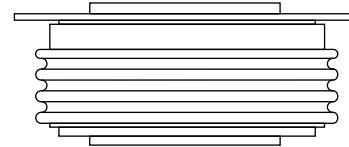


Standard Recovery Diodes (Hockey PUK Version), 2500A

FEATURES

- Wide current range
- High voltage ratings up to 2500V
- High surge current capabilities
- Diffused junction
- Hockey PUK version
- Case style DO-220AC(K-PUK), Nell's D-type Capsule
- Lead (Pb)-free



DO-220AC(K-PUK)
(Nell's D-type Capsule)

TYPICAL APPLICATIONS

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

| PRODUCT SUMMARY | |
|-----------------|-------|
| $I_{F(AV)}$ | 2500A |

| MAJOR RATINGS AND CHARACTERISTICS | | | |
|-----------------------------------|-----------------|-------------|-------------------|
| PARAMETER | TEST CONDITIONS | VALUES | UNIT |
| $I_{F(AV)}$ | | 2500 | A |
| | T_{hs} | 55 | °C |
| $I_{F(RMS)}$ | | 4300 | A |
| | T_{hs} | 25 | °C |
| I_{FSM} | 50 HZ | 26000 | A |
| | 60 HZ | 27200 | |
| I^2t | 50 HZ | 3380 | kA ² s |
| | 60 HZ | 3070 | |
| V_{RRM} | | 800 to 2500 | V |
| T_J | Typical | -40 to 175 | °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 $T_J = T_J$ MAXIMUM mA |
| D2500D | 08 | 800 | 900 | 75 |
| | 12 | 1200 | 1300 | |
| | 16 | 1600 | 1700 | |
| | 20 | 2000 | 2100 | |
| | 25 | 2500 | 2600 | |

| FORWARD CONDUCTION | | | | | |
|---|---------------|---|--------------------------|--|--------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNIT |
| Maximum average forward current at heatsink temperature | $I_{F(AV)}$ | 180° conduction, half sine wave Double side (single side) cooled | | 2500(1300) | A |
| | | | | 55(85) | °C |
| Maximum RMS forward current | $I_{F(RMS)}$ | 25°C heatsink temperature double side cooled | | 4300 | A |
| Maximum peak, one cycle non-repetitive surge current | I_{FSM} | t = 10ms | No voltage reapplied | Sinusoidal half wave, initial $T_J = T_J$ maximum | A |
| | | t = 8.3ms | | | |
| | | t = 10ms | 100% V_{RRM} reapplied | | |
| | | t = 8.3ms | | | |
| Maximum I^2t for fusing | I^2t | t = 10ms | No voltage reapplied | Sinusoidal half wave, initial $T_J = T_J$ maximum | kA ² s |
| | | t = 8.3ms | | | |
| | | t = 10ms | 100% V_{RRM} reapplied | | |
| | | t = 8.3ms | | | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | t = 0.1 to 10 ms, no voltage reapplied | | 33800 | 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 | | 0.83 | V |
| High level value of threshold voltage | $V_{F(TO)2}$ | $(I > \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 1.00 | |
| Low level value of forward slope resistance | r_{t1} | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 0.19 | mΩ |
| High level value of forward slope resistance | r_{t2} | $(I > \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 0.17 | |
| Maximum forward voltage drop | V_{FM} | $I_{pk} = 4000A$, $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave | | 1.55 | V |

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | | |
|--|--------------|---|--|-----------------|-----------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNIT |
| Maximum junction operating temperature range | T_J | | | -40 to 175 | °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% | | | | 22250 (2250) | N (kg) |
| Approximate weight | | | | 425 | g |
| Case style | | TO-200AC (K-PUK), Nell's D-type Capsule | | | |

| △ R_{thJc} CONDUCTION | | | | | | |
|-------------------------|-----------------------|-------------|------------------------|-------------|---------------------|-------|
| CONDUCTION ANGEL | SINUSOIDAL CONDUCTION | | RECTANGULAR CONDUCTION | | TEST CONDUCTIONS | 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

