

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 ² s
@ 60Hz	1865	KA ² 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
	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	$I_{pk} = 3000A$, $T_J = 125^\circ C$, $t_p = 10ms$ 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/ μs	Gate drive 20V, 20 , $t_r \leq 1\mu s$ $T_J = T_{J \text{ max.}}$, anode voltage $\leq V_{DRM}$
t_d Maximum delay time	1.9	μs	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	μs	$I_{TM} = 550A$, $t_p \leq 500\mu s$, $T_J = T_{J \text{ max.}}$, $di/dt = 40A/\mu s$, $V_R = 50V$ $dv/dt = 20V/\mu s$, Gate 0V 100 Ω

Blocking

Parameter	KP1100A	Units	Conditions
dv/dt Maximum critical rate of rise of off-state voltage	1000	V/μs	T _J = T _J max linear to 80% rated V _{DRM}
I _{DRM} I _{RRM} Max. peak reverse and off-state leakage current	100	mA	T _J = T _J max, rated V _{DRM} /V _{RRM} applied

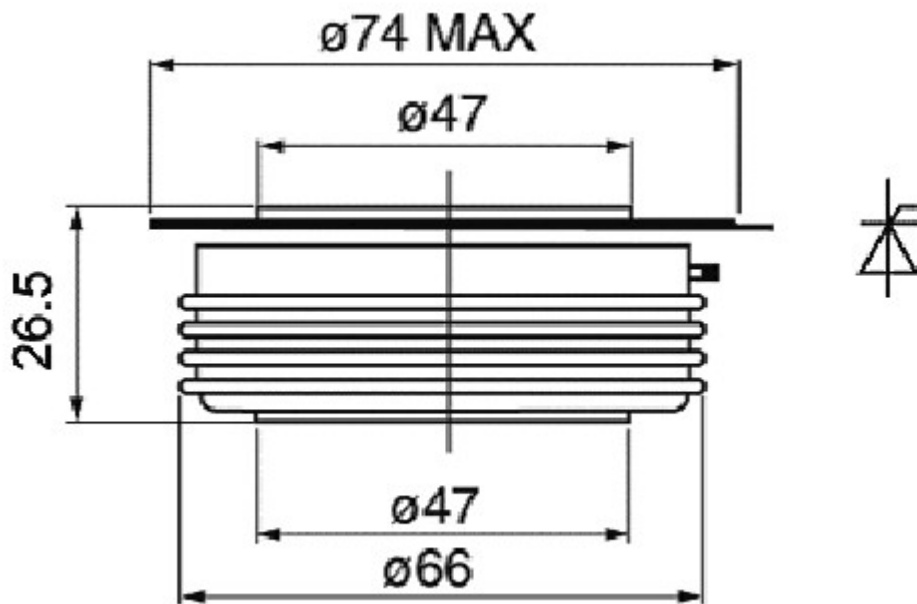
Triggering

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

Thermal and Mechanical Specification

Parameter	KP1100A	Units	Conditions
T _J Max. operating temperature	-40 to 125	°C	
T _{stg} Max. storage temperature range	-40 to 150		
R _{th(J-C)} Thermal resistance, junction to case	0.042 0.021	K/W	DC operation single side cooled DC operation double side cooled
R _{th(C-h)} 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