TECHNICAL SPECIFICATION OF THERMAL PROTECTOR, CK-01

1. APPLICATION SCOPE

CK-01 is an Automatic Reset Thermal Protector and is applied to OVERHEAT PROTECTION.

2. STRUCTURE

2-1. Type: Single pole single throw Thermal Protector using Bi-metal

2-2. Dimension: Please refer to the attachment.

3. SPECIFICATIONS

3-1. Electrical Ratings

Rated Voltage	AC 125 V	AC 250 V
Rated Current	22 A	8 A
Minimum Current	200 mA	

3-2. Temperature

Operating temperature is measured in a convection oven (wind velocity 1~2m/sec, electrically heated) in which the temperature is increased or decreased by 1℃ per minute.

3-3. Withstand Voltage (Standard Type)

It shall withstand for one second under AC600V/leakage current 10mA and when it is applied with external insulation tube, withstand for one minute under AC1,500V/leakage current 10mA, or for one second AC1,800V/ /leakage current 10mA between insulated and uninsulated parts.

3-4. Insulation Resistance

Insulation resistance between insulated and uninsulated parts should be over

100MΩ when measured with DC500V tester.

3-5. Contact Resistance

Not greater than 50mΩ between terminals using DC6V/1A voltage drop method. If terminals are connected with wires, the contact resistance of the wires should be considered separately.

4. RELIABILITY TESTING

4-1. Moisture Proof Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in a convection oven set by 90~95% humidity and 40±3℃.

4-2. Heat Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in convection oven set by 150±3℃.

4-3. Cold Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 24 hours in a convection oven set by -20±3℃.

4-4. Thermal Shock Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after repeated 5 cycles of thermal shock (1 cycle includes 30 minutes in a convection oven set by 150±3℃ and 30 minutes set by -20±3℃).

4-5. Vibration Resistance Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after 30 minutes of vibration in three ways(X, Y, Z) under vibration conditions of 20~60Hz and amplitude of 1mm.

4-6. Drop Shock Test

It should satisfy the requirements described in above 3-2, 3-3, 3-4 & 3-5, after dropping on 1cm-thick wooden board from the height of 80cm.

4-7. Endurance Test

It should have no defects on each parts, after 6,000 cycles of on-off operation through repeated heating and cooling with 60Hz rated voltage and rated current (power factor = above 90%). And when measuring the operating temperature with a method of above 3-2, the temperature should be within ± 7% compared with initial temperature, and satisfy the requirement of above 3-3 and 3-4 and the contact resistance should be below 100 mΩ(3-5).

4-8. Pulling Strength Test of Lead Wire (Wire Type)

It should have no damage when applying 3kg-pulling force to one lead wire in axial direction.

4-9. Strength Test of Case (Case Type)

It should have no deformation on the case, after pressing the case in the middle with 98N force for an hour. And when measuring above 3-2, 3-3, 3-4 & 3-5 again, the temperature in 3-2 should be within ± 5% compared with initial results, and satisfy withstand voltage characteristics and the requirements of above 3-3, 3-4 & 3-5.

5. PACKING (Bare type without wire)

5-1. Inner Packing : Small Inner Box

Size : 180mm x 290mm x 90mm

1 Inner Box : 2,500 pcs

5-2. Outer Packing : Large Carton Box

Size : 590mm x 385mm x 110mm

1 Outer Box : 10,000 pcs (4 inner boxes)

6. MARKING

6-1. Model No.: CK-01

6-2. Operating Temperature

" L " - Normal Open Type

" H " - Quick Open Type

Ex) L120, H80

6-3. Lot Code (marked on the metal body)

Lot Code will include two letter alphabets and three letter numbers. First letter alphabet indicates the month, second and third is the date, the forth is machine number, and the last is the year of manufacturing.

Ex) A 27 A 7 ——— Manufactured year (2017)

Machine number (1)

Manufactured date (27th)

Manufactured month (Jan.)

