ChunZheng

High-end Power Semiconductor Manufacturer

KK300A 800V-1600V

Fast Switching Thyristor

- Low switching losses
- Low reverse recovery charge
- Distributed amplified gate for high di_T/dt

Mean on-state current		I_{TAV}	300 A
Repetitive peak off-state voltage		V_{DRM}	800-1600 V
Repetitive peak reverse voltage		V_{RRM}	
Turn-off time		t_q	18.0-50.0 μs
T_j, °C	– 60-125		

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{TAV}	Mean on-state current	A	300 450	T_c= 85°C; Double side cooled; T_c= 55 °C; Double side cooled; 180° half-sine wave; 50 Hz	
I_{TSM}	Surge on-state current	kA	4.3	T_j=125 °C	10ms half sine wave V_R=0.6V_{RRM}
I^2t	Safety factor	$A^2s \cdot 10^3$	92.0	T_j=125 °C	10ms half sine wave V_R=0.6V_{RRM}
BLOCKING					
V_{DRM}, V_{RRM}	Repetitive peak off-state and Repetitive peak reverse voltages	V	800–1600	T_j=125 °C, t_q=10ms	

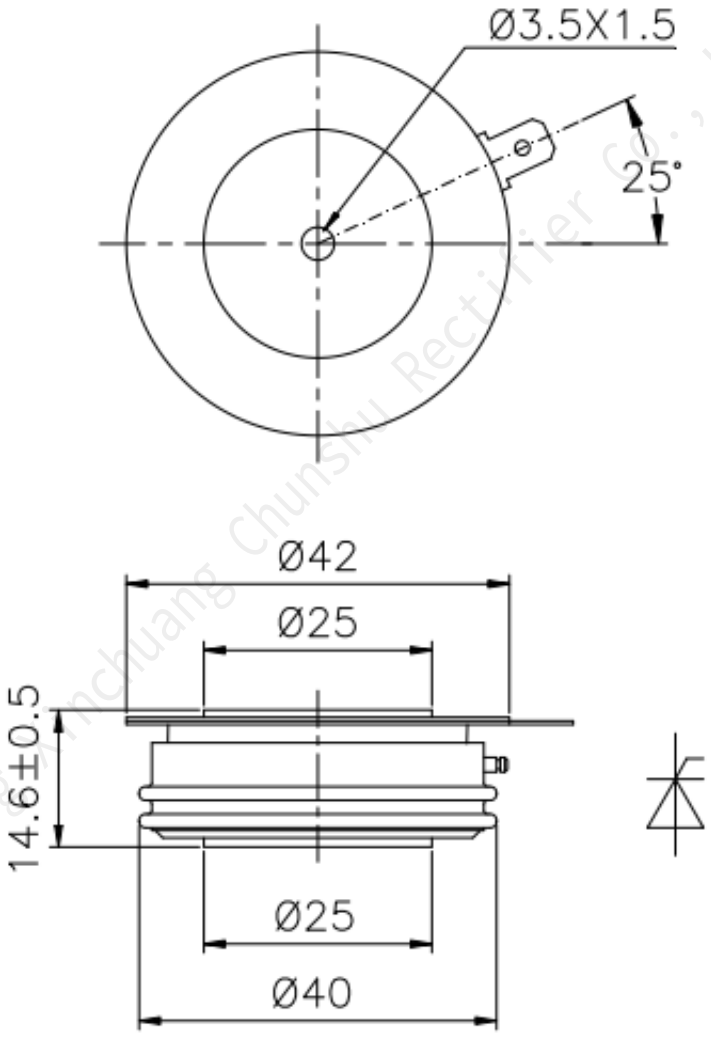
SWITCHING				
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current	A/μs	1200	V_{DM}= 67%V_{DRM} to 800A, Gate pulse t_r ≤0.5μs I_{GM}=1.5A f=1Hz
THERMAL				
T_{stg}	Storage temperature	°C	– 40-140	
T_j	Operating junction temperature	°C	– 60-125	
MECHANICAL				
F	Mounting force	kN	5.3–10.0	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions
ON-STATE				
V_{TM}	Peak on-state voltage, max	V	3.00	T_j=25 °C; I_{TM}=900A, F=7.0kN
$V_{T(TO)}$	On-state threshold voltage, max	V	1.60	T_j=125 °C
r_T	On-state slope resistance, max	mΩ	1.32	
I_H	Holding current, max	mA	400	V_A=12V, I_A=1A
BLOCKING				
I_{DRM}, I_{RRM}	Repetitive peak off-state and Repetitive peak reverse currents, max	mA	30	T_j=125 °C V_D=V_{DRM}; V_R=V_{RRM}
$(dv_D/dt)_{crit}$	Critical rate of rise of off-state voltage[1)], min	V/μs	1000	T_j=125 °C V_D=0.67·V_{DRM}; Gate open
TRIGGERING				
V_{GT}	Gate trigger direct voltage,	V	0.90Min 2.50Max	T_j=25 °C; V_A=12 V; I_A=1 A;
I_{GT}	Gate trigger direct current,	mA	40Min 250Max	T_j= 25 °C; V_A=12 V; I_A=1 A;
V_{GD}	Gate non-trigger direct voltage, min	V	0.30	T_j=125 °C ; V_D=0.67·V_{DRM};
SWITCHING				
t_q	Turn-off time[2)],	μs	18.0Min 50.0Max	I_{TM}=500A,t_p=1000μs, V_R =50V dv/dt=30V/μs ,di/dt=-20A/μs
Q_{rr}	Total recovered charge, max	μC	350	T_j=125 °C ; I_{TM}=1000A,t_p=2000μs, di/dt=-60A/μs,V_R=50V

