

# KP1600A-E

## PHASE CONTROL THYRISTOR



### Features

Center amplifying gate  
Metal case with ceramic insulator  
Low on-state and switching losses

### Application

Large power converter  
DC and AC switches  
Active & Passive inverter

$I_{T(AV)}$	1600 A
$V_{DRM}/V_{RRM}$	1100~1800 V
$I_{TSM}$	20KA
$I^2t$	2000 KA <sup>2</sup> S

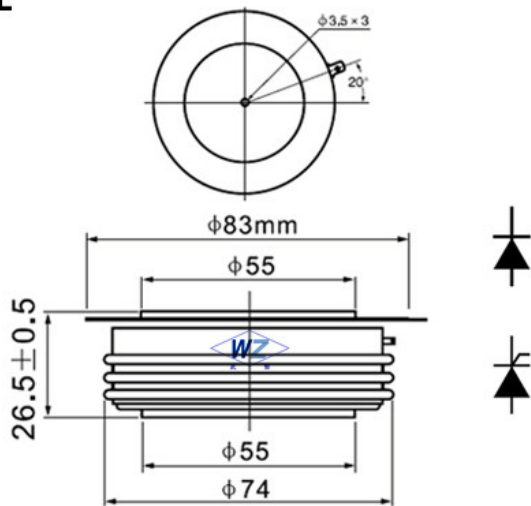
Symb.		parameter	Test Conditions	$T_{J(C)}$	Value	Unit
Current Ratings	$I_{T(AV)}$	Average on-state current	180° half sine wave 50Hz Double side cooled $T_{hs}=61^{\circ}C$	125	1600	A
	$I_{T(AV)}$	Average on-state current	180° half sine wave 50Hz Double side cooled $T_{hs}=55^{\circ}C$	125	1712	A
	$I_{TSM}$	Surge on-state current	10ms half sine wave $V_R=0.6V_{RRM}$	125	20	KA
	$I^2t$	$I^2t$ for fusing coordination		125	2000	KA <sup>2</sup> S
Characteristics	$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage Repetitive peak reverse voltage	$V_{DRM} \& V_{RRM} t_p=10ms$ $V_{DSM} \& V_{RSM}=V_{DRM} \& V_{RRM}+100V$	125	1100-1800	V
	$I_{DRM}$ $I_{RRM}$	Repetitive peak current	$V_{DM}=V_{DRM}$ $V_{RM}=V_{RRM}$	125	Max.100	mA
	$V_{TO}$	Threshold voltage		125	Max.1.10	V
	$V_{TM}$	Threshold voltage	$I_{TM}=4000A, F=26KN$	25	Max.2.20	V
	$r_T$	On-state slop resistance		125	Max.0.18	mΩ
	$I_H$	Holding current	$V_A=12V, I_A=1A$	25	20-300	mA
Dynamic Parameters	dv/dt	Critical rate of rise of off-state voltage	$V_{DM}=67\%V_{DRM}$	125	Max.300	V/μs
	di/dt	Critical rate of rise of on-state current	$V_{DM}=67\%V_{DRM}$ to 600A, Gate pulse $t_r \leq 0.5\mu s$ $I_{GM}=1.5A$	125	Max.200	A/μs
	$t_{rr}$	Reverse recovery time	$I_{TM}=500A, t_p=1000\mu s, V_R=50V$ $di/dt=-20A/\mu s$	125	18.2	μs
	$Q_{rr}$	Reverse Recovery charge		125	1394	μc
Gate Parameters	$I_{GT}$	Gate trigger current	$V_A=12V, I_A=1A$	25	40-300	mA
	$V_{GT}$	Gate trigger voltage		25	0.8-3.0	V
	$V_{GD}$	Non-trigger gate voltage	$V_{DM}=67\%V_{DRM}$	125	Min.0.3	V

## Thermal & Mechanical Data

Symb.	parameter	Test Conditions	T <sub>J</sub> (°C)	Value	Unit
R <sub>th(j-h)</sub>	Thermal resistance Junction to heat sink	At 180° sine wave, double side cooled Clamping force 26KN		0.022	°C/W
F <sub>m</sub>	Mounting force			21-30	KN
T <sub>stg</sub>	Stored temperature			-40-140	°C
W <sub>t</sub>	Weight			620	g

