

# JSKT125/JSKH125

## Description

- 1) A package of series of two chips.
- 2) With high thermal conductivity DBC as the insulation.
- 3) Welding by vacuum welding technology, which provide high reliability.



## Typical Application

DC motor control, temperature control and light control system.

## Absolute Maximum Ratings (Packaged into modules, unless otherwise specified, $T_{CASE}=25^{\circ}C$ )

Parameter	Test Conditions	Symbol	Values			Unit
			12	16	18	
Operating junction temperature range		$T_j$	-40-125			$^{\circ}C$
Storage temperature range		$T_{stg}$	-40-125			$^{\circ}C$
Repetitive peak off-state voltage	$T_j=25^{\circ}C$	$V_{DRM}$	1200	1600	1800	V
Repetitive peak reverse voltage	$T_j=25^{\circ}C$	$V_{RRM}$	1200	1600	1800	V
Non-repetitive peak off-state voltage	$T_j=25^{\circ}C$	$V_{DSM}$	1300	1700	1900	V
Non-repetitive peak reverse voltage	$T_j=25^{\circ}C$	$V_{RSM}$	1300	1700	1900	V
Average on-state current	$T_C=85^{\circ}C$	$I_{T(AV)}/I_{F(AV)}$	120			A
Peak on-state surge current	$t_P=10ms$ $V_R=0.6V_{RRM}$	$I_{TSM}/I_{FSM}$	2500			A
$I^2t$ value for fusing	$t_P=10ms$ $V_R=0.6V_{RRM}$	$I^2t$	31250			$A^2s$
Critical rate of rise of on-state current	$I_G=2 \times I_{GT}$	$di/dt$	150			$A/\mu s$
Isolation voltage	A.C 50Hz(1s/1min)	$V_{ISO}$	3600/3000			V

## Electrical Characteristics (Packaged into modules, unless otherwise specified, $T_{CASE}=25^{\circ}C$ )

Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=360A$ $t_P=380\mu s$	$V_{TM}$	$\leq 1.8$	V
Threshold voltage	$T_j=125^{\circ}C$	$V_{TO}$	$\leq 0.95$	V
Dynamic resistance	$T_j=125^{\circ}C$	$R_d$	$\leq 2.1$	$m\Omega$
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_C=25^{\circ}C$	$I_{DRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{DRM2}$	$\leq 40$	$mA$

Repetitive peak reverse current	$V_R = V_{RRM}$ $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	$I_{RRM1}$ $I_{RRM2}$	$\leq 100$ $\leq 40$	$\mu\text{A}$ $\text{mA}$
Triggering gate current	$V_D = 12\text{V}$ $R_L = 30\Omega$	$I_{GT}$	20-120	$\text{mA}$
Holding current	$I_T = 1\text{A}$	$I_H$	$\leq 250$	$\text{mA}$
Latching current	$I_G = 1.2 I_{GT}$	$I_L$	$\leq 300$	$\text{mA}$
Triggering gate voltage	$V_D = 12\text{V}$ $R_L = 30\Omega$	$V_{GT}$	$\leq 1.8$	$\text{V}$
Non triggering gate voltage	$V_D = V_{DRM}$ $T_j = 125^\circ\text{C}$	$V_{GD}$	$\geq 0.25$	$\text{V}$
Critical rate of rise of voltage	$V_D = 2/3 V_{DRM}$ $T_j = 125^\circ\text{C}$ Gate Open	$dv/dt$	$\geq 1000$	$\text{V}/\mu\text{s}$
Thermal resistance	Junction to case Case to heatsink	$R_{th(j-c)}$ $R_{th(c-s)}$	0.29 0.21	$^\circ\text{C}/\text{W}$