THERMAL				
R_{thjc}	Thermal resistance, junction to case, max	◦C/W	0.045	At 180°sine, double side cooled Clamping force 7.0kN
R_{thch}	Thermal resistance, case to heatsink, max	◦C/W	0.010	
MECHANICAL				
w	Weight, typ	g	80	

OVERALL DIMENSIONS



KT30

All dimensions in millimeters

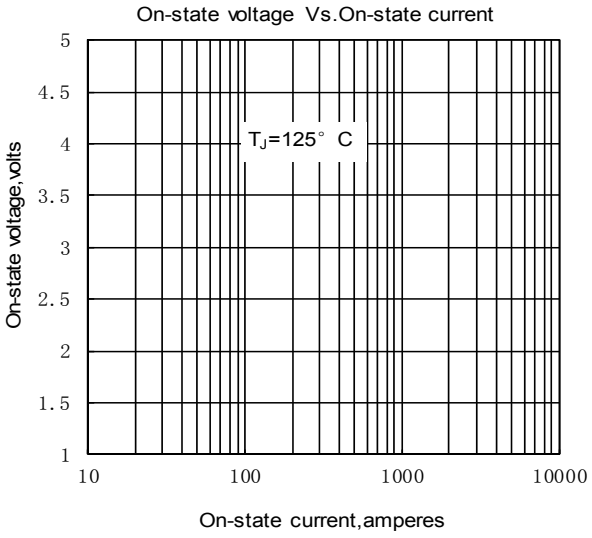


Fig. 1

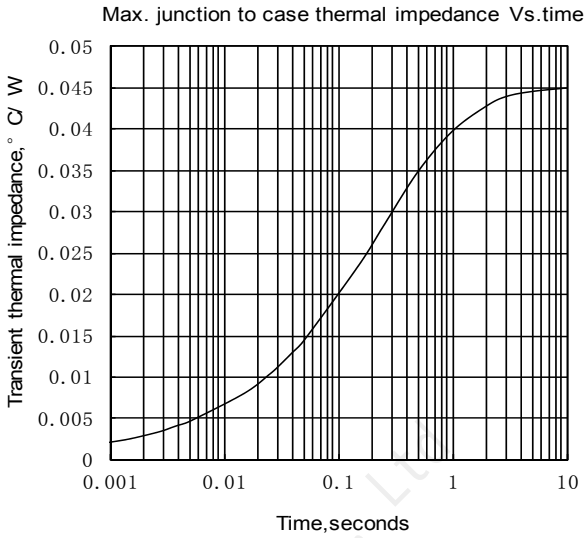


Fig. 2

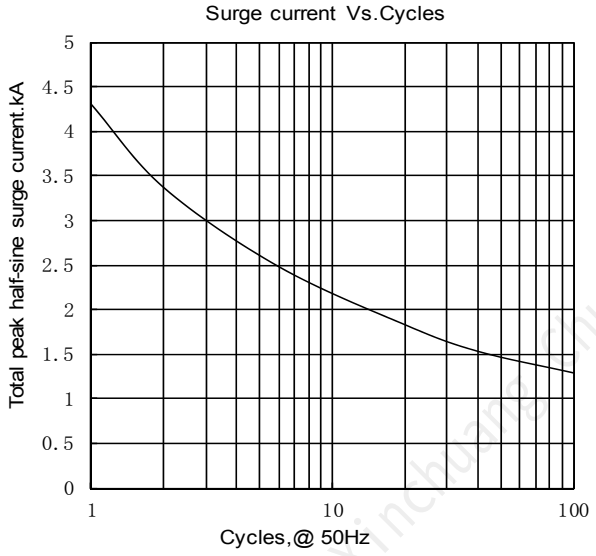


Fig. 3

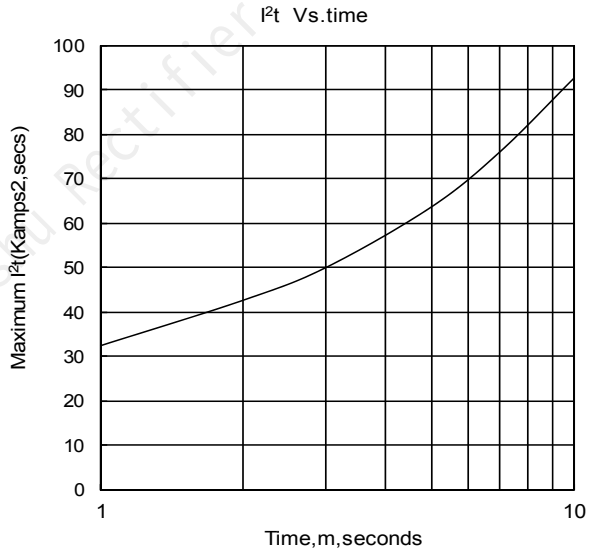


Fig. 4

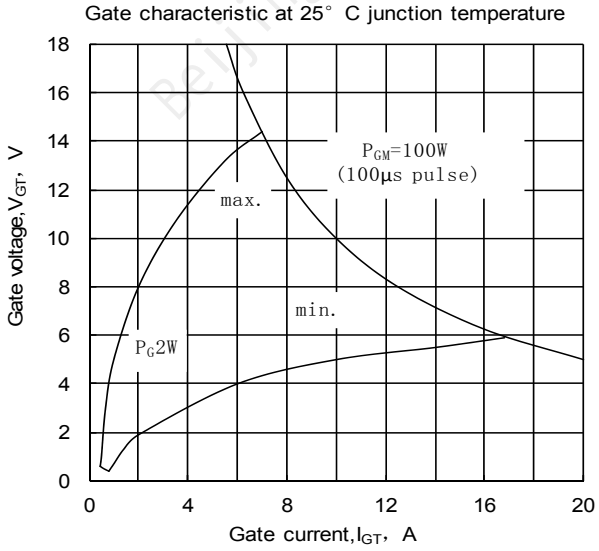


Fig. 5

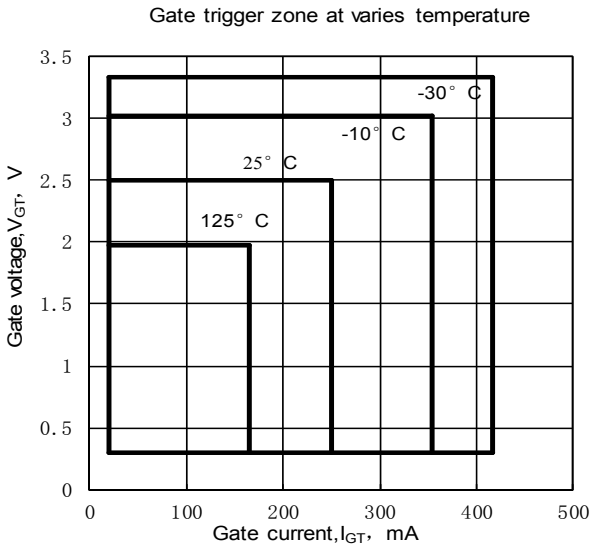


Fig. 6

