K P 2 0 0 0 A / 5 0 0 0 V

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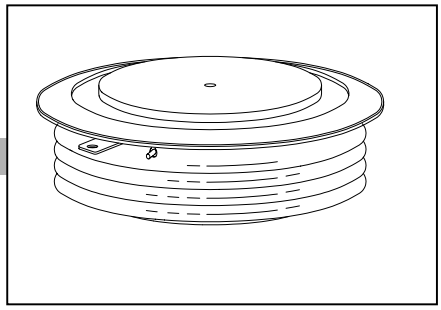
HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- **. All Diffused Structure**
- **. Spoke Amplifying Gate Configuration**
- **. High dV/dt Capability**
- **. Pressure Assembled Device**

CASE 5T



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
KP2000A	5000	5000	5200

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}	10 mA 200 mA (3)
Critical rate of voltage rise	dV/dt (4)	1000 V/µsec

Notes:
All ratings are specified for Tj=25 °C unless otherwise stated.
(1) All voltage ratings are specified for an applied 50Hz/60zHz sinusoidal waveform over the temperature range -40 to +125 °C.
(2) 10 msec. max. pulse width
(3) Maximum value for Tj = 125 °C.
(4) Minimum value for linear and exponential waveshape to 70% rated V_{DRM}. Gate open. Tj = 125 °C.
(5) Non-repetitive value.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{T(AV)}$		2000		A	Sinewave,180° conduction,T_c=70°C
RMS value of on-state current	I_{TRMS}		4000		A	Nominal value
Peak one cpstcle surge (non repetitive) current	I_{TSM}		40000 36000		A A	8.3 msec (60Hz), sinusoidal wave-shape, 180° conduction, T_j = 125 °C 10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T_j = 125 °C
I square t	I^2t		$10x10^6$		A^2s	8.3 msec and 10.0 msec
Latching current	I_L		1500		mA	V_D = 24 V; R_L= 12 ohms
Holding current	I_H		250		mA	$V_{D=}$ 24 V; I = 2.5 A
Peak on-state voltage	V_{TM}		2.40		V	I_{TM} = 5000 A
Critical rate of rise of on-state current (5)	di/dt		300		A/µs	Switching from V_{DRM} ≤ 800 V, non-repetitive
Critical rate of rise of on-state current	di/dt		100		A/µs	Switching from V_{DRM} ≤ 800 V

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	t_p = 40 us
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		20		A	
Gate current	I_{GT}		300		mA	
Gate voltage	V_{GT}	0.30	3.5		V	

Dynamic

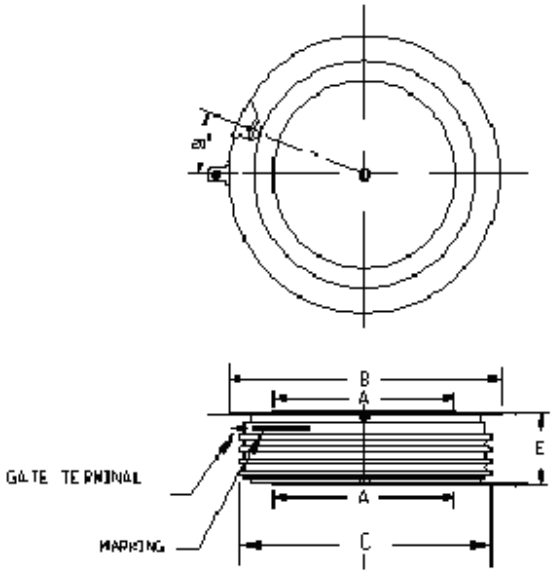
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d				µs	
Turn-off time (with V_R = -50 V)	t_q				µs	

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		^oC	
Storage temperature	T_{stg}	-40	+150		^oC	
Thermal resistance - junction to case	$R_{\Theta (j-c)}$		0.012		$^oC/W$	Double sided cooled Single sided cooled
Thermal resistamce - case to sink	$R_{\Theta (c-s)}$		0.002		$^oC/W$	Double sided cooled * Single sided cooled *
Mounting force	P	8000	10000		lb. kN	
Weight	W				Lb. Kg.	

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing



A: 73 MM
B: 109 MM
C: 96 MM
E: 36 MM