

GPTS7224

PHASE CONTROLLED SCR

High reliability operation
DC power supply

Controlled rectifiers
DC drives - Motor starters

| | |
|------------------------|---------|
| BLOCKING VOLTAGE UP TO | 7500 V |
| AVERAGE CURRENT | 2245 A |
| SURGE CURRENT | 33.5 kA |

BLOCKING CHARACTERISTICS

| Characteristic | Conditions | Value |
|-------------------|---|--|
| V _{RRM} | Repetitive peak reverse voltage | 7500 V |
| V _{RSM} | Non-repetitive peak reverse voltage | 7600 V |
| V _{DRM} | Repetitive peak off-state voltage | 7500 V |
| I _{IDRM} | Repetitive peak off-state current, max. | V _{DRM} , single phase, half wave, T _j = T _{jmax} |
| I _{IRRM} | Repetitive peak reverse current, max. | V _{RRM} , single phase, half wave, T _j = T _{jmax} |

ON-STATE CHARACTERISTICS

| | | | |
|---------------------|--|--|------------------------|
| I _{T(AV)} | Average on-state current | Sine wave, 180° conduction, Th = 55 °C | 2245 A |
| I _{T(RMS)} | R.M.S. on-state current | Sine wave, 180° conduction, Th = 55 °C | 3526 A |
| I _{TSM} | Surge on-state current | Non rep. half sine wave, 50 Hz, V _R = 0 V, T _j = T _{jmax} | 33.5 kA |
| I ² t | I ² t for fusing coordination | | 5611 kA ² s |
| V _{T(TO)} | Threshold voltage | T _j = T _{jmax} | 1.29 V |
| r _T | On-state slope resistance | T _j = T _{jmax} | 0.398 mΩ |
| V _{TM} | Peak on-state voltage, max | On-state current I _T = 2000 A, T _j = T _{jmax} | 2.09 V |
| I _H | Holding current, max | T _j = 25 °C | 300 mA |
| I _L | Latching current, typ | T _j = 25 °C | 3000 mA |