Fig.1 Current ratings characteristics

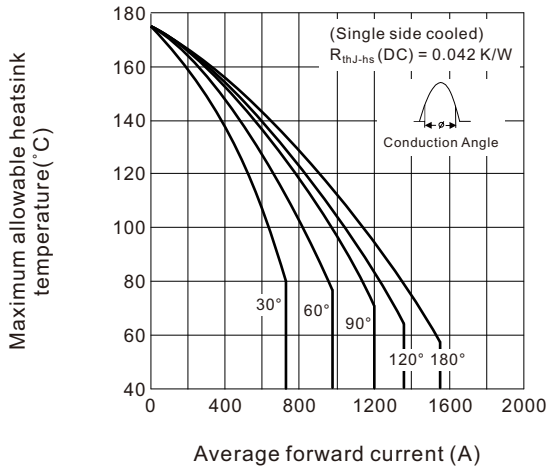


Fig.2 Current ratings characteristics

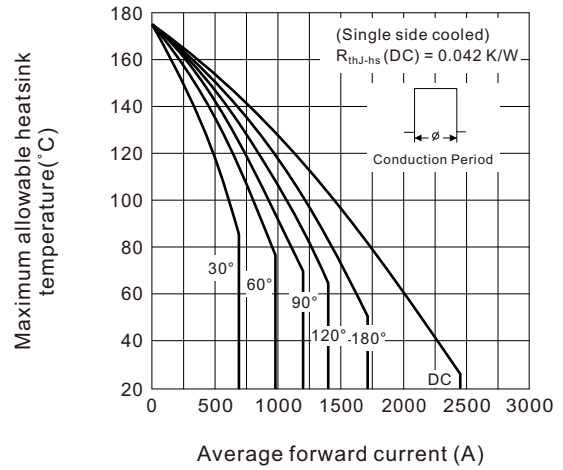


Fig.3 Current ratings characteristics

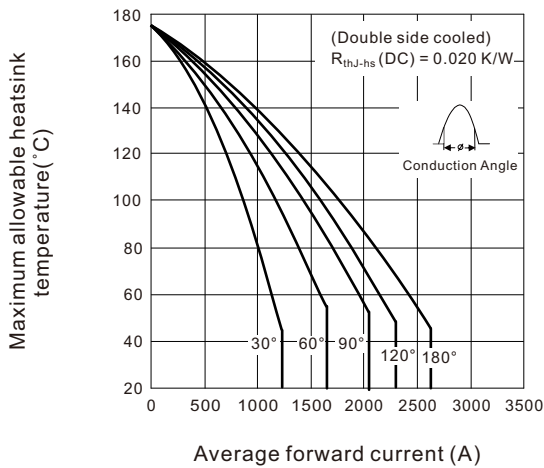


Fig.4 Current ratings characteristics

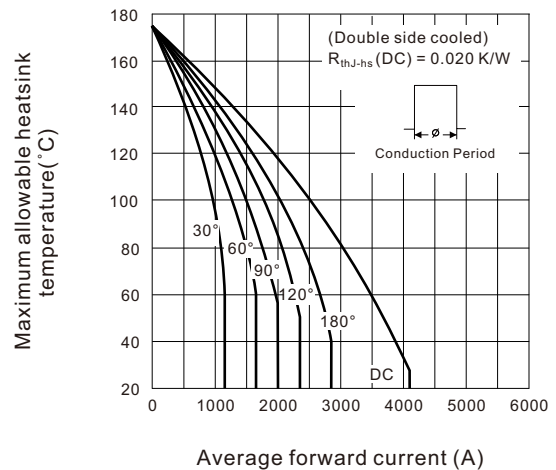


Fig.5 Forward power loss characteristics

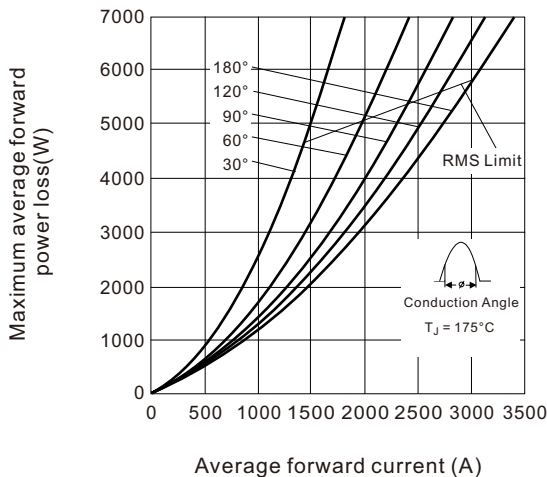


Fig.6 Forward power loss characteristics

