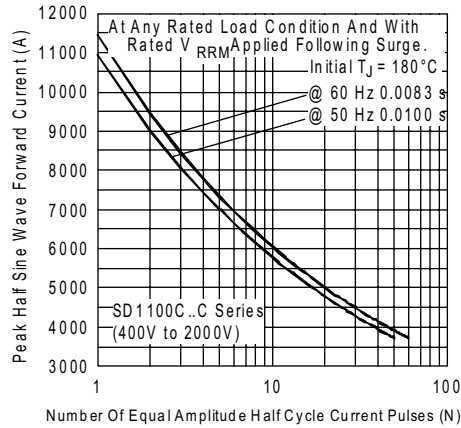


Fig. 13 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

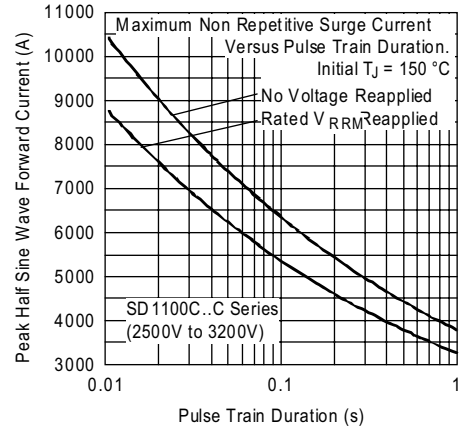


Fig. 16 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

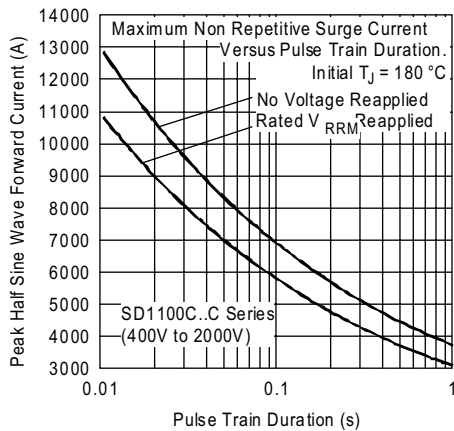


Fig. 14 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

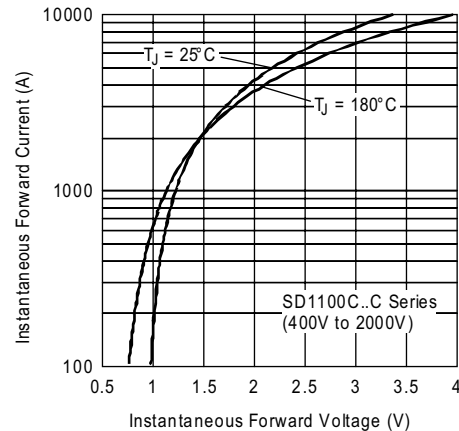


Fig. 17 - Forward Voltage Drop Characteristics

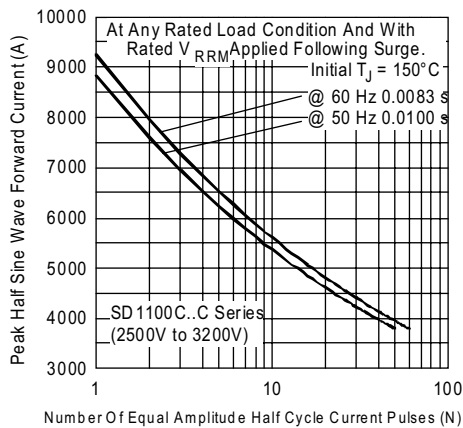


Fig. 15 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

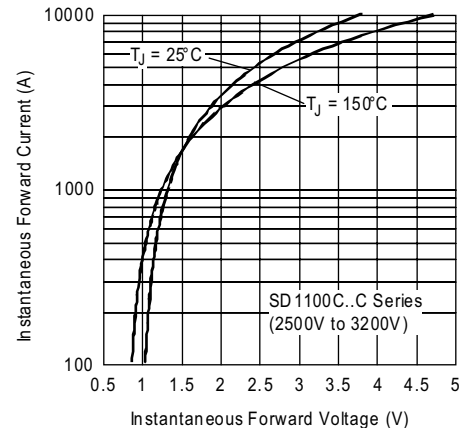


Fig. 18 - Forward Voltage Drop Characteristics

# SD1100C..C Series



Vishay High Power Products Standard Recovery Diodes  
(Hockey PUK Version),  
1400 A

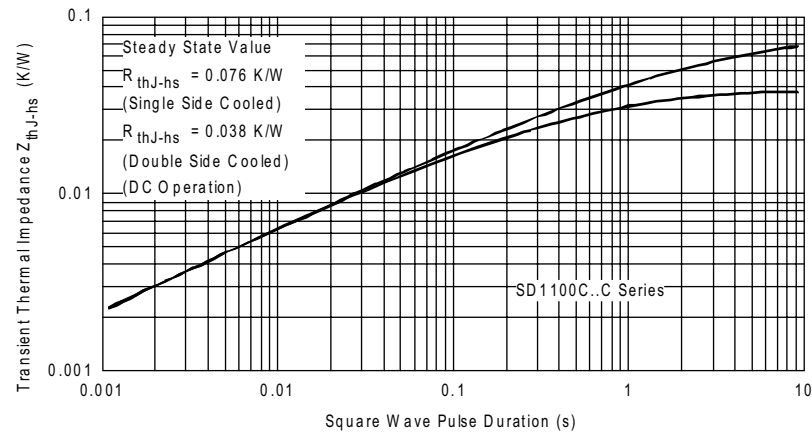


Fig. 19 - Thermal Impedance  $Z_{thJ-hs}$  Characteristics

## ORDERING INFORMATION TABLE

|             |       |                       |                       |                 |                                                            |                   |
|-------------|-------|-----------------------|-----------------------|-----------------|------------------------------------------------------------|-------------------|
| Device code | SD    | 110                   | 0                     | C               | 32                                                         | C                 |
|             | 1     | 2                     | 3                     | 4               | 5                                                          | 6                 |
|             | 1     | 2                     | 3                     | 4               | 5                                                          | 6                 |
|             | -     | -                     | -                     | -               | -                                                          | -                 |
|             | Diode | Essential part number | 0 = Standard recovery | C = Ceramic PUK | Voltage code x 100 = $V_{RRM}$ (see Voltage Ratings table) | C = PUK case B-43 |

| LINKS TO RELATED DOCUMENTS |                                                                               |
|----------------------------|-------------------------------------------------------------------------------|
| Dimensions                 | <a href="http://www.vishay.com/doc?95249">http://www.vishay.com/doc?95249</a> |



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