* Exceptionally, October: " X ", November: " Y ", December: " Z "

7. PRECAUTIONS

7-1. Do not drop the thermal protector on the hard ground such as concrete floor. It may cause defects in function.

7-2. Do not use the thermal protector in applications exceeding the rated voltage and current. Otherwise, the electrical contacts may melt and cause a malfunction.

7-3. Thermal protector with deformation may not work normally.

7-4. In case of any damage to the thermal protector from outside force, it may not work normally.

7-5. To maintain optimum performance, thermal protector should be stored in proper environment without direct sunlight and corrosive gas.

8. Approvals

Agency	Standard	Category	Electrical Ratings	Max Temp	File NO.
UL (c-ULus)	UL 2111 C22.2 No. 77-95	Motor Protector	AC 125V/22A, 250V/8A	150℃	E215753(CK-01, CK-99)
	UL 873 C22.2 No. 24-93	Fluorescent Lamp/Ballast	AC 250V/1.5A 10,000 Cycle	150℃	E179705(CK-01, CK-99)
		Regulating	AC 125V/18A, 250V/9A 6,000 cycles	180℃	
TUV	EN 60730-1 EN 60730-2-9 EN 60335-2-24 EN 60079-15	Temperature Controller (Thermal Motor Protector)	AC 230V/8A (CK-01) AC 125V/22A (CK-01, CK-99)	150℃	B 17 05 99579 004 (CK-01, CK-99)
			AC 125V/22A (CK-991) AC 230V/8A (CK-011, CK-993, CK-994)	150℃	B 17 05 99579 005 (CK-011, 991, 993, 994)
CQC	GB/T14536.1-2008 GB/T14536.3-2008	Protectors	AC 125V/22A, 250V/8A	160℃	CQC17002173861 (CK-01, CK-99)
KC	KC60730-1 K60730-2-2	Thermal Cut-Off	AC 250V/8A	165℃	ZH02005-15002

