

GPTP3180

PHASE CONTROLLED SCR

High reliability operation
 DC power supply
 AC drives

VOLTAGE UP TO 2200 V
AVERAGE CURRENT 1800 A
SURGE CURRENT 36 kA

BLOCKING CHARACTERISTICS

| Characteristic | Conditions | Value | |
|----------------|---|---|-------|
| VRRM | Repetitive peak reverse voltage | 2200 V | |
| VRSM | Non-repetitive peak reverse voltage | 2200 V | |
| VDRM | Repetitive peak off-state voltage | 2300 V | |
| IDRM | Repetitive peak off-state current, max. | VDRM, single phase, half wave, T _j = T _{jmax} | 75 mA |
| IRRM | Repetitive peak reverse current, max. | VRRM, single phase, half wave, T _j = T _{jmax} | 75 mA |

ON-STATE CHARACTERISTICS

| | | | |
|---------------------|--|--|------------------------|
| I _{T(AV)} | Average on-state current | Sine wave, 180° conduction, Th = 55 °C | 1800 A |
| I _{T(RMS)} | R:M:S on-state current | Sine wave, 180° conduction, Th = 55 °C | 2826 A |
| I _{TSM} | Surge on-state current | Non rep. half sine wave, 50 Hz, V _R = 0 V, T _j = T _{jmax} | 36 kA |
| I ² t | I ² t for fusing coordination | | 6480 kA ² s |
| V _{T(TO)} | Threshold voltage | T _j = T _{jmax} | 0.992 V |
| r _T | On-state slope resistance | T _j = T _{jmax} | 0.206 mΩ |
| V _{TM} | Peak on-state voltage, max | On-state current I _T = 2000 A, T _j = T _{jmax} | 1.40 V |
| I _H | Holding current, typ | T _j = 25 °C | 300 mA |
| I _L | Latching current, typ | T _j = 25 °C | 700 mA |

TRIGGERING CHARACTERISTICS

| | | | |
|--------------------|--------------------------------|---|--------|
| V _{GT} | Gate trigger voltage | T _j = 25 °C, V _D = 5 V | 3.0 V |
| I _{GT} | Gate trigger current | T _j = 25 °C, V _D = 5 V | 250 mA |
| V _{GD} | Non-trigger voltage | V _D = 67% VRRM, T _j = T _{jmax} | 0.25 V |
| P _{GM} | Peak gate power dissipation | Pulse width 100 μs | 150 W |
| P _{G(AV)} | Average gate power dissipation | | 2 W |
| I _{FGM} | Peak gate current | | 10 A |
| V _{FGM} | Peak gate voltage (forward) | | 10 V |
| V _{RGM} | Peak gate voltage (reverse) | | 12 V |

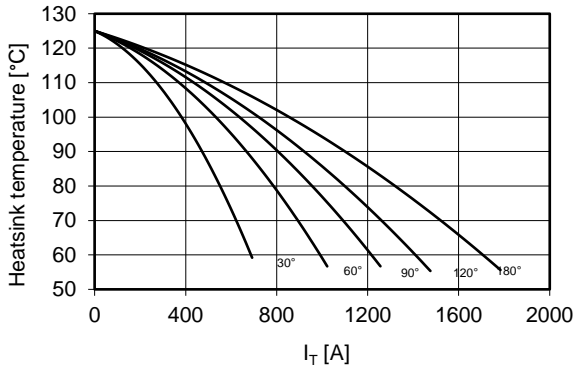
SWITCHING CHARACTERISTICS

| | | | |
|----------------|--|---|-----------|
| di/dt | Critical rate of rise of on-state current | T _j = T _{jmax} | 200 A/μs |
| dV/dt | Critical rate of rise of off-state voltage | T _j = T _{jmax} | 1000 V/μs |
| t _q | Turn-off time, typ | T _j = T _{jmax} , I _T = 1000 A, di/dt = -20 A/μs V _R = 50 V, V _D = 67% VDRM, dV/dt = 20 V/μs | μs |