## Dimensions:

# C21



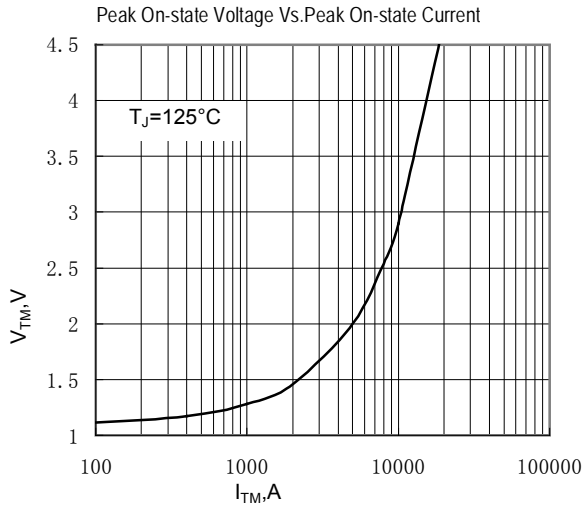


Fig.1

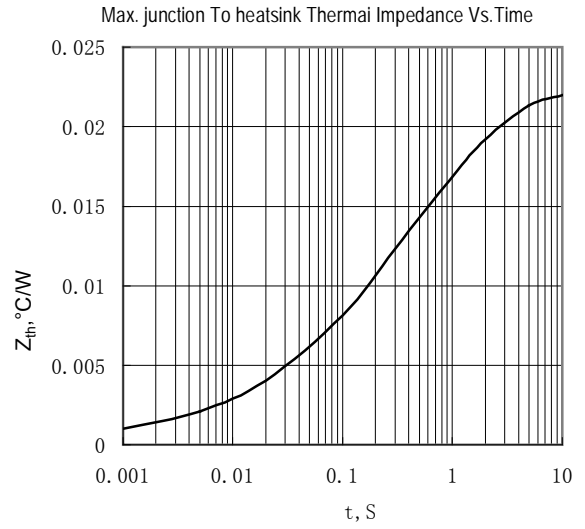


Fig.2

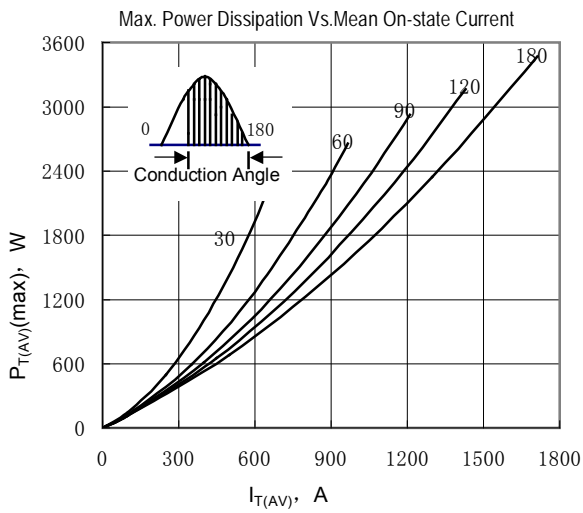


Fig.3

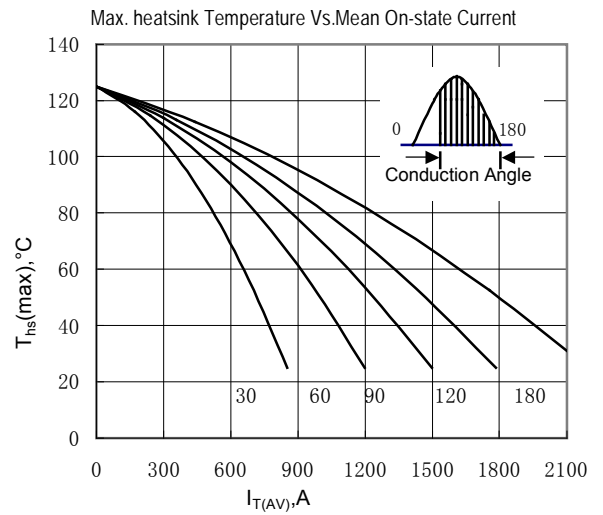


Fig.4

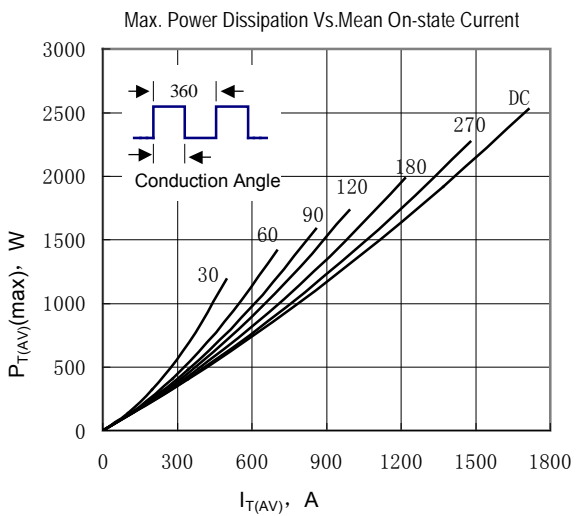


Fig.5