TRIGGERING CHARACTERISTICS

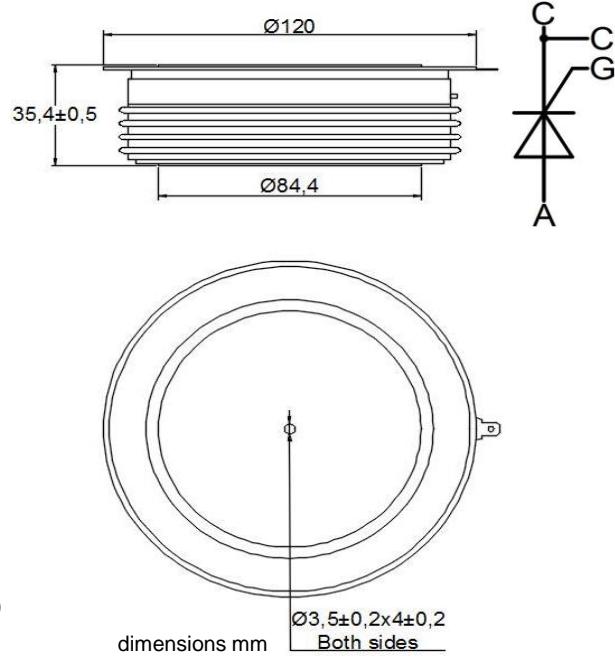
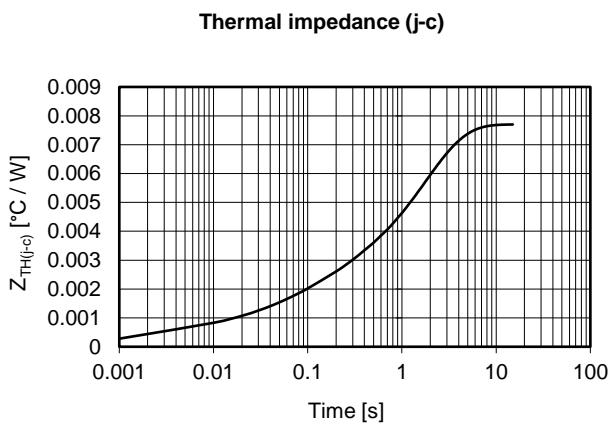
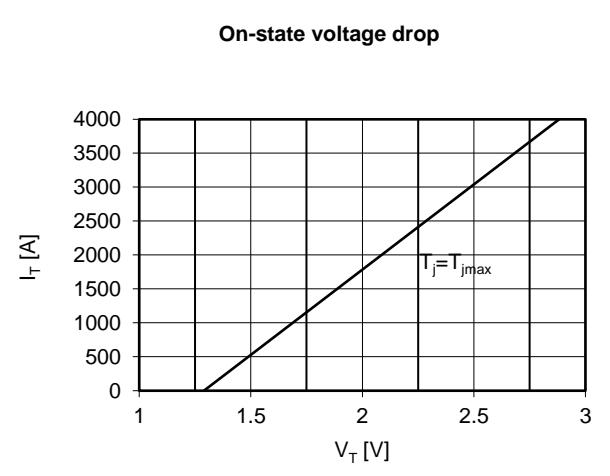
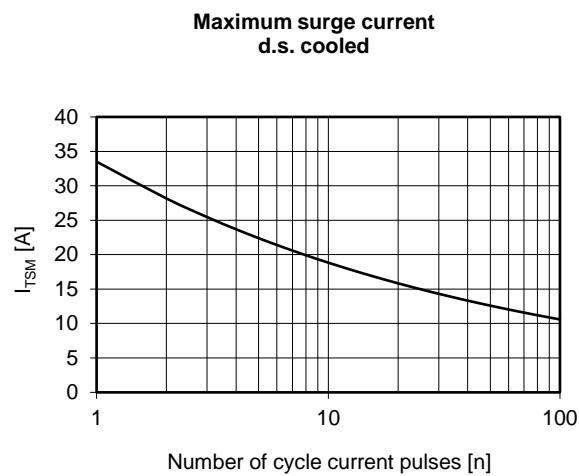
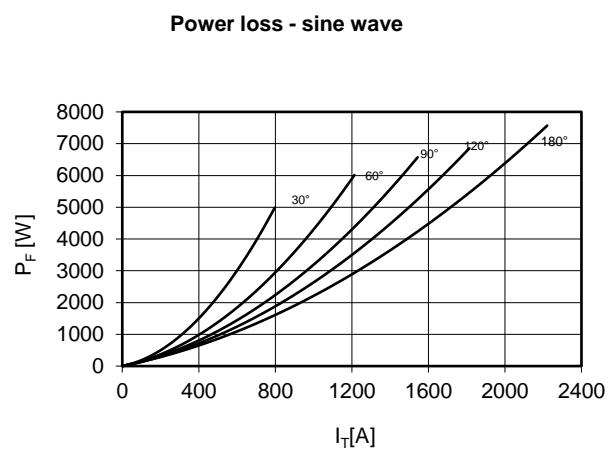
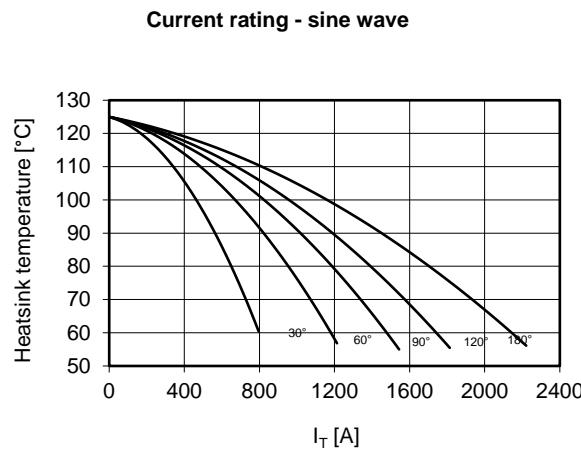
| | | | |
|--------------------|--------------------------------|--|--------|
| V _{GT} | Gate trigger voltage | T _j = 25 °C, V _D = 12 V | 1.5 V |
| I _{GT} | Gate trigger current | T _j = 25 °C, V _D = 12 V | 400 mA |
| V _{GD} | Non-trigger voltage | V _D = 67% V _{RRM} , T _j = T _{jmax} | 0.4 V |
| P _{GM} | Peak gate power dissipation | Pulse width 0.5 ms | 150 W |
| P _{GA(V)} | Average gate power dissipation | | 8 W |
| I _{FGM} | Peak gate current | | 10 A |
| V _{FGM} | Peak gate voltage (forward) | | 25 V |
| V _{RGM} | Peak gate voltage (reverse) | | 5 V |

SWITCHING CHARACTERISTICS

| | | | |
|---------------------|--|---|-----------|
| d <i>i</i> /dt rep. | Critical rate of rise of on-state current | T _j = T _{jmax} - f = 50 Hz - I _{TM} = 2 · I _{T(AV)} | 150 A/μs |
| dV/dt | Critical rate of rise of off-state voltage | T _j = T _{jmax} - V _D = 0.67 · V _{DRM} | 1500 V/μs |
| Q _{rr} | Reverse recovery charge, typ | T _j = T _{jmax} , I _T = 2000 A, d <i>i</i> /dt = -1 A/μs | 7000 μC |
| t _q | Turn-off time, typ | T _j = T _{jmax} , I _T = 1000 A, d <i>i</i> /dt = -1 A/μs V _R = 100 V, V _D = 67% V _{DRM} , dV/dt = 20 V/μs | 700 μs |

THERMAL AND MECHANICAL CHARACTERISTICS

| | | | |
|----------------------|---------------------------------------|--------------------|--------------|
| R _{th(j-c)} | Thermal resistance (junction to case) | Double side cooled | 0.0077 °C/W |
| R _{th(c-h)} | Thermal resistance (case to heatsink) | Double side cooled | 0.0014 °C/W |
| T _{jmax} | Max operating junction temperature | | 125 °C |
| T _{stg} | Storage temperature | | -40 / 125 °C |
| F | Clamping force ± 10% | | 76 kN |
| | Mass | | 1800 g |



Ordering information GPTS7224-VVGL

VV: blocking voltage / 100 (e.g. 75 for 7500 V)

G: trigger lead type (**S** = straight **T** = twisted **blank** = no leads)

L: trigger lead length x 100mm (**3 - 4 - 5 - 7** **blank** = no leads)

In the interest of product improvement Green Power Solutions reserves the right to change any specification given in this data sheet without notice.