

KK4000A-G

FAST TURN-OFF THYRISTOR



Features

- Interdigitated amplifying gate
- Fast switch and high di/dt
- Low switching loss

Application

- Converter
- Chopper
- Induction heating

| | |
|-------------------|--------------------------|
| $I_{T(AV)}$ | 4000 A |
| V_{DRM}/V_{RRM} | 1900~3000V |
| t_q | 50~90 μ s |
| I_{TSM} | 45KA |
| I^2t | 10^4 KA ² S |

| Symb. | | parameter | Test Conditions | $T_{J(c)}$) | Value | Unit |
|--------------------|------------------------|--|---|-----------------|----------------------|-------------------|
| Current Ratings | $I_{T(AV)}$ | average on-state current | 180° half sine wave 50Hz Double side cooled $T_{hs}=55^\circ C$ | 115 | 4000 | A |
| | I_{TSM} | Surge on-state current | 10ms half sine wave $V_R=0.6V_{RRM}$ | 115 | 45 | KA |
| | I^2t | I^2t for fusing coordination | | 115 | 10^4 | KA ² S |
| Characteristics | V_{DRM} V_{RRM} | Repetitive peak off-state voltage Repetitive peak reverse voltage | $V_{DRM}\&V_{RRM}$ tp=10ms $V_{DSM}\&V_{RSM}=V_{DRM}\&V_{RRM}+100V$ | 115 | 1900-3000 | V |
| | I_{DRM} I_{RRM} | Repetitive peak current | $V_{DM}=V_{DRM}$ $V_{RM}=V_{RRM}$ | 115 | Max.250 | mA |
| | V_{TO} | Threshold voltage | | 115 | Max.0.94 | V |
| | V_{TM} | Peak on-state voltage | $I_{TM}=5000A, F=106$ | 25 | Max.2.90 | V |
| | r_T | On-state slop resistance | | 115 | 0.09 | m Ω |
| | I_H | Holding current | $V_A=12V, I_A=1A$ | 25 | 20-1000 | mA |
| Dynamic Parameters | dv/dt | Critical rate of rise of off-state voltage | $V_{DM}=67\%V_{DRM}$ | 115 | Max.500 | V/ μ s |
| | di/dt | Critical rate of rise of on-state current | $V_{DM}=67\%V_{DRM}$ to 2000A, Gate pulse $t_r \leq 0.5\mu s, I_{GM}=1.5A$ | 115 | Max.600 | A/ μ s |
| | t_q | Circuit commutated turn-off time | $I_{TM}=1000A, t_p=1000\mu s, dv/dt=30V/\mu s$ $di/dt=-20A/\mu s, V_R=50V$ | 115 | 50-90 | mA |
| | I_{rm} | Reserse recovery current | $I_{TM}=1000A, t_p=1000\mu s$ $di/dt=-20A/\mu s, V_R=50V$ | 115 | Typ.220 | A |
| | t_{rr} | Reverse recovery time | | 115 | Typ.10.4 | μ s |
| | Q_{rr} | Recovery charge | | 115 | Typ.1100 Max.1200 | μ c |
| Gate Parameters | I_{GT} | Gate trigger current | $V_A=12V, I_A=1A$ | 25 | 40-450 | mA |
| | V_{GT} | Gate trigger voltage | | 25 | 0.9-4.5 | V |
| | V_{GD} | Non-trigger gate voltage | $V_{DM}=67\%V_{DRM}$ | 115 | Min.0.3 | V |

Thermal & Mechanical Data

| Symb. | parameter | Test Conditions | Value | Unit |
|---------------|--|--|---------|------|
| $R_{th(j-h)}$ | Thermal resistance Junction to heat sink | Double side cooled, mounting force 106 | 0.0075 | °C/W |
| F_m | Mounting force | | 98-113 | KN |
| T_{stg} | Stored temperature | | -40+140 | °C |
| W_t | Weight | | 2700 | g |

