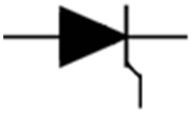
PHASE CONTROL THYRISTOR

T383-1600

- V_{DRM} = **6800 - 7400 V**
- V_{RRM} = **6800 - 7400 V**
- $I_{T(AV)}$ = **2120 A** (T_C = 70 °C)
- $I_{T(AV)}$ = **1740 A** (T_C = 85 °C)
- I_{TSM} = **35 kA** (T_j = 125 °C)



- Amplifying gate
- Low on-state switching losses
- Acceptable for series and parallel connections
- Low dispersion Q_{rr}, V_{TM}

MAXIMUM RATED VALUES

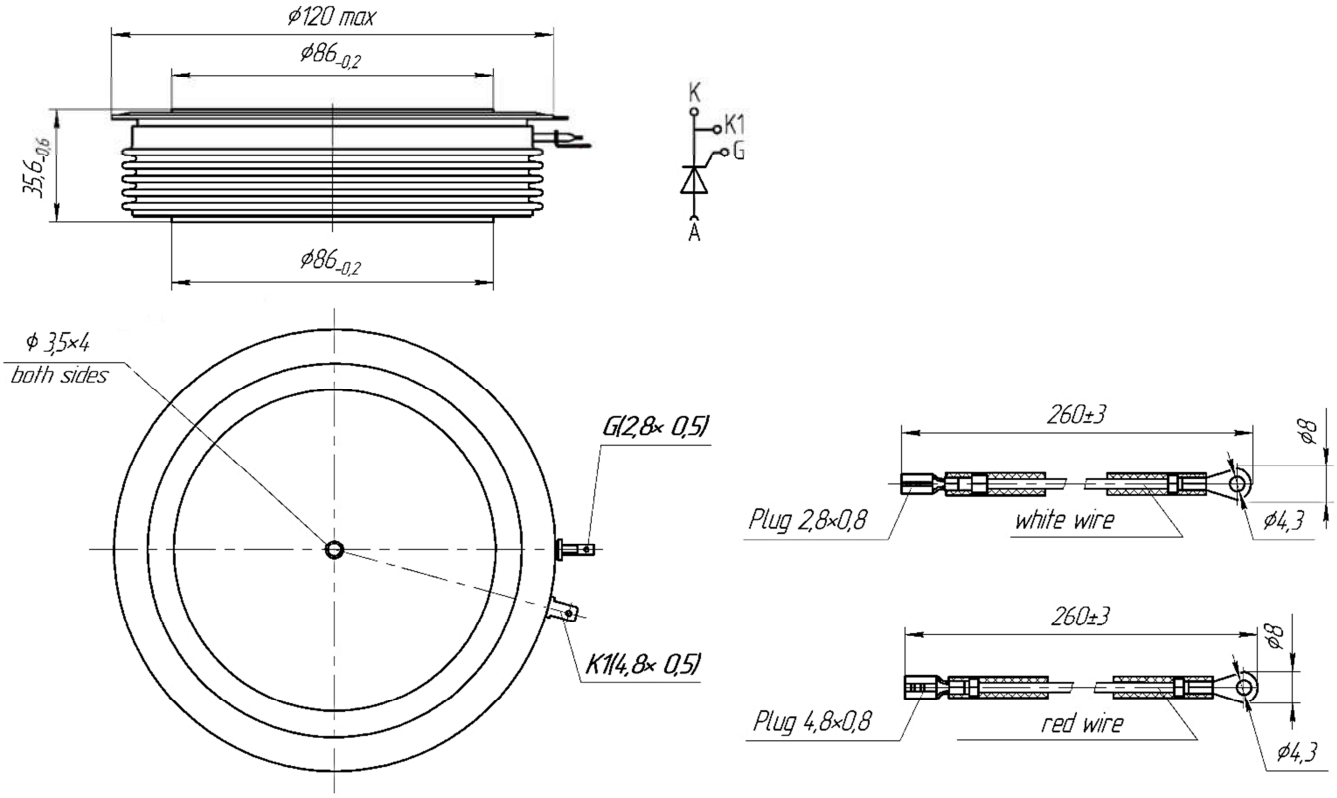
Parameter and conditions	Symbol	Values	Units
Repetitive peak off-state voltage, T_j = -60 …+ 125 °C	V_{DRM}	6800 - 7400	V
Repetitive peak reverse voltage, T_j = -60 …+ 125 °C	V_{RRM}	6800 - 7400	
Non-repetitive peak off-state voltage, T_j = -60 …+ 125 °C	V_{DSM}	6900 - 7500	
Non- repetitive peak reverse voltage, T_j = -60 …+ 125 °C	V_{RSM}	6900 - 7500	
Repetitive peak off-state current/ Repetitive peak reverse current, T_j = 125 °C, V_D / V_R = V_{DRM} / V_{RRM}	I_{DRM} / I_{RRM}	250	mA
Average on-state current, f = 50 Hz, double side cooling, T_C = 85 °C T_C = 70 °C	$I_{T(AV)}$	1740 2120	A
RMS on-state current, T_C = 70 °C, f = 50 Hz	I_{TRMS}	3330	A
Surge non-repetitive on-state current, T_j = 125 °C, V_R = 0, t_p = 10 ms	I_{TSM}	35	kA
Safety factor	I^2t	$6.2 \cdot 10^6$	A^2s
Critical rate of rise of on-state current, T_j = 125 °C, V_D = 0.67V_{DRM}, I_T = 3200 A, I_{FG} = 2 A, t_r = 1 µs, f = 50 Hz	$(di_T/dt)_{crit}$	200	A/µs
Critical rate of rise of off-state voltage, T_j = 125 °C, V_D = 0.67V_{DRM}	$(dv_D/dt)_{crit}$	1600 - 2000	V/µs
Gate power loss, DC	P_{GM}	4	W
Operation junction temperature range	T_j	-60… +125	°C
Storage temperature range	T_{stg}	-60… +50	

