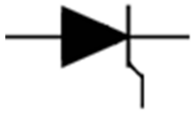
PHASE CONTROL THYRISTOR

T193-2500

- V_{DRM} = **3400 - 4200 V**
- V_{RRM} = **3400 - 4200 V**
- $I_{T(AV)}$ = **3720 A** (T_C = 70 °C)
- $I_{T(AV)}$ = **3030 A** (T_C = 85 °C)
- I_{TSM} = **68 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}	3400 - 4200	V
Repetitive peak reverse voltage, T_j = -60 …+ 125 °C	V_{RRM}	3400 - 4200	
Non-repetitive peak off-state voltage, T_j = -60 …+ 125 °C	V_{DSM}	3500 - 4300	
Non- repetitive peak reverse voltage, T_j = -60 …+ 125 °C	V_{RSM}	3500 - 4300	
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}	300	mA
Average on-state current, f = 50 Hz, double side cooling, T_C = 85 °C T_C = 70 °C	$I_{T(AV)}$	3030 3720	A
RMS on-state current, T_C = 70 °C, f = 50 Hz	I_{TRMS}	5840	A
Surge non-repetitive on-state current, T_j = 125 °C, V_R = 0, t_p = 10 ms	I_{TSM}	68	kA
Safety factor	I^2t	$2.3 \cdot 10^7$	A^2s
Critical rate of rise of on-state current, T_j = 125 °C, V_D = 0.67V_{DRM}, I_T = 5000 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	

T193-2500

ELECTRICAL CHARACTERISTICS

Parameter and conditions	Symbol	Values			Units
		min	typ.	max	
Peak on-state voltage, T_j = 25 °C, I_T = 7850 A	V_{TM}	-	-	1.80	V
On-state threshold voltage, T_j = 125 °C, I_T = 3930 - 11790 A	$V_{T(TO)}$	-	-	1.08	
On-state slope resistance, T_j = 125 °C, I_T = 3930 - 11790 A	r_T	-	-	0.16	mΩ
Delay time, T_j = 25 °C, V_D = 0.67V_{DRM}, I_T = 2500 A, I_{FG} = 2 A, t_r = 0.5 µs	t_d	-	-	4.0	µs
Turn off-time, T_j = 125 °C, I_T = 2500 A, di_T/dt = - 5 A/µs, V_R ≥ 100 V, V_D = 0.67V_{DRM}, dv_D/dt = 50 V/µs	t_q	-	630	-	
Reverse recovery charge, T_j = 125 °C, I_T = 2500 A, di_T/dt = - 5 A/µs, V_R≥ 100 V	Q_{RR}	-	-	3500	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}	0.25	-	-	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	$R_{th(j-c)}$ $R_{th(j-cA)}$ $R_{th(j-cK)}$	-	-	0.0058 0.0116 0.0116	°C/W
Thermal case to heatsink resistance, double side cooled single side cooled	$R_{th(c-h)}$	-	-	0.002 0.004	
MECHANICAL PARAMETERS					
Weight	w	-	3.0	-	kg
Clamping force	F	80	-	100	kN
Maximum acceleration (at nominal mounting force)	a	-	-	100	m/s^2
Minimal gate-anode distance on insulator surface	D_s	-	59	-	mm

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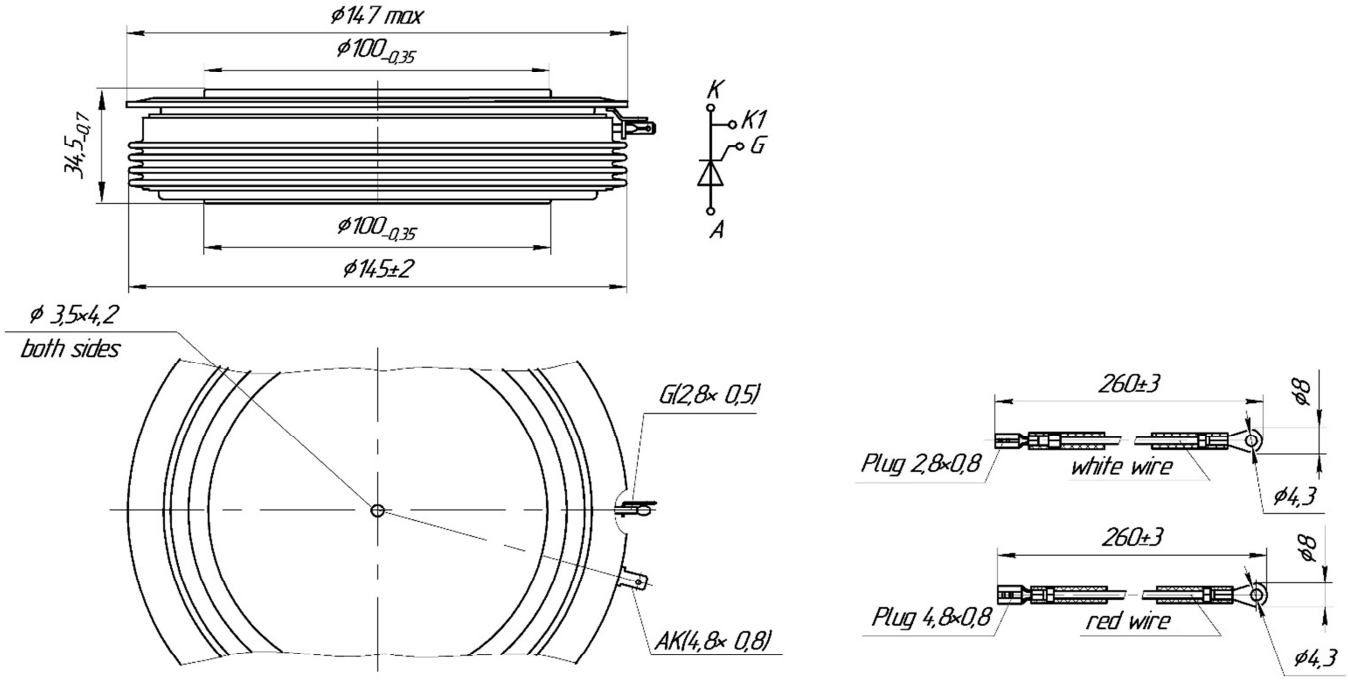

Device Outline Drawing
(dimensions in mm)

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