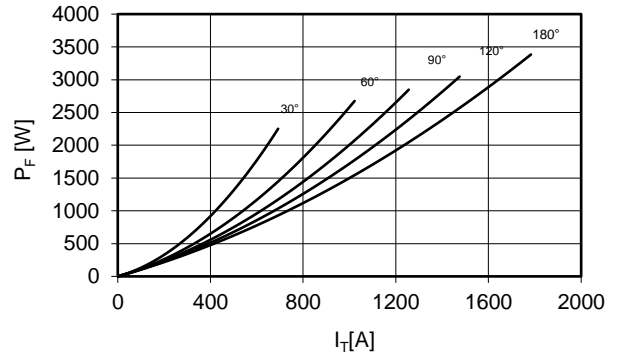
THERMAL AND MECHANICAL CHARACTERISTICS

| | | | |
|----------------------|---------------------------------------|--------------------|--------------|
| R _{th(j-c)} | Thermal resistance (junction to case) | Double side cooled | 0.015 °C/W |
| R _{th(c-h)} | Thermal resistance (case to heatsink) | Double side cooled | 0.006 °C/W |
| T _{jmax} | Max operating junction temperature | | 125 °C |
| T _{stg} | Storage temperature | | -40 / 125 °C |
| F | Clamping force ± 10% | | 22 kN |
| | Mass | | 520 g |

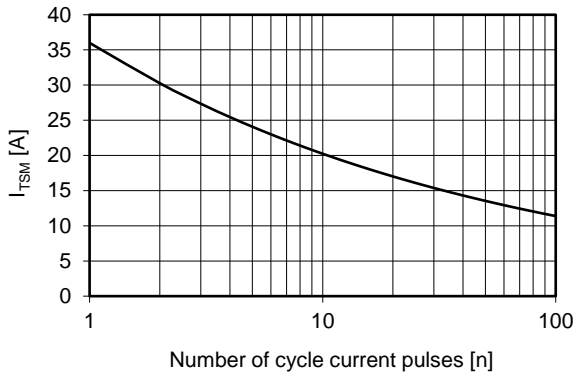
Current rating - sine wave



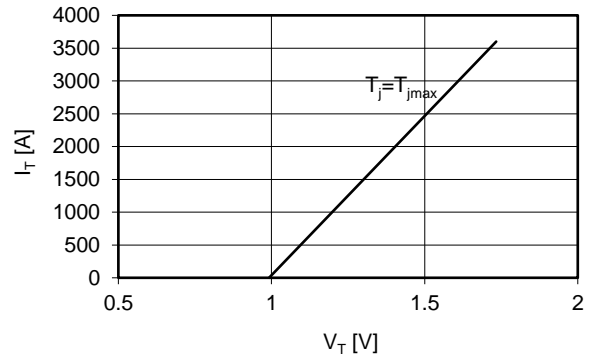
Power loss - sine wave



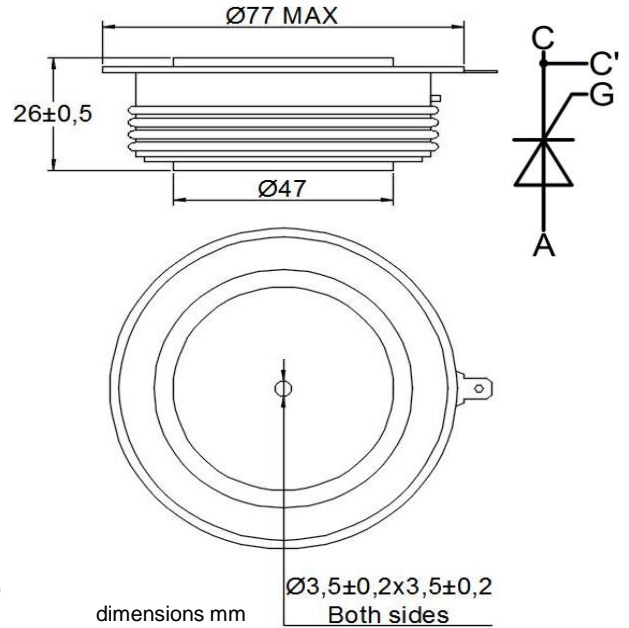
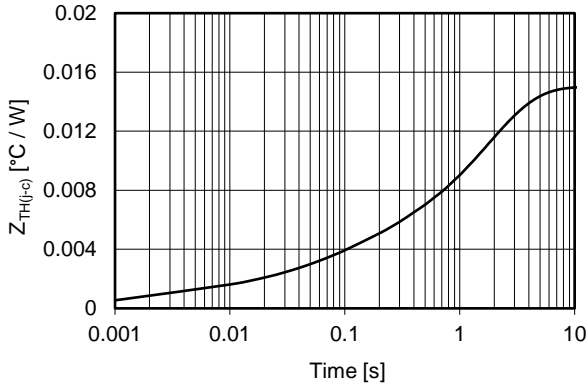
Maximum surge current d.s. cooled



On-state voltage drop



Thermal impedance (j-c)



Ordering information GPTP3180-VVGL

- VV**: blocking voltage / 100 (e.g. 22 for 2200 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.