



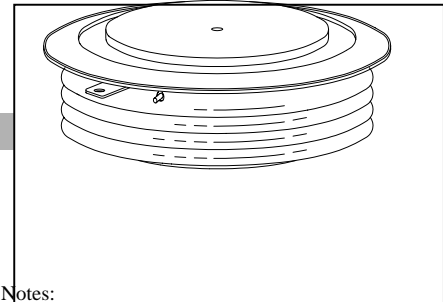
KP1500A/4000V

HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

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

CASE 5T



Notes:

All ratings are specified for $T_j=25^\circ\text{C}$ unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to $+125^\circ\text{C}$.

(2) 10 msec. max. pulse width

(3) Maximum value for $T_j = 125^\circ\text{C}$.

(4) Minimum value for linear and exponential waveshape to 70% rated V_{DRM} . Gate open. $T_j = 125^\circ\text{C}$.

(5) Non-repetitive value.

ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

Device Type	V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
KP1500A	4000	4000	4400

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	$I_{\text{RRM}} / I_{\text{DRM}}$	10 mA 200 mA (3)
Critical rate of voltage rise	dV/dt (4)	1000 V/ μsec

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Average value of on-state current	$I_{\text{T(AV)}}$		1500		A	Sinewave, 180° conduction, $T_c=70^\circ\text{C}$
RMS value of on-state current	I_{TRMS}		2200		A	Nominal value
Peak one cycle surge (non repetitive) current	I_{TSM}		40000		A	8.3 msec (60Hz), sinusoidal waveshape, 180° conduction, $T_j = 125^\circ\text{C}$ 10.0 msec (50Hz), sinusoidal waveshape, 180° conduction, $T_j = 125^\circ\text{C}$
			36000		A	
I square t	I^2t		4×10^6		A^2s	8.3 msec and 10.0 msec
Latching current	I_{L}		1500		mA	$V_{\text{D}} = 24 \text{ V}; R_{\text{L}} = 12 \text{ ohms}$
Holding current	I_{H}		250		mA	$V_{\text{D}} = 24 \text{ V}; I = 2.5 \text{ A}$
Peak on-state voltage	V_{TM}		2.40		V	$I_{\text{TM}} = 5000 \text{ A}$
Critical rate of rise of on-state current (5)	di/dt		300		A/ μs	Switching from $V_{\text{DRM}} \leq 800 \text{ V}$, non-repetitive
Critical rate of rise of on-state current	di/dt		100		A/ μs	Switching from $V_{\text{DRM}} \leq 800 \text{ V}$

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Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	$t_p = 40 \text{ us}$
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

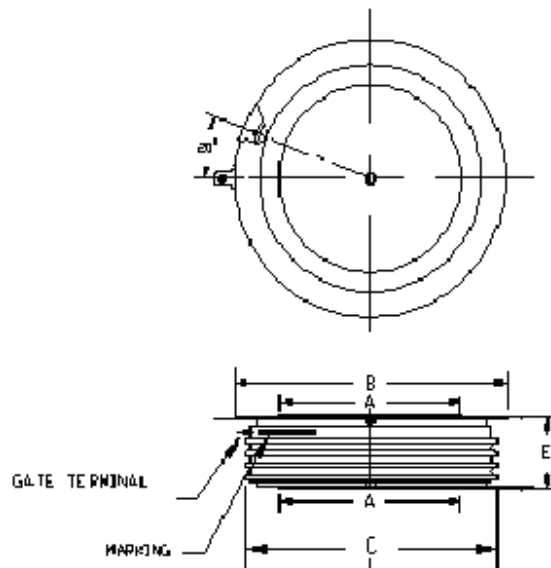
Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d				μs	
Turn-off time (with $V_R = -50 \text{ V}$)	t_q				μs	

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		$^{\circ}\text{C}$	
Storage temperature	T_{stg}	-40	+150		$^{\circ}\text{C}$	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		0.012		$^{\circ}\text{C/W}$	Double sided cooled Single sided cooled
Thermal resistance - case to sink	$R_{\Theta(c-s)}$		0.002		$^{\circ}\text{C/W}$	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: 99 MM
 E: 26 MM