



High-end Power Semiconductor Manufacturer

KK2500A 800V-1800V

Fast Switching Thyristor

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



Mean on-state current	I_{TAV}	2500 A
Repetitive peak off-state voltage	V_{DRM}	800-1800 V
Repetitive peak reverse voltage	V_{RRM}	
Turn-off time	t_q	30.0-60.0 μs
$T_j, ^\circ C$	- 60-125	

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{TAV}	Mean on-state current	A	2500 3750	$T_c=85^{\circ}\text{C}$; Double side cooled; $T_c=55^{\circ}\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz	
I_{TSM}	Surge on-state current	kA	35.6	$T_j=125^{\circ}\text{C}$	10ms half sine wave $V_R=0.6V_{RRM}$
I^2t	Safety factor	$\text{A}^2\text{s}\cdot 10^3$	6337.0	$T_j=125^{\circ}\text{C}$	10ms half sine wave $V_R=0.6V_{RRM}$
BLOCKING					
V_{DRM}, V_{RRM}	Repetitive peak off-state and Repetitive peak reverse voltages	V	800–1800	$T_j=125^{\circ}\text{C}$, $t_q=10\text{ms}$	

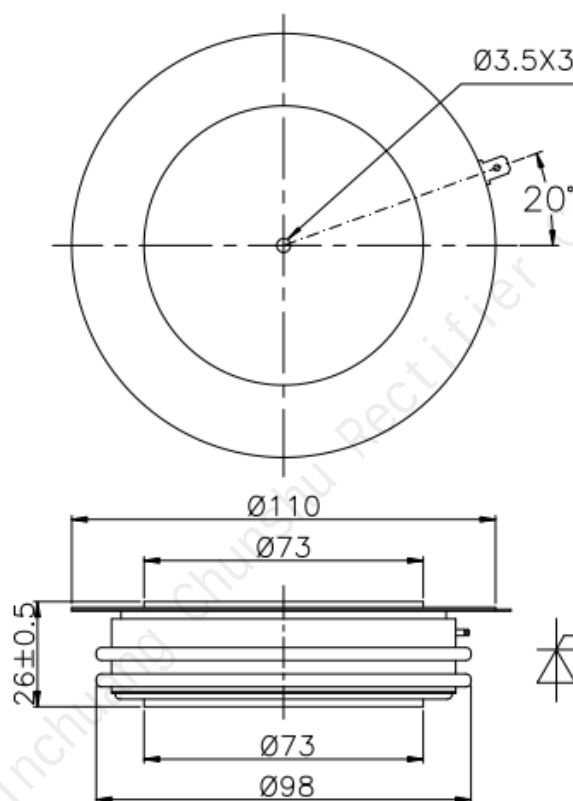
SWITCHING				
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current	A/ μ s	1200	$V_{DM} = 67\%V_{DRM}$ to 3000A, Gate pulse $t_r \leq 0.5\mu$ s $I_{GM}=1.5A$
THERMAL				
T_{stg}	Storage temperature	$^{\circ}C$	- 40-140	
T_j	Operating junction temperature	$^{\circ}C$	- 60-125	
MECHANICAL				
F	Mounting force	kN	35.0-47.0	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V _{TM}	Peak on-state voltage, max	V	3.15	T _j =25 °C; I _{TM} =5000A, F=40.0kN	
V _{T(TO)}	On-state threshold voltage, max	V	1.30	T _j =125 °C	
r _T	On-state slope resistance, max	mΩ	0.15		
I _H	Holding current, max	mA	1000	V _A =12V, I _A =1A	
BLOCKING					
I _{DRM} , I _{RRM}	Repetitive peak off-state and Repetitive peak reverse currents, max	mA	200	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 4.50Max	T _j =25 °C	V _A =12 V; I _A =1 A;
I _{GT}	Gate trigger direct current,	mA	40Min 450Max	T _j = 25 °C	
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	30.0Min	I _{TM} =2000A,t _p =1000μs, V _R =50V	
			60.0Max	dv/dt=30V/μs ,di/dt=-20A/μs	
Q _{rr}	Total recovered charge, max	μC	1000	T _j =125 °C ; I _{TM} =2000A,t _p =2000μs, di/dt=-60A/μs,V _R =50V	

THERMAL				
R _{thjc}	Thermal resistance, junction to case, max	°C/W	0.010	At 180°sine, double side cooled Clamping force 40.0kN
R _{thch}	Thermal resistance, case to heatsink, max	°C/W	0.003	
MECHANICAL				
w	Weight, typ	g	1100	

