

Phase Control Thyristors (Capsule Type), 1000A

Features

- Metal case with ceramic insulator
- High current rating
- Bifacial cooled
- Center gate trigger

Applications

- DC motor controls
- AC controllers
- DC power supplies



A-24 (K-PUK)

| Voltage Ratings | | | | |
|-----------------|--------------|--|--|--|
| Type number | Voltage Code | V_{DRM}/V_{RRM} , Maximum Repetitive peak & off-state voltage V | V_{RSM} , Maximum non-repetitive peak voltage V | I_{DRM}/I_{RRM} , Maximum at $T_J = T_J$ maximum mA |
| 1004DCR | 40 | 400 | 500 | 60 |
| | 60 | 600 | 700 | |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |
| | 140 | 1400 | 1500 | |
| | 160 | 1600 | 1700 | |

| Electrical Ratings ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | | |
|---|--------------------|-------------|-----------------------|
| Parameters | Symbol | Values | Units |
| Maximum on-state average current 180° sinusoidal conduction @ $T_C = 55^\circ\text{C}$ | $I_{T(AV)}$ | 1000 | A |
| Maximum RMS on-state current | $I_{T(RMS)}$ | 1570 | A |
| Maximum peak, one cycle non-repetitive surge current | I_{TSM} | 18000 | A |
| Maximum I^2t for fusing @ $t = 10\text{ms}$ | I^2t | 1620 | kA^2s |
| Maximum repetitive peak on and off-state voltage range | V_{RRM}, V_{DRM} | 400 to 1600 | V |
| Maximum peak on-state voltage ($T_J = 125^\circ\text{C}$, $I_{peak} = 1100\text{A}$) | V_{TM} | 2.0 | V |
| Maximum holding current @ $T_J = 25^\circ\text{C}$ | I_H | 250 | mA |
| Maximum latching current @ $T_J = 25^\circ\text{C}$ | I_L | 800 | mA |
| Threshold voltage | V_{TO} | 1.12 | V |
| Slope resistance | r_T | 0.25 | $\text{m}\Omega$ |

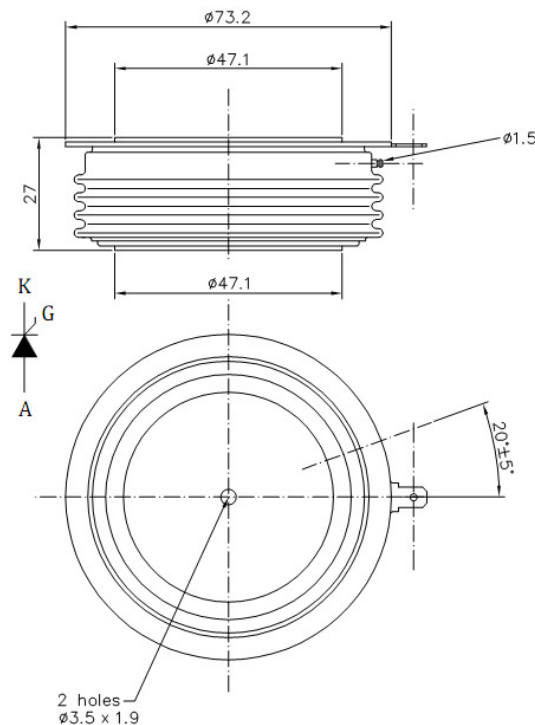
| Switching Ratings ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | | |
|--|---------|--------|------------------------|
| Parameters | Symbol | Values | Units |
| Rate of rise of turn-on current @ $T_J = T_J$ max, anode voltage $\leq 80\% V_{DRM}$ | di/dt | 200 | $\text{A}/\mu\text{s}$ |
| Typical turn-on time | t_d | 10 | μs |
| Typical turn-off time | t_q | 200 | |

| Blocking Parameters ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | | |
|--|----------------------------------|--------|------------------------|
| Parameters | Symbol | Values | Units |
| Critical rate of rise of off-state voltage @ $T_J = T_J \text{ max}$, linear to 80% rated V_{DRM} | dV/dt | 500 | $\text{V}/\mu\text{s}$ |
| Maximum peak reverse & off-state leakage current @ $T_J = T_J \text{ max}$, rated $V_{\text{DRM}}/V_{\text{RRM}}$ applied | $I_{\text{RRM}}, I_{\text{DRM}}$ | 60 | mA |

| Triggering Parameters ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | | |
|--|-----------------|--------|-------|
| Parameters | Symbol | Values | Units |
| DC gate current to trigger | I_{GT} | 200 | mA |
| DC gate voltage to trigger | V_{GT} | 3.0 | V |

| Thermal and Mechanical Specifications ($T_J = 25^\circ\text{C}$, unless otherwise specified) | | | |
|--|---------------------|--------------|---------------------------|
| Parameters | Symbol | Values | Units |
| Maximum operating junction temperature range | T_J | - 40 to +125 | $^\circ\text{C}$ |
| Maximum storage temperature range | T_{Stg} | - 40 to +125 | $^\circ\text{C}$ |
| Maximum thermal resistance, junction to case | $R_{\text{th}(JC)}$ | 0.031 | $^\circ\text{C}/\text{W}$ |
| Mounting torque | F | 16 ... 22 | kN |
| Approximate weight | W_T | 490 | g |

Package Outline



ALL DIMENSIONS IN MM



Ordering Table

| <i>1004</i> | <i>DCR</i> | <i>160</i> |
|-------------|------------|------------|
| 1 | 2 | 3 |

1 – Current Rating = I_F (AV)

2 – Phase Controlled Thyristor, PUK Type

3 – Voltage x 10 = V_{RRM} (See Voltage Ratings Table)