



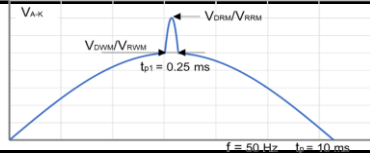
GPBP7038

BIDIRECTIONAL PHASE CONTROLLED SCR

High reliability operation
 DC power supply
 AC drives

VOLTAGE UP TO	6500 V
AVERAGE CURRENT	380 A
SURGE CURRENT	7 kA

BLOCKING CHARACTERISTICS

Characteristic		Conditions	Value
VRRM	Repetitive peak reverse voltage, max		6500 V
VDRM	Repetitive peak off-state voltage, max		6500 V
VRWM	Crest working forward voltage, max		5600 V
VDWM	Crest working reverse voltage, max		5600 V
VRSM	Non-repetitive peak reverse voltage	f = 5 Hz, tp = 10 ms	6500 V
VDSM	Non-repetitive peak off-state voltage		6500 V
IDRM	Repetitive peak off-state current, max.	VDRM, single phase, half wave, Tj = Tjmax	100 mA
IRRM	Repetitive peak reverse current, max.	VRRM, single phase, half wave, Tj = Tjmax	100 mA

ON-STATE CHARACTERISTICS

IT(AV)	Average on-state current	Sine wave, 180° conduction, Th = 55 °C	380 A
IT(RMS)	R.M.S. on-state current	Sine wave, 180° conduction, Th = 55 °C	597 A
ITSM	Surge on-state current	Non rep. half sine wave, 50 Hz, VR = 0 V, Tj = Tjmax	7.0 kA
I²t	I² t for fusing coordination		245 kA²s
VT(TO)	Threshold voltage	Tj = Tjmax	1.29 V
rT	On-state slope resistance	Tj = Tjmax	1.89 mΩ
VTM	Peak on-state voltage, max	On-state current IT = 500 A, Tj = Tjmax	2.24 V
IH	Holding current, max	Tj = 25 °C	150 mA
IL	Latching current, typ	Tj = 25 °C	1000 mA

TRIGGERING CHARACTERISTICS

VGT	Gate trigger voltage	Tj = 25 °C, VD = 5 V	3 V
IGT	Gate trigger current	Tj = 25 °C, VD = 5 V	300 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)		25 V
VRGM	Peak gate voltage (reverse)		5 V

SWITCHING CHARACTERISTICS

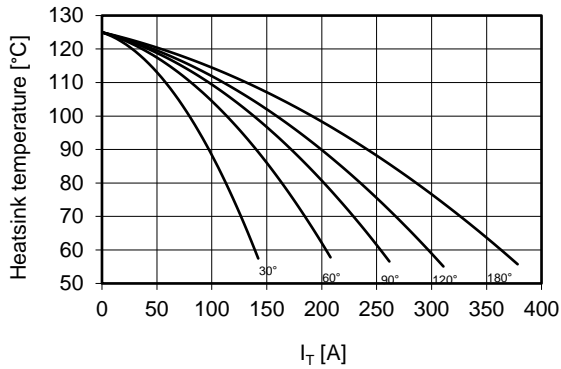
di/dt	Critical rate of rise of on-state current	Tj = 90 °C	100 A/μs
dV/dt	Critical rate of rise of off-state voltage	Tj = Tjmax	2000 V/μs
tq	Turn-off time, typ	Tj = Tjmax, IT = 300 A, di/dt = -7 A/μs	700 μs
		VR = 50 V, VD = 50% VDWM, dV/dt = 20 V/μs	

THERMAL AND MECHANICAL CHARACTERISTICS

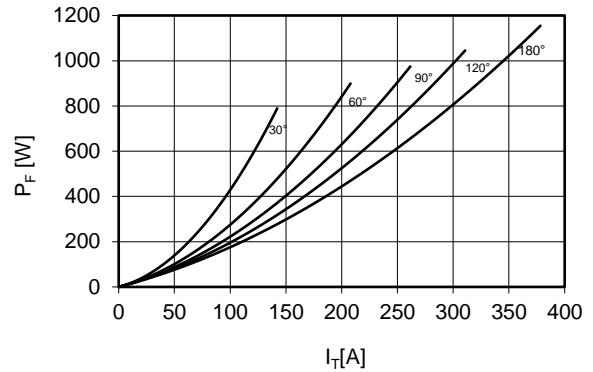
Rth(j-c)	Thermal resistance (junction to case)	Double side cooled	0.052 °C/W
Rth(c-h)	Thermal resistance (case to heatsink)	Double side cooled	0.008 °C/W
Tjmax	Max operating junction temperature		125 °C
Tstg	Storage temperature		-40 / 125 °C
F	Clamping force ± 5%		23 kN
	Mass		500 g