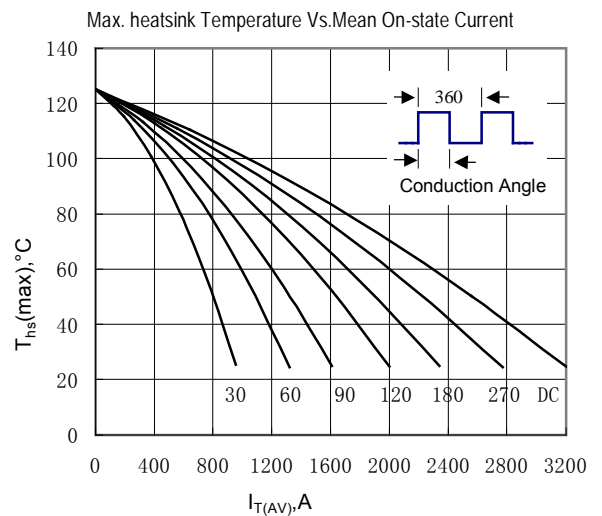


Fig.6

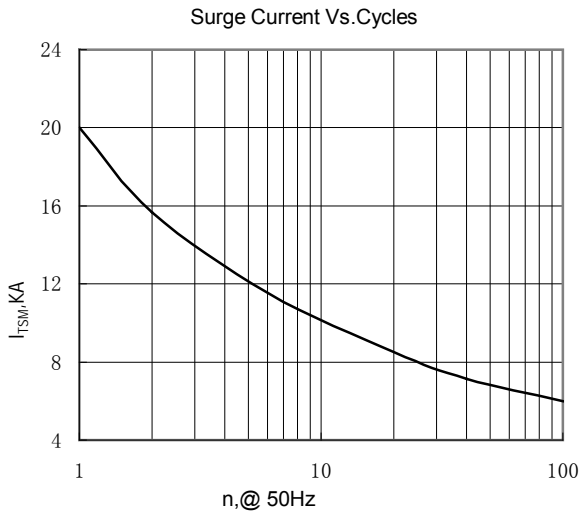


Fig.7

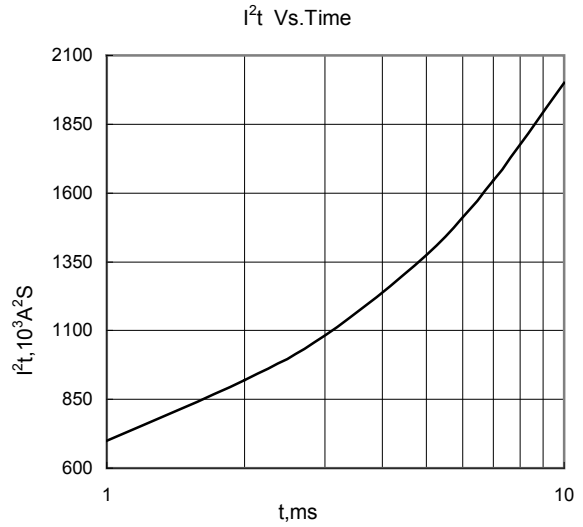


Fig.8

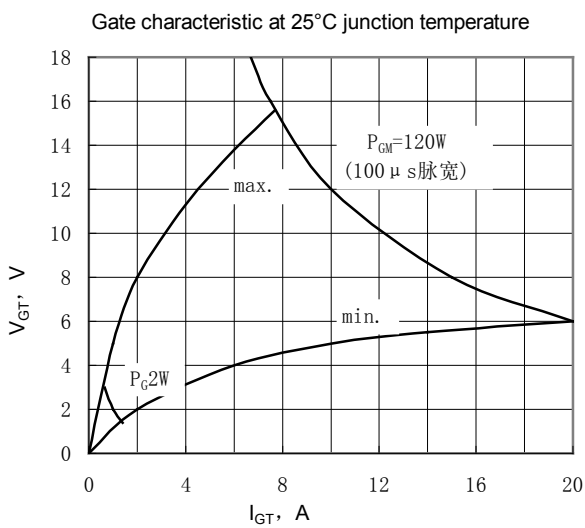


Fig.9

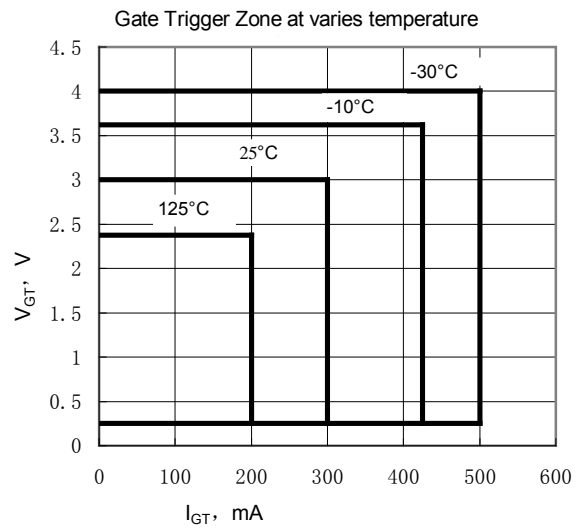


Fig.10

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