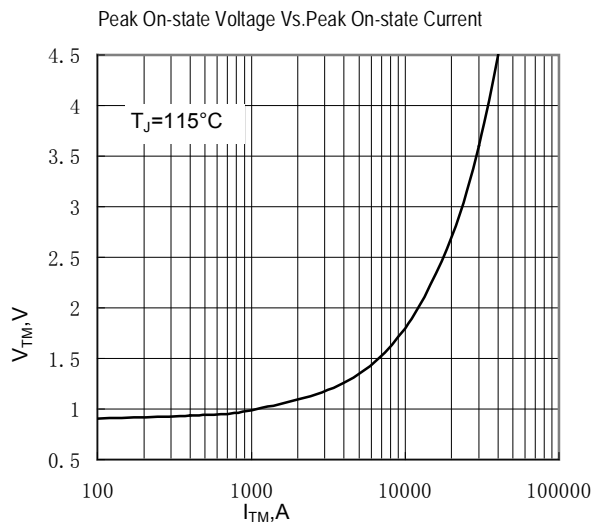


Fig.1

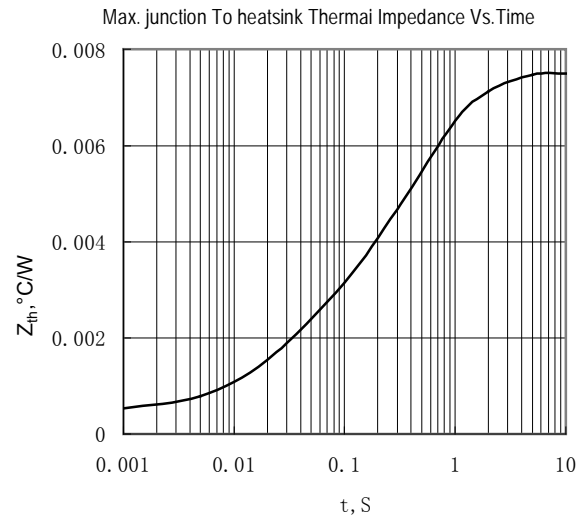


Fig.2

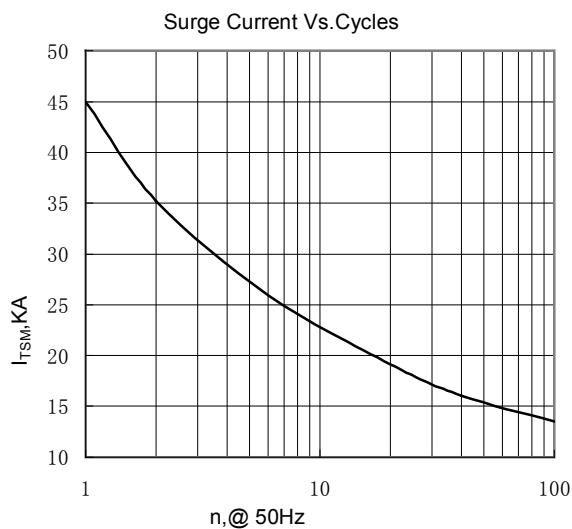


Fig.3

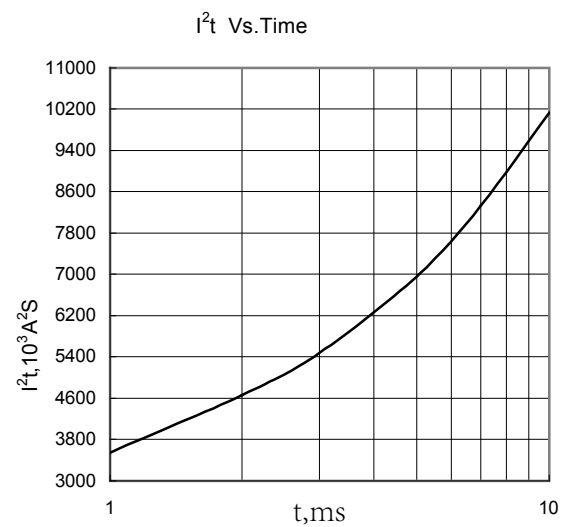
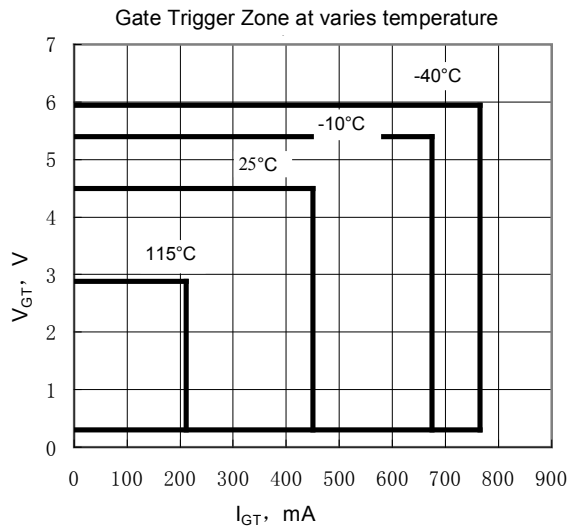
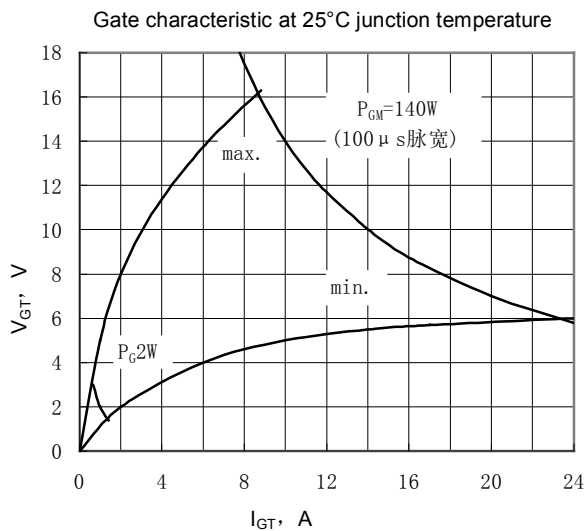
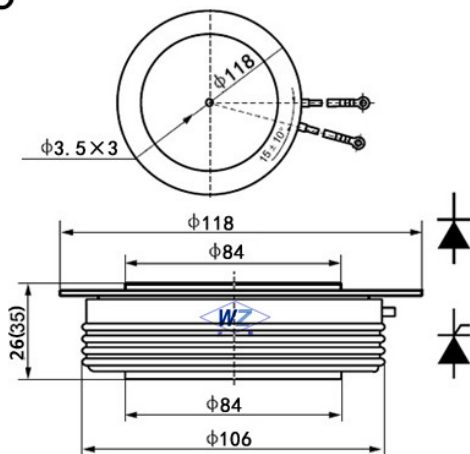


Fig.4

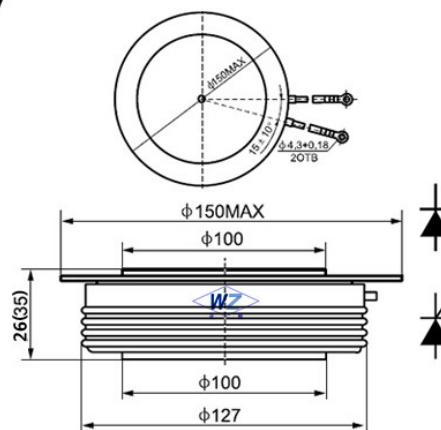


Dimensions:

C26



C27



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