T383-1600

ELECTRICAL CHARACTERISTICS

Parameter and conditions	Symbol	Values			Units
		min	typ.	max	
Peak on-state voltage, T_j = 25 °C, I_T = 5030 A	V_{TM}	-	-	3.00	V
On-state threshold voltage, T_j = 125 °C, I_T = 2510 - 7540 A	$V_{T(TO)}$	-	-	1.20	
On-state slope resistance, T_j = 125 °C, I_T = 2510 - 7540 A	r_T	-	-	0.39	mΩ
Delay time, T_j = 25 °C, V_D = 0.67V_{DRM}, I_T = 1600 A, I_{FG} = 2 A, t_r = 0.5 µs	t_d	-	-	4.0	µs
Turn off-time, T_j = 125 °C, I_T = 1600 A, di_T/dt = - 5 A/µs, V_R ≥ 100 V, V_D = 0.67V_{DRM}, dv_D/dt = 50 V/µs	t_q	-	1000	-	
Reverse recovery charge, T_j = 125 °C, I_T = 1600 A, di_T/dt = - 5 A/µs, V_R ≥ 100 V	Q_{RR}	-	-	7000	µAs
Holding current, T_j = 25 °C, V_D = 12 V	I_H	-	-	300	mA
Latching current, T_j = 25 °C, V_D = 12 V, I_{FG} = 2 A, t_r = 0.5 µs	I_L	-	-	1500	
Gate trigger voltage, V_D = 12 V, T_j = - 60 °C T_j = 25 °C T_j = 125 °C	V_{GT}	-	-	3.5 2.5 2.0	V
Gate trigger current, V_D = 12 V, T_j = - 60 °C T_j = 25 °C T_j = 125 °C	I_{GT}	-	-	450 250 200	mA
Gate non-trigger direct voltage, T_j = 125 °C, V_D = 0.67V_{DRM}	V_{GD}	0.35	-	-	V
Gate non-trigger direct current, T_j = 125 °C, V_D = 0.67V_{DRM}	I_{GD}	15	-	-	mA
THERMAL PARAMETERS					
Thermal junction to case resistance, DC: double side cooled DC: anode side cooled DC: cathode side cooled	$R_{th(j-c)}$ $R_{th(j-cA)}$ $R_{th(j-cK)}$	-	-	0.0080 0.0160 0.0160	°C/W
Thermal case to heatsink resistance, double side cooled single side cooled	$R_{th(c-h)}$	-	-	0.0025 0.0050	
MECHANICAL PARAMETERS					
Weight	w	-	1.8	-	kg
Clamping force	F	60	-	80	kN
Maximum acceleration (at nominal mounting force)	a	-	-	100	m/s^2
Minimal gate-anode distance on insulator surface	D_s	-	42.8	-	mm

T383-1600



Device Outline Drawing
(dimensions in mm)

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