Electrical and thermal characteristics are related to one single thyristor

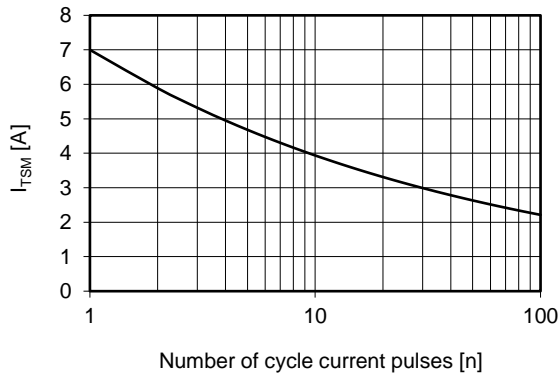
Current rating - sine wave



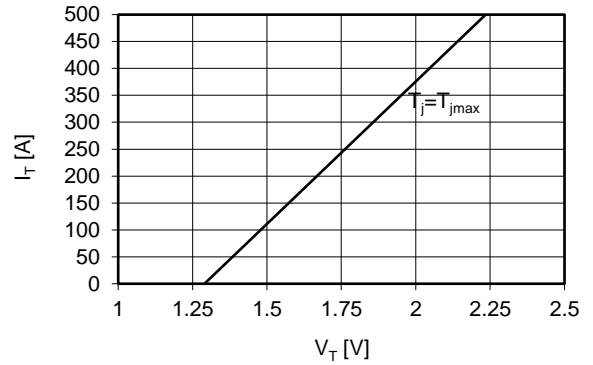
Power loss - sine wave



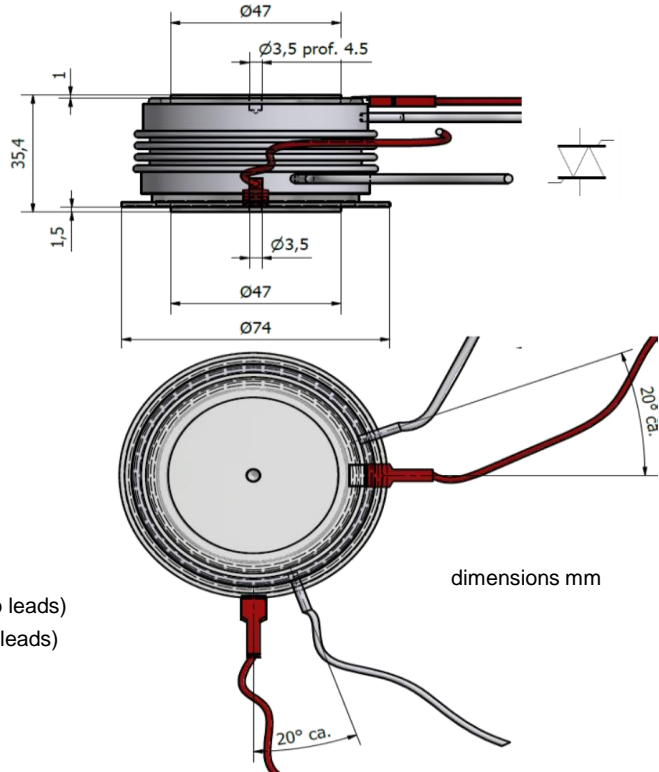
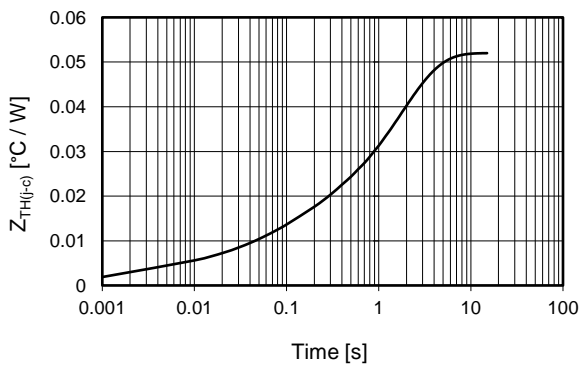
Maximum surge current d.s. cooled



On-state voltage drop



Thermal impedance (j-c)



Ordering information GPBP7038-VVGL

- VV**: blocking voltage / 100 (e.g. 65 for 6500 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.