

**Disc Type Thyristor****Features**

- Center amplifying gate
- Metal case with ceramic insulator
- tested according to IEC standards

**Typical Applications**

- DC motor controls
- Controlled DC power supplies
- AC controllers

**1100A****Major Ratings and Characteristics**

Parameters	KP1100A	Units
$I_{T(AV)}$	1100	A
@ $T_{hs}$	55	°C
$I_{T(RMS)}$	1730	A
$I_{TSM}$ @ 50Hz	20.0	KA
@ 60Hz	21.2	KA
$I^2 t$ @ 50Hz	2000	KA <sup>2</sup> s
@ 60Hz	1865	KA <sup>2</sup> s
$V_{DRM} / V_{RRM}$ typical	1600	V
$T_q$ typical	200	μs
$T_J$ range	- 40 to 125	°C

## ELECTRICAL SPECIFICATIONS

### Voltage Ratings

Type number	Voltage Code	$V_{RRM} / V_{DRM}$ , maximum repetitive peak reverse voltage V	$V_{RSM}$ , maximum non-repetitive peak rev. voltage V	$I_{RRM} / I_{DRM}$ max. @ $T_J = T_{J \text{ max.}}$ mA
KP1100A	06	600	700	100
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	

### On-state Conduction

Parameter	KP1100A	Units	Conditions		
$I_{T(AV)}$ Maximum average on-state current @ Case temperature	1000	A	180° conduction, half sine wave		
	85	°C	double side (single side) cooled		
$I_{(RMS)}$ Maximum RMS on-state current	1600	A	DC @25 ° heatsink temperature double side cooled		
$I_{TSM}$ Maximum peak, one-cycle non-repetitive surge current	20.0	KA	t = 10ms	No voltage	Sinusoidal half wave, Initial T = T max.
	21.2		t = 8.3ms	reapplied	
	17		t = 10ms	100% $V_{RRM}$	
	18.1		t = 8.3ms	reapplied	
$I^2 t$ Maximum $I^2 t$ for fusing	2000	$KA^2 s$	t = 10ms	No voltage	
	1865		t = 8.3ms	reapplied	
	1445		t = 10ms	100% $V_{RRM}$	
	1360		t = 8.3ms	reapplied	
$V_{TM}$ Maximum on-state or forward	1.80	V	$I_{pk} = 3000A, T_J = 125^\circ C, tp = 10ms$ sine pulse		
$I_L$ Typical latching current	1000	mA	$T_J = 25^\circ C$ , anode supply 12V resistive load		

### Switching

Parameter	KP1100A	Units	Conditions
$di/dt$ Max. repetitive 50Hz (no repetitive) rate of rise of turned-on current	200	A/ $\mu s$	Gate drive 20V, 20 , $tr \leq 1\mu s$ $T_J = T_{J \text{ max.}}$ , anode voltage $\leq V_{DRM}$
$t_d$ Maximum delay time	1.9	$\mu s$	Gate current 1A, $di_y/dt = 1A$ , $V_d = 0.67\% V_{DRM}$ $T_J = 25^\circ C$
$T_q$ Typical turn-off time	200	$\mu s$	$I_{TM} = 550 A, tp \leq 500 \mu s, T_J = T_{J \text{ max.}}$ , $di/dt = 40A/\mu s$ , $V_R = 50V$ $dv/dt = 20V/\mu s$ , Gate 0V 100 $\Omega$

**Blocking**

Parameter	KP1100A	Units	Conditions
dv/dt Maximum critical rate of rise of off-state voltage	1000	V/ $\mu$ s	T <sub>J</sub> = T <sub>J</sub> max linear to 80% rated V <sub>DRM</sub>
I <sub>DRM</sub> I <sub>RRM</sub> Max. peak reverse and off-state leakage current	100	mA	T <sub>J</sub> = T <sub>J</sub> max, rated V <sub>DRM</sub> /V <sub>RRM</sub> applied

