

JS120KQ

Rev.1.1 July 22 2025

Description

- 1) A package consists of two inverse parallel SCR chips, which rated voltage is up to 1800V
- 2) Welding by vacuum welding technology, which provide high reliability
- 3) Insulated by silicone gel, provide a insulation voltage of 3000V~
- 4) UL 1557 item recognized. (File No.: E252906)



Typical Application

Soft start, solid state relay, AC/DC switch, temperature control.

Absolute Maximum Ratings (Packaged into modules, unless otherwise specified, T_{CASE}=25°C)

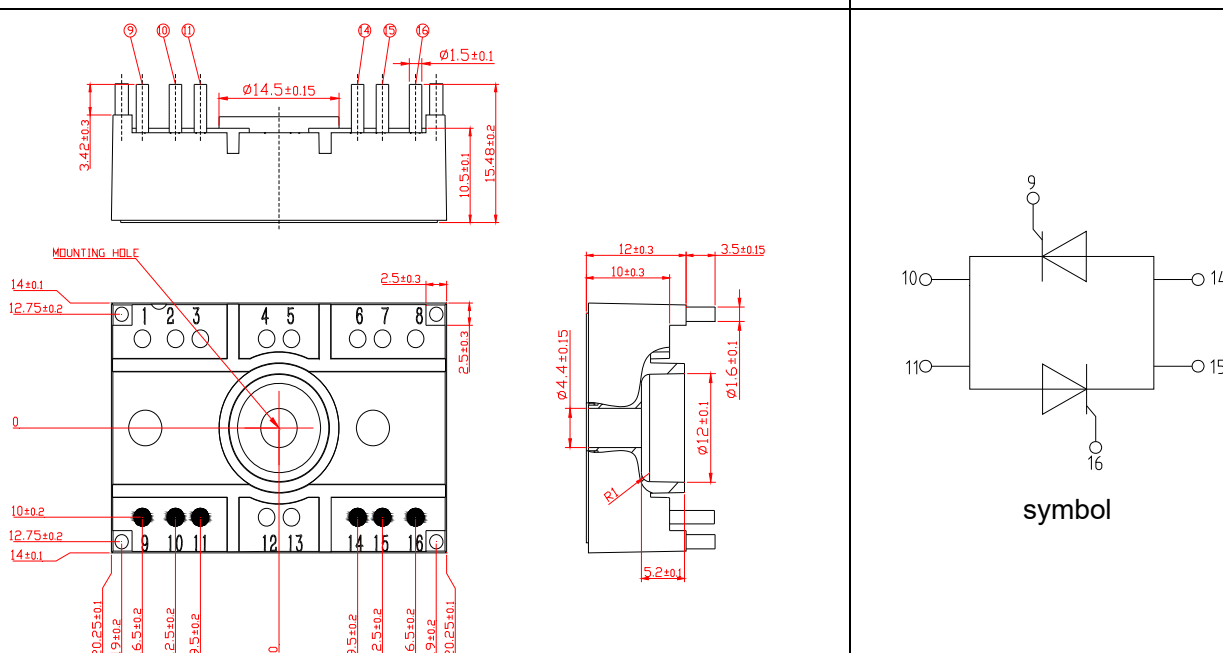
Parameter	Test Conditions	Symbol	Values			Unit
			12	16	18	
Operating junction temperature range		T _J	-40-125			°C
Storage temperature range		T _{stg}	-40-125			°C
Repetitive peak off-state voltage	T _J =25°C	V _{DRM}	1200	1600	1800	V
Repetitive peak reverse voltage	T _J =25°C	V _{RRM}	1200	1600	1800	V
Non-repetitive peak off-state voltage	T _J =25°C	V _{DSM}	1300	1700	1900	V
Non-repetitive peak reverse voltage	T _J =25°C	V _{RSM}	1300	1700	1900	V
RMS on-state current	T _C =80°C	I _{T(RMS)}	135			A
Peak on-state surge current	t _p =10ms V _R =0.6V _{RRM}	I _{TSM}	2000			A
I ² t value for fusing	t _p =10ms V _R =0.6V _{RRM}	I ² t	20000			A ² s
Critical rate of rise of on-state current	I _G =2×I _{GT}	di/dt	150			A/μs
Insulation voltage	A.C 50Hz(1s/1min)	V _{ISO}	3000/2500			V

Electrical Characteristics (Packaged into modules, unless otherwise specified, T_{CASE}=25°C)

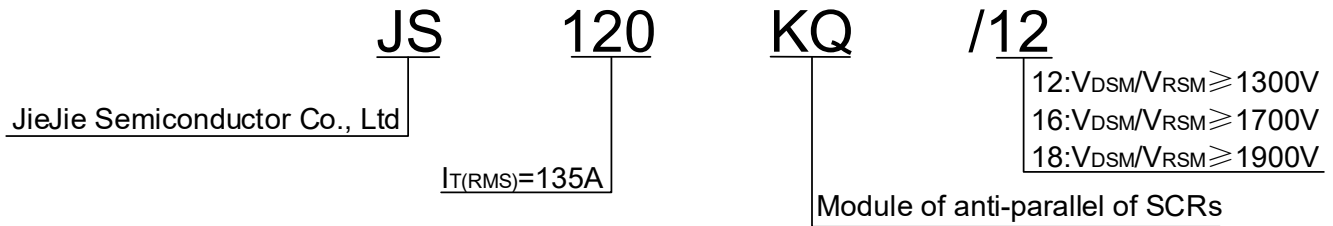
Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	I _T =300A t _p =380μs	V _{TM}	≤1.85	V
Threshold voltage	T _J =125°C	V _{TO}	≤0.9	V
Dynamic resistance	T _J =125°C	R _d	≤3.5	mΩ

Repetitive peak off-state current	$V_D = V_{RRM}$ $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	I_{DRM1} I_{DRM2}	≤ 100 ≤ 20	μA 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}	≤ 100 ≤ 20	μA mA
Triggering gate current	$V_D = 12\text{V}$ $R_L = 30\Omega$	I_{GT}	20-120	mA
Holding current	$I_T = 1\text{A}$	I_H	≤ 250	mA
Latching current	$I_G = 1.2I_{GT}$	I_L	≤ 350	mA
Triggering gate voltage	$V_D = 12\text{V}$ $R_L = 30\Omega$	V_{GT}	≤ 1.5	V
Non triggering gate voltage	$V_D = V_{DRM}$ $T_J = 125^\circ\text{C}$	V_{GD}	≥ 0.2	V
Critical rate of rise of voltage	$V_D = 2/3 V_{DRM}$ $T_J = 125^\circ\text{C}$ Gate Open	dv/dt	≥ 1000	$\text{V}/\mu\text{s}$
Thermal resistance	Junction to case	$R_{th(j-c)}$	0.45	$^\circ\text{C}/\text{W}$

Mechanical Characteristics

Module size	40.5×28mm
Module height	15.48mm
Mounting torque to heatsink	1.8~2.0 Nm
Soldering temperature	260°C/10s
	
Suggested hole diameter in the PCB for solder pins and mounting pins:2mm	

Ordering Information



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.

Performance Curves

FIG.1: On-state characteristics(per thyristor)

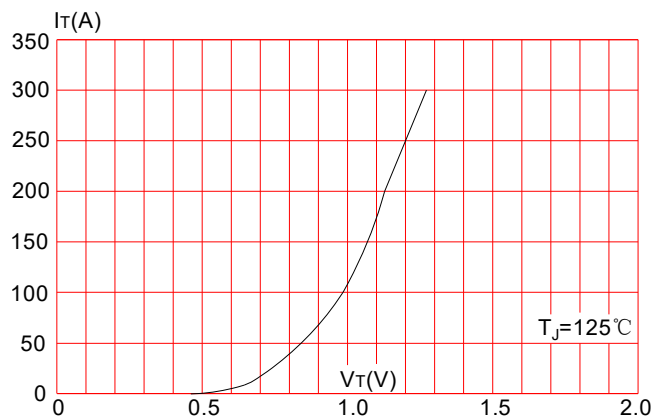


FIG.2: Surge overload current vs. time

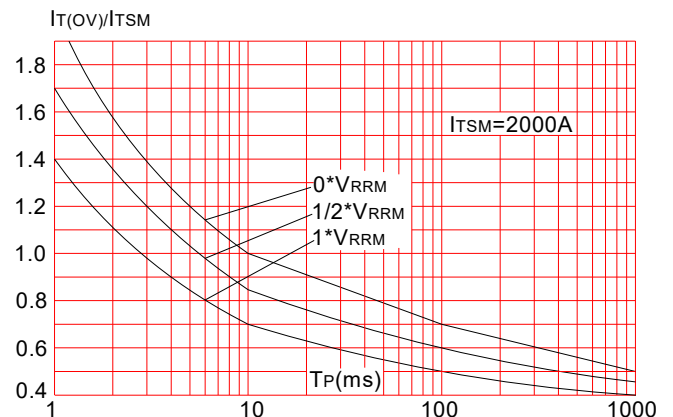


FIG.3: Power dissipation per module vs. R.M.S. current

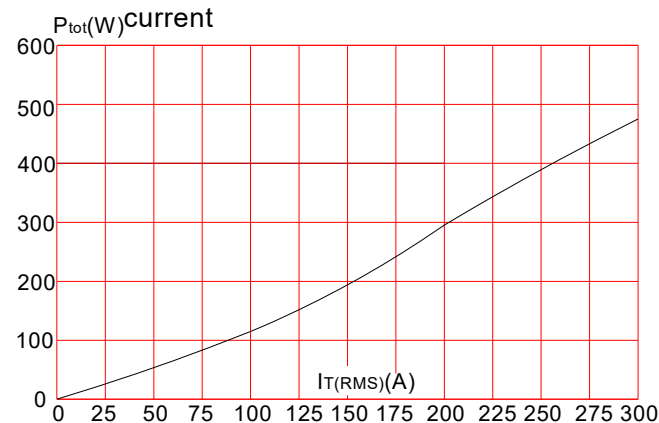


FIG.4: Maximum transient thermal impedance