OVERALL DIMENSIONS



KT80

All dimensions in millimeters

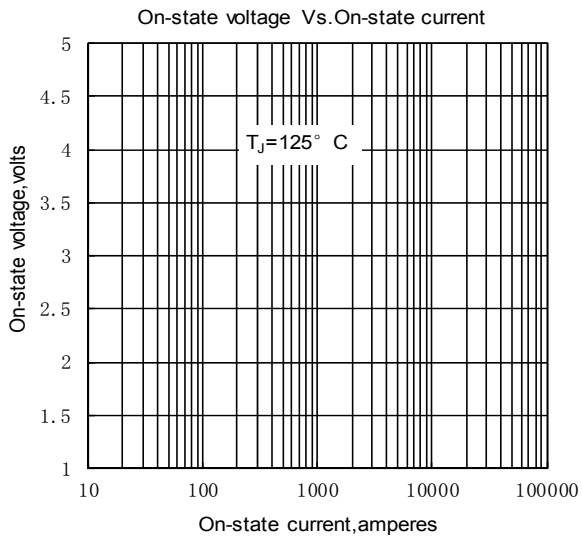


Fig. 1

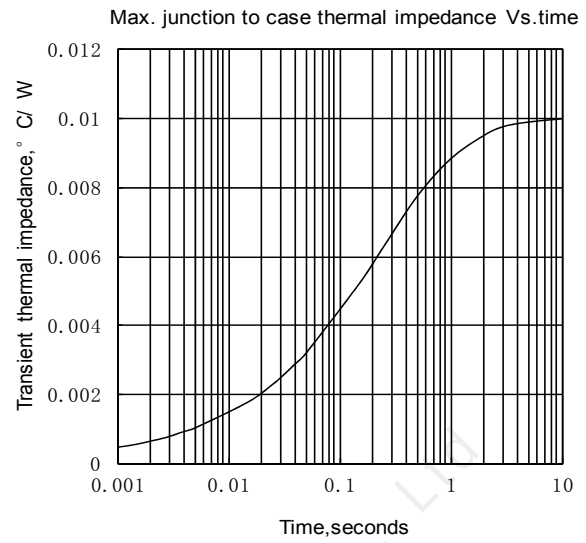


Fig. 2

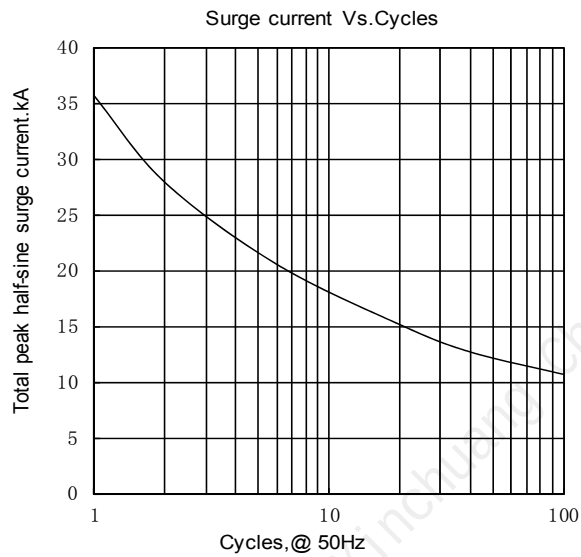


Fig. 3

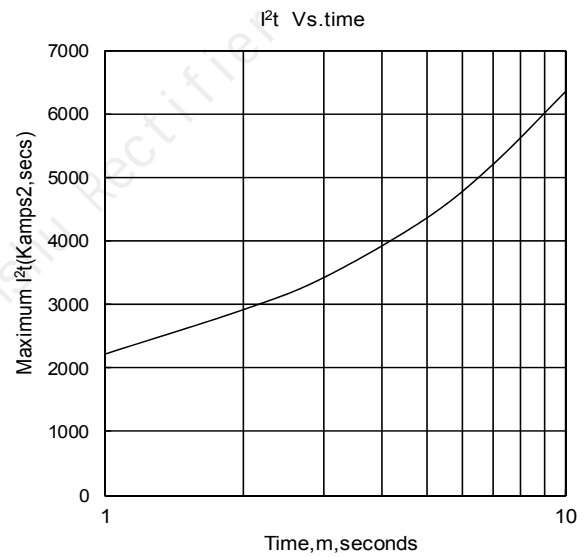


Fig. 4

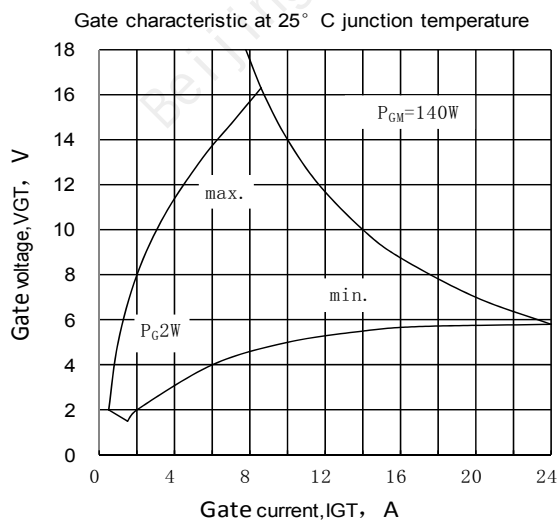


Fig. 5

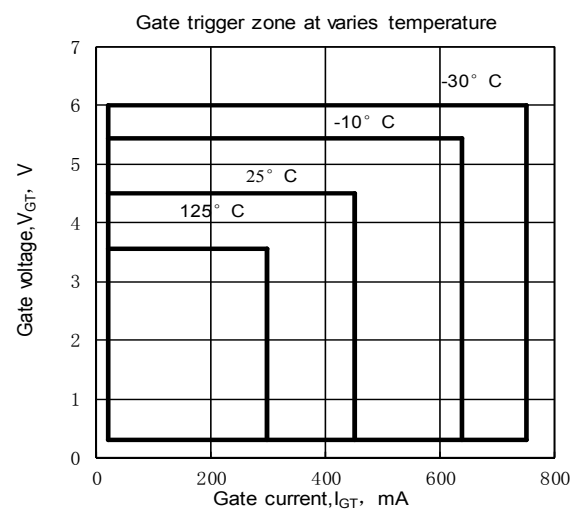


Fig. 6