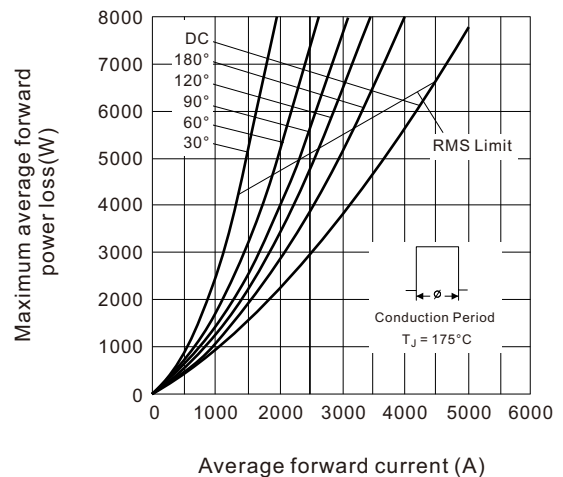


Fig.7 Maximum non-repetitive surge current single and double side cooled

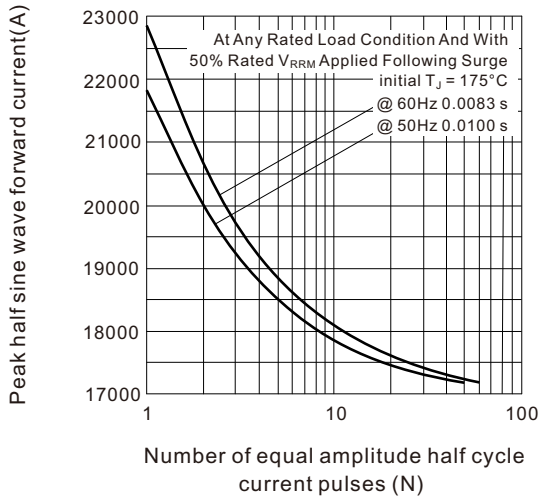


Fig.8 Maximum non-repetitive surge current single and double side cooled

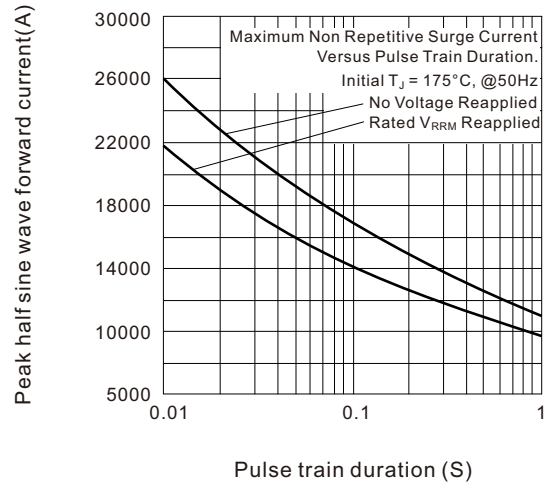


Fig.9 Forward voltage drop characteristics

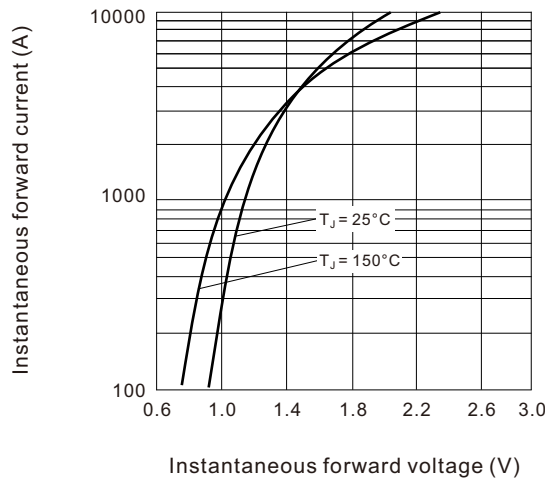
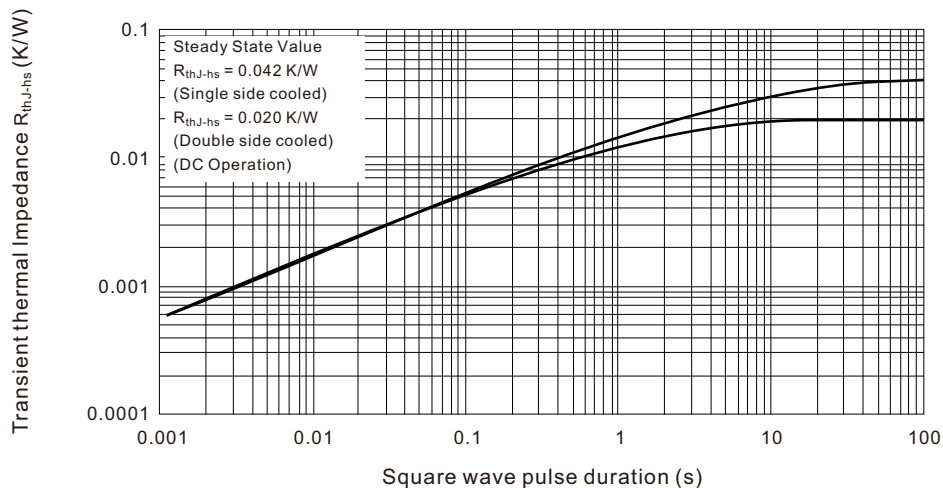
