

CAUTION

The thermal cutoff is safety product, but installation ways and treatments give great influence to it's function. Pay attentions to the catalog and following articles when you set up the thermal cutoff, and test and investