

# GPTP3180

## PHASE CONTROLLED SCR

High reliability operation  
 DC power supply  
 AC drives

<b>VOLTAGE UP TO</b>	<b>2200 V</b>
<b>AVERAGE CURRENT</b>	<b>1800 A</b>
<b>SURGE CURRENT</b>	<b>36 kA</b>

### 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, Tj = Tjmax	75 mA
IRRM	Repetitive peak reverse current, max.	VRRM, single phase, half wave, Tj = Tjmax	75 mA

### ON-STATE CHARACTERISTICS

IT(AV)	Average on-state current	Sine wave, 180° conduction, Th = 55 °C	1800 A
IT(RMS)	R:M:S on-state current	Sine wave, 180° conduction, Th = 55 °C	2826 A
ITSM	Surge on-state current	Non rep. half sine wave, 50 Hz, VR = 0 V, Tj = Tjmax	36 kA
I²t	I² t for fusing coordination		6480 kA²s
Vt(TO)	Threshold voltage	Tj = Tjmax	0.992 V
rT	On-state slope resistance	Tj = Tjmax	0.206 mΩ
VTM	Peak on-state voltage, max	On-state current It = 2000 A, Tj = Tjmax	1.40 V
IH	Holding current, typ	Tj = 25 °C	300 mA
IL	Latching current, typ	Tj = 25 °C	700 mA

### TRIGGERING CHARACTERISTICS

VGT	Gate trigger voltage	Tj = 25 °C, Vd = 5 V	3.0 V
IGT	Gate trigger current	Tj = 25 °C, Vd = 5 V	250 mA
VGD	Non-trigger voltage	VD = 67% VRRM, Tj = Tjmax	0.25 V
PGM	Peak gate power dissipation	Pulse width 100 μs	150 W
PG(AV)	Average gate power dissipation		2 W
IFGM	Peak gate current		10 A
VFGM	Peak gate voltage (forward)		10 V
VRGM	Peak gate voltage (reverse)		12 V

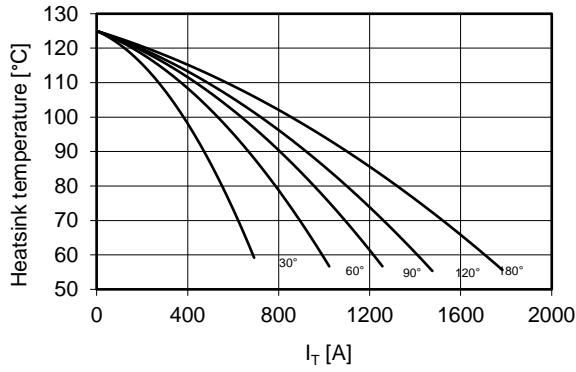
### SWITCHING CHARACTERISTICS

di/dt	Critical rate of rise of on-state current	Tj = Tjmax	200 A/μs
dV/dt	Critical rate of rise of off-state voltage	Tj = Tjmax	1000 V/μs
tq	Turn-off time, typ	Tj = Tjmax, IT = 1000 A, di/dt = -20 A/μs VR = 50 V, VD = 67% VDRM, dV/dt = 20 V/μs	μs

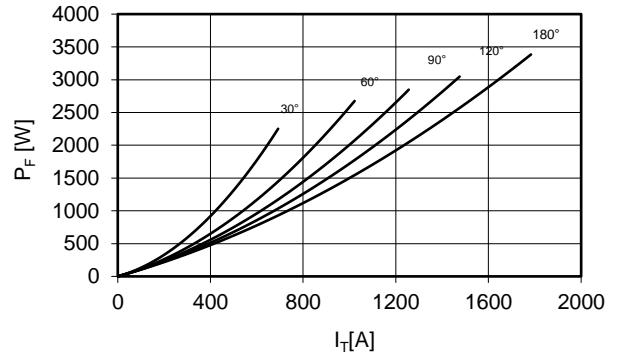
### THERMAL AND MECHANICAL CHARACTERISTICS

Rth(j-c)	Thermal resistance (junction to case)	Double side cooled	0.015 °C/W
Rth(c-h)	Thermal resistance (case to heatsink)	Double side cooled	0.006 °C/W
Tjmax	Max operating junction temperature		125 °C
Tstg	Storage temperature		-40 / 125 °C
F	Clamping force ± 10%		22 kN
	Mass		520 g

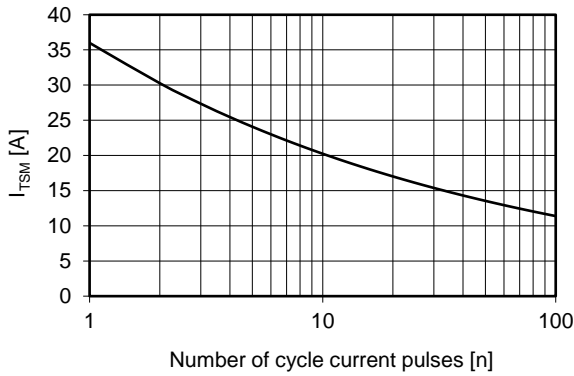
Current rating - sine wave



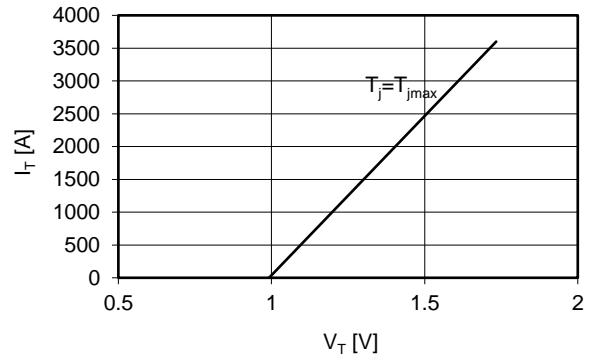
Power loss - sine wave



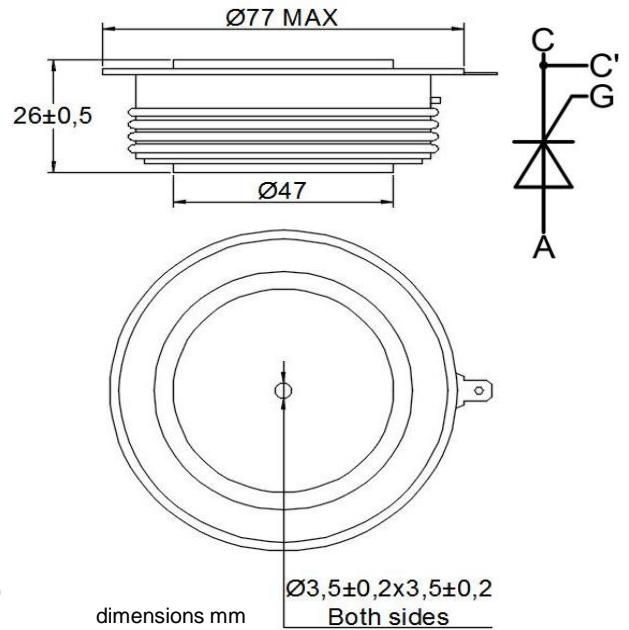
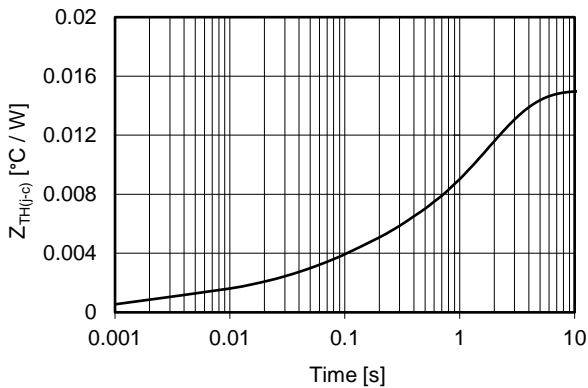
Maximum surge current d.s. cooled



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.