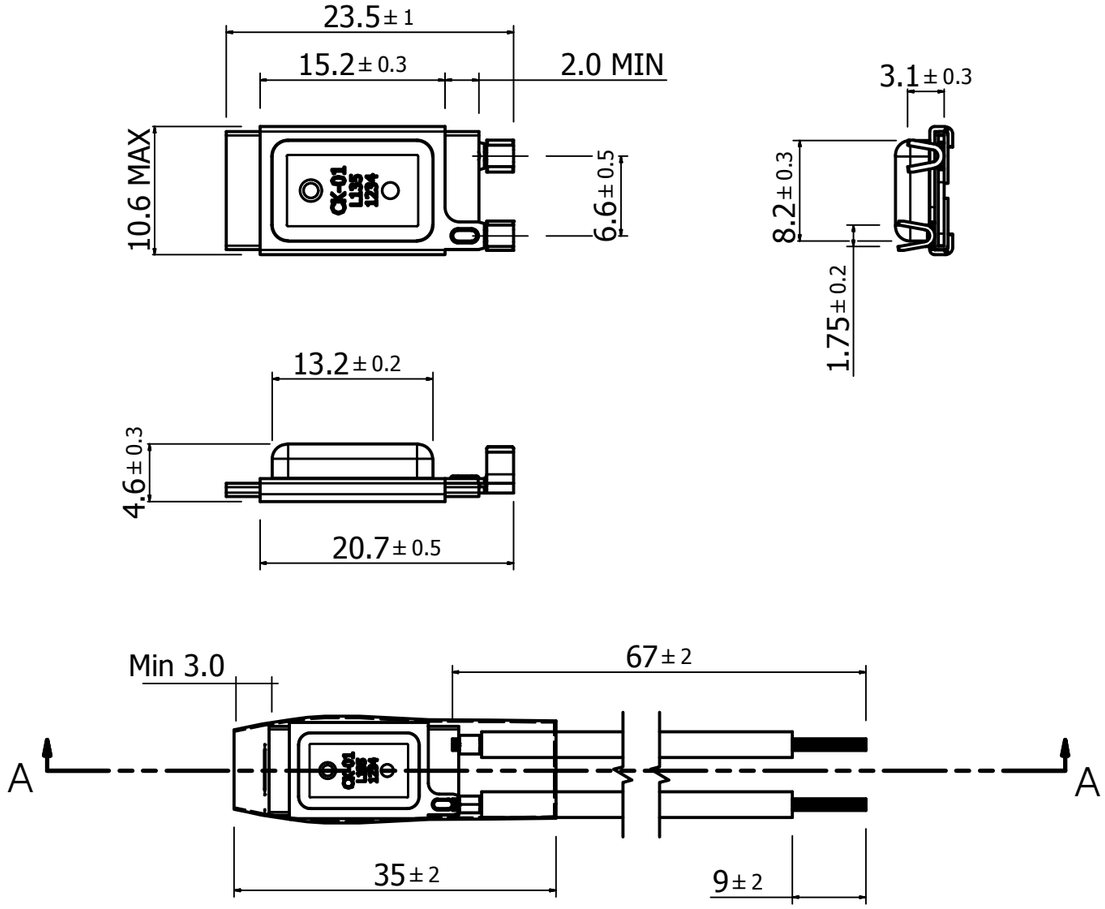
9. Others

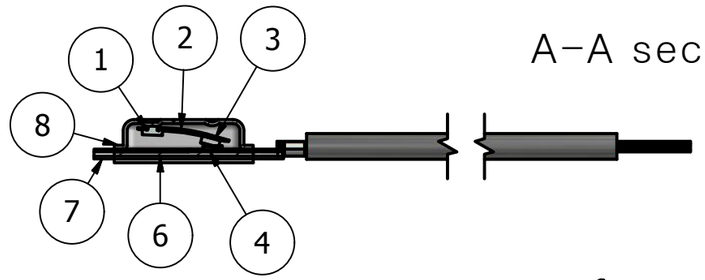
8-1. Those subjects which are not defined in this specification or any doubt arising from the execution of the specifications will be discussed separately and added or corrected specially when mutually agreed.

8-2. If any doubt arise during the incoming inspection at your end regarding the specifications of the thermal protector, please inform us immediately and we shall make an effort to settle the matter in mutually agreeable way.

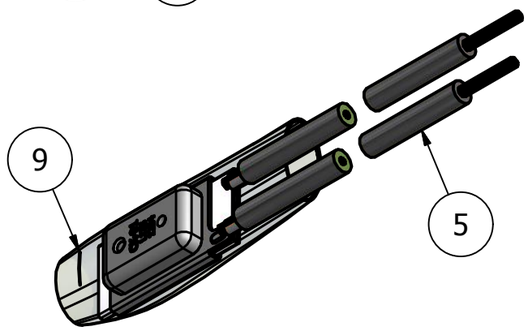
8-3. If any doubt arise about the specifications after secondary process at your end, the scope of discussion to settle the matter will be limited to the thermal protector only.

8-4. Specifications described in this leaflet can be changed without any notice for quality improvement.





A–A section



No.	part's list	material
1	CK01-slug	Fe
2	CK01-disc	bimetal
3	CK01-contact M	AgNi alloy
4	CK01-contact S	AgNi alloy
5	CK01-wire	3271 AWG18 BK
6	CK01-cover	SPC coated Ni or EGN
7	CK01-insulator	mylar t: 0.15
8	CK01-can	SPC coated Ni or EGN
9	CK01-shrinkage tube	polyester film

1. Operating temperature is to be measured by a mercury thermometer in air circulation chamber.
   Measurement shall be made at temperature increasing & decreasing rate of 1°C/ 2minutes and test current shall be under 200mA.
2. Marking
   moder No.
   off temperature
   date code
3. Leadwire clamping : Min 9Kgf

design	check	approval	date	tolerance	date	remarks
SH Kim	MS Lee				2012-11-06	

SEKI AMERICA

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