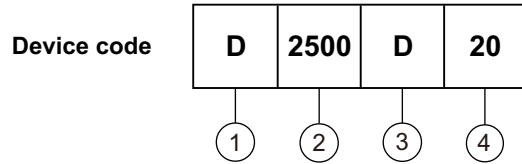


Fig.10 Thermal Impedance R_{thJ-hs} characteristics

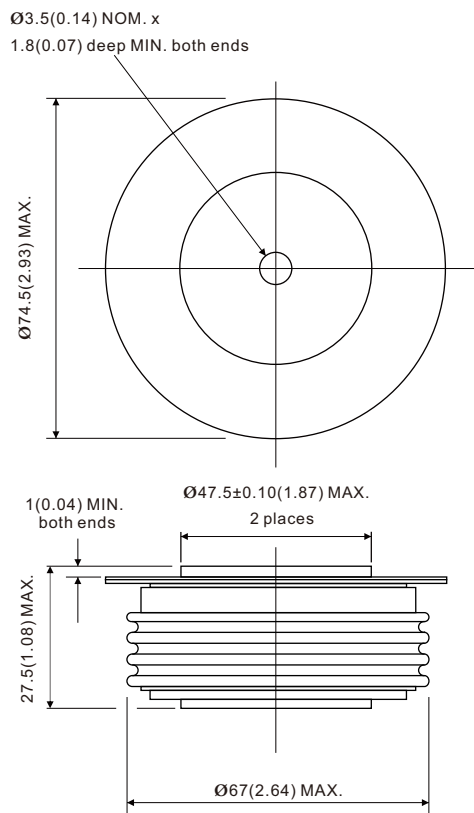


ORDERING INFORMATION TABLE



- ① - "D" for standard recovery diode
- ② - Maximum average forward current, "2500" for 2500A
- ③ - Case style : "D" for Nell's D-type Capsule, DO-200AC (K-PUK)
- ④ - Voltage code, code x 100 = V_{RRM}

DO-220AC (K-PUK), Nell's D-type Capsule



All dimensions in millimeters (inches)

