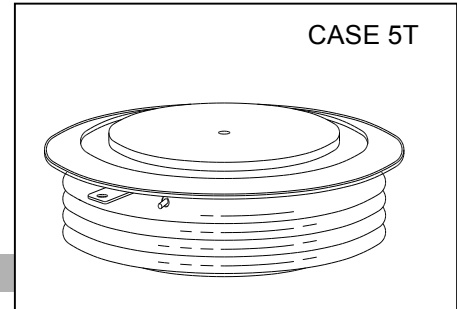


KP1300A/6500V

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Spoke Amplifying Gate Configuration
- . Blocking capability up to 6500volts
- . Guaranteed Maximum Turn-Off Time
- . High dV/dt Capability
- . Pressure Assembled Device



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V _{RRM} (1)	V _{DRM} (1)	V _{RSM} (1)
KP1000	5800	5800	6000
KP1000	6200	6200	6400
KP1000	6500	6500	6700

V_{RRM} = Repetitive peak reverse voltage
V_{DRM} = Repetitive peak off state voltage
V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage and off state leakage	I _{RRM} / I _{DRM}	20 mA 400mA (3)
Critical rate of voltage rise	dV/dt (4)	2000V/μsec

Notes:

All ratings are specified for T_j=25 °C unless otherwise stated.

- (1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to +125 °C.
- (2) 10 msec. max. pulse width
- (3) Maximum value for T_j = 125 °C.
- (4) Minimum value for linear and exponential waveshape to 70% rated V_{DRM}. Gate open. T_j = 125 °C.
- (5) Non-repetitive value.
- (6) The value of di/dt is established in accordance with EIA/NIMA Standard RS-397, Section 5-2-2-6. The value defined would be in addition to that obtained from a snubber circuit, comprising a 0.2 μF capacitor and 20 ohms resistance in parallel with the thyristor under test.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	I _{T(AV)}		1300		A	Sinewave, 180° conduction, T _c =85°C
RMS value of on-state current	I _{TRMS}		2000		A	Nominal value
Peak one cycle surge (non repetitive) current	I _{TSM}		22000		A	10.0 msec (50Hz), sinusoidal waveshape, 180° conduction, T _j = 125 °C
I square t	I ² t		2.4		KA ² s	10.0 msec
Latching current	I _L		150		A	V _D = 24 V; R _L = 12 ohms
Holding current	I _H		80		mA	V _D = 24 V; I = 2.5 A
Peak on-state voltage	V _{TM}		3.00		V	I _{TM} = 3000 A; Duty cycle ≤ 0.01%
Critical rate of rise of on-state current (5, 6)	di/dt		200		A/μs	Switching from V _{DRM} ≤ 3000 V, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		100		A/μs	Switching from V _{DRM} ≤ 3000 V

ELECTRICAL CHARACTERISTICS AND RATINGS (cont'd) Power Thyristor KP1300A**Gating**

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	$t_p = 40 \mu s$
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		20		A	
Gate current required to trigger all units	I_{GT}		300		mA	$V_D = 6 V; R_L = 3 \text{ ohms}; T_j = +25^\circ C$
Gate voltage required to trigger all units	V_{GT}		3		V	$V_D = 6 V; R_L = 3 \text{ ohms}; T_j = 25^\circ C$
Peak negative voltage	V_{GRM}		20		V	

Dynamic

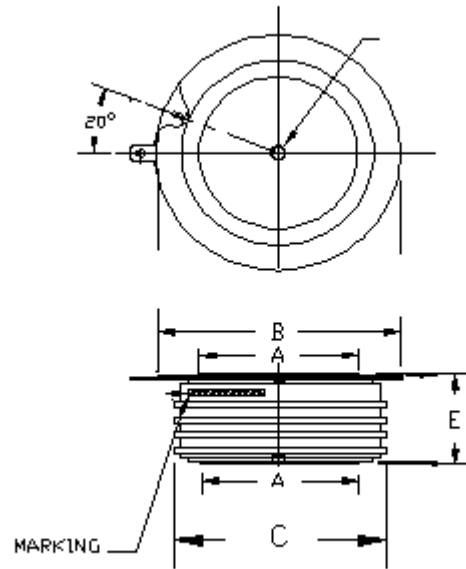
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		3.0		μs	$I_{TM} = 50 A; V_D = 2000 V$ Gate pulse: $V_G = 20 V; R_G = 20 \text{ ohms};$ $t_r = 0.1 \mu s; t_p = 20 \mu s$
Turn-off time (with $V_R = -50 V$)	t_q		700	250	μs	$I_{TM} > 2000 A; di/dt = 10 A/\mu s;$ $V_R \geq -50 V; \text{Re-applied } dV/dt = 500$ $V/\mu s \text{ linear to } 2000 V; V_G = 0;$ $T_j = 125^\circ C; \text{Duty cycle } \geq 0.01\%$
Reverse recovery current	I_{rr}				A	$I_{TM} > 2000 A; di/dt = 10 A/\mu s;$ $V_R \geq -50 V$

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^\circ C$	
Storage temperature	T_{stg}	-40	+150		$^\circ C$	
Thermal resistance - junction to case	$R_{\theta(j-c)}$		0.006		$^\circ C/W$	Double sided cooled
Thermal resistance - case to sink	$R_{\theta(c-s)}$		0.002		$^\circ C/W$	Double sided cooled * *
Mounting force	F		60		kN	

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing in page 3 of this Technical Data



A: 73 mm

B: 110 mm

C: 98 mm

E: 36 mm