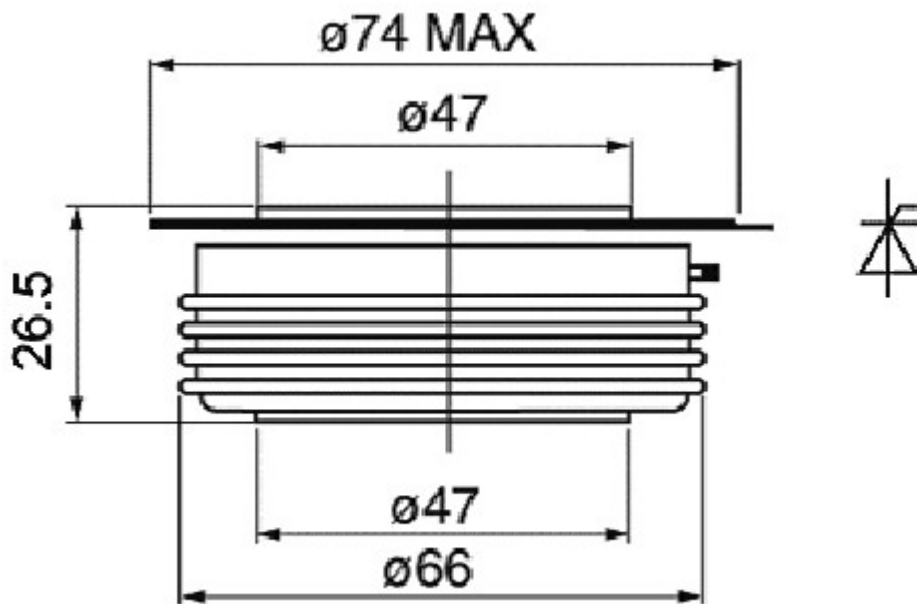
**Triggering**

Parameter	KP1100A	Units	Conditions	
P <sub>GM</sub> Maximum peak gate power	16	W	T <sub>J</sub> = T <sub>J</sub> max, t <sub>p</sub> ≤ 5ms	
P <sub>G(AV)</sub> Maximum average gate power	3		T <sub>J</sub> = T <sub>J</sub> max, f=50Hz, d%=50	
I <sub>GM</sub> Max. peak positive gate current	3.0	A	T <sub>J</sub> = T <sub>J</sub> max, t <sub>p</sub> ≤ 5ms	
+V <sub>GM</sub> Maximum peak positive gate voltage	20	V	T <sub>J</sub> = T <sub>J</sub> max, t <sub>p</sub> ≤ 5ms	
-V <sub>GM</sub> Maximum peak negative gate voltage	5.0			
I <sub>GT</sub> DC gate current required to trigger	200	mA	T <sub>c</sub> = 25°C	Max. required gate trigger/ current/ voltage are the lowest value which will trigger all units 12V anode-to-cathode applied
V <sub>GT</sub> DC gate voltage required to trigger	3.0	V	T <sub>c</sub> = 25°C	
I <sub>GD</sub> DC gate current not to trigger	10	mA	T <sub>c</sub> = T <sub>J</sub> max	Max. gate current/ voltage not to trigger is the max. value which will not trigger any unit with rated V anode-to-cathode applied
V <sub>GD</sub> DC gate voltage not to trigger	0.25	V		

**Thermal and Mechanical Specification**

Parameter	KP1100A	Units	Conditions
T <sub>J</sub> Max. operating temperature	-40 to 125	°C	
T <sub>stg</sub> Max. storage temperature range	-40 to 150		
R <sub>th(J-C)</sub> Thermal resistance, junction to case	0.042 0.021	K/W	DC operation single side cooled DC operation double side cooled
R <sub>th(C-h)</sub> Thermal resistance, case to heatsink	0.006 0.003		DC operation single side cooled DC operation double side cooled
F Mounting torque, ± 10%	24500	Nm	
wt Approximate weight	550	g	

Outline Table



Dimension in mm

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