## Instructions and Precautions

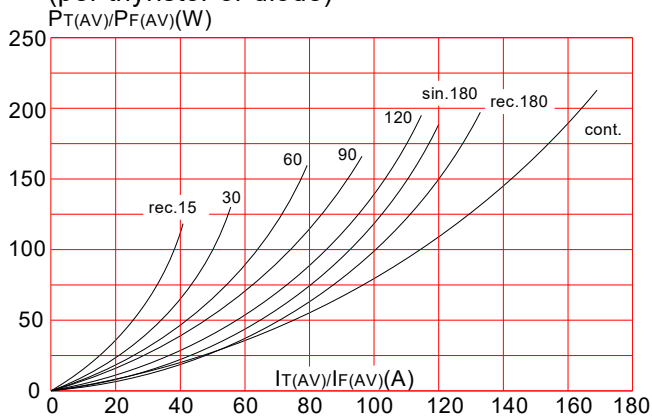
- 1) There is no severe vibration and shock in operating environment, and there should be no impurity and atmosphere which may corrode metal and damage the insulation in the air-dielectric.
- 2) The operating condition of the product can't out of range of the above parameters.
- 3) When the product is installed on the radiator, the radiator's surface should be confirmed flat, smooth, wipe clean with alcohol, and coated evenly with a layer of thermal grease which thickness is moderate on the contact surface between product and radiator. When the module is fastened on the surface of the radiator, the M5 or M6 screws and spring washers are used and fastened with 5NM torque. After the module is operated 1 hour, all screws must be refastened.
- 4) The connection with the main electrode of module can use copper, welding, socket and so on. The contact surface should be smooth and flat, which make good contact. While the connection with the control electrode of module is installed, attention should be paid to the corresponding connection of each pin. After the completion of the connection, do not plug and pull out the lead of the control electrode freely.

## Ordering Information

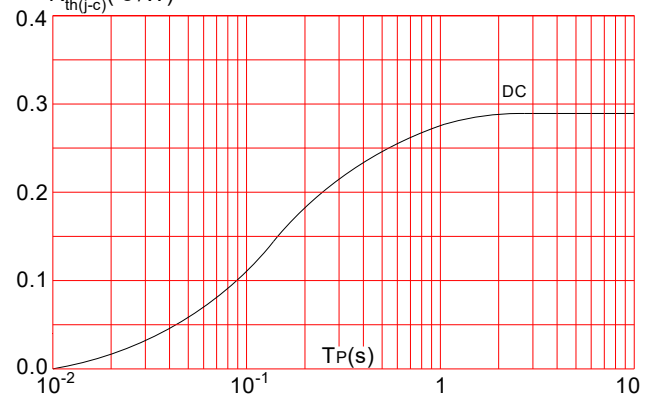
JS	KT	125	/	16
JieJie Semiconductor Co.,Ltd	KT: Thyristor module KH: Thyristor and diode module	$I_{T(AV)}/I_{F(AV)}=120A$		12: $V_{DSM}/V_{RSM} \geq 1300V$ 16: $V_{DSM}/V_{RSM} \geq 1700V$ 18: $V_{DSM}/V_{RSM} \geq 1900V$

## Performance Curves

**FIG.1:**Power dissipation vs. on-state current  
(per thyristor or diode)

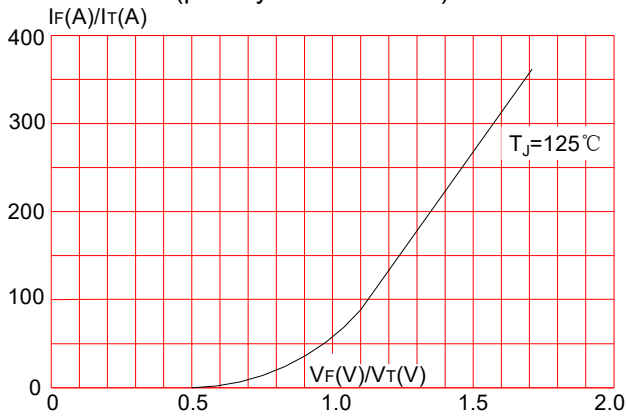


**FIG.2:** Maximum transient thermal impedance  
junction to case(per thyristor or diode)

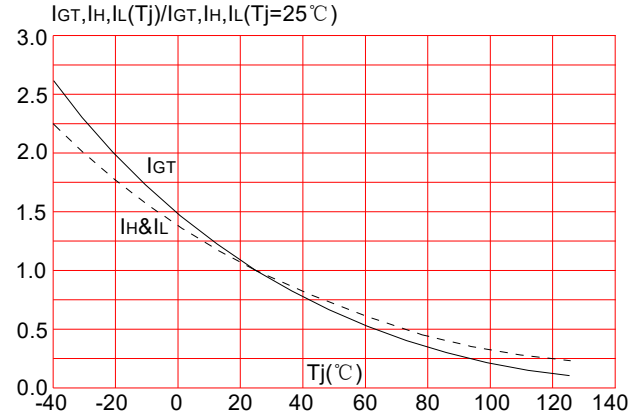




**FIG.3:**Forward characteristics  
(per thyristor or diode)



**FIG.4:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



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