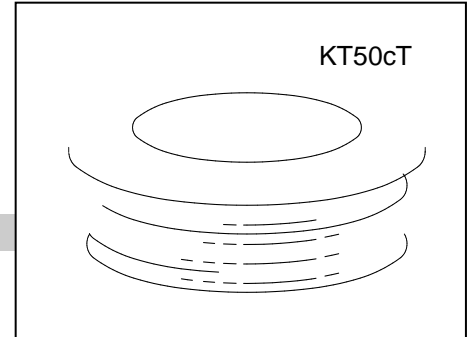




HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Amplifying Gate Configuration
- . Blocking capability up to 1800 volts
- . High dv/dt Capability
- . Pressure Assembled Device



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

| Device Type | V _{RRM} (1) | V _{DRM} (1) | V _{RSM} (1) |
|-------------|----------------------|----------------------|----------------------|
| KP1000/12 | 1200 | 1200 | 1400 |
| KP1000/14 | 1400 | 1400 | 1600 |
| KP1000/16 | 1600 | 1600 | 1800 |
| KP1000/18 | 1800 | 1800 | 2000 |

V_{RRM} = Repetitive peak reverse voltage
 V_{DRM} = Repetitive peak off state voltage
 V_{RSM} = Non repetitive peak reverse voltage (2)

| | | |
|---|------------------------------------|-------------------|
| Repetitive peak reverse leakage and off state leakage | I _{RRM} /I _{DRM} | 2 mA 70 mA (3) |
| Critical rate of voltage rise | dv/dt (4) | 1000 V/μsec |

Notes:

- (1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range 0 to +125 °C.
- (2) 10 msec. max. pulse width
- (3) Maximum value for T_j = 125 °C.
- (4) Minimum value for linear and exponential waveshape to 67% rated V_{DRM}. Gate open. T_j = 125 °C.
- (5) The value of di/dt is established in accordance with standard JB/T 8950.2-2013

Conducting - On State

| Parameter | Symbol | Min. | Max. | Typ. | Units | Conditions |
|---|---------------------|------|---------------------|------|------------------|---|
| Average value of on-state current | I _{T(AV)} | | 1000 | | A | Sinewave, 180° conduction, T _c =70°C |
| RMS value of on-state current | I _{T(RMS)} | | 1570 | | A | Nominal value |
| Peak one cycle surge (non repetitive) current | I _{TSM} | | 12000 | | A | 10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T _j = 125 °C |
| I square t | I ² t | | 7.2x10 ⁵ | | A ² s | 10 msec |
| Latching current | I _L | | 1000 | | mA | V _D = 12 V; R _L = 12 ohms |
| Holding current | I _H | | 200 | | mA | V _D = 12 V; I = 2.5 A |
| Peak on-state voltage | V _{TM} | | 1.45 | | V | I _{TM} =1500A; T _j =25°C |
| Threshold voltage, low-level | V _{TO} | | 1.0 | | V | T _j =125°C |
| Slope resistance, low-level | r _T | | 0.2 | | | 1000A to 3000A |
| Critical rate of rise of on-state current | di/dt | | 150 | | 6 | Repetition |

Gating

| Parameter | Symbol | Min. | Max. | Typ. | Units | Conditions |
|--------------------------------|--------------------|------|------|------|-------|---|
| Peak gate power dissipation | P _{GM} | | 20 | | W | |
| Average gate power dissipation | P _{G(AV)} | | 4 | | W | |
| Gate-trigger current | I _{GT} | | 150 | | mA | V _D = 12 V; R _L = 3 ohms; T _j = +25 °C |
| Gate- trigger voltage | V _{GT} | 0.70 | 2.5 | | V | V _D = 12 V; R _L = 3 ohms; T _j = +25 °C |
| Peak negative voltage | V _{GRM} | | 5 | | V | |

Dynamic

| Parameter | Symbol | Min. | Max. | Typ. | Units | Conditions |
|--|-----------------|------|------|------|-------|--|
| Delay time | t _d | | 3.0 | 2.5 | μs | I _{TM} = 100 A; V _D = 67% V _{DRM} Gate pulse: V _G = 30 V; R _G = 10 ohms; t _r 2 % 0 p 2 % |
| Turn-off time (with V _R = -5 V) | t _q | | | 200 | μs | I _{TM} = 1000 A; di/dt = -10 A/μs; V _R = 50 V; dV/dt = 30V/μs ; V _D = 67% V _{DRM} ; T _j = 125 °C |
| Reverse recovery charge | Q _{rr} | | | 2000 | μC | I _{TM} = 1000 A; di/dt = -10 A/s; V _R = 50 V; T _j = 125 °C |

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

| Parameter | Symbol | Min. | Max. | Typ. | Units | Conditions |
|---------------------------------------|-------------------|------|-------|------|-------|---------------------|
| Operating temperature | T _j | -40 | +125 | | °C | |
| Storage temperature | T _{stg} | -40 | +140 | | °C | |
| Thermal resistance - junction to case | R _{θ(c)} | | 0.03 | | °C/W | Double sided cooled |
| Thermal resistance - case to heatsink | R _{θ(s)} | | 0.006 | | °C/W | Double sided cooled |
| Mounting force | P | 18 | 22 | 20 | kN | |
| Weight | W | | | 0.33 | kg | |

* Mounting surfaces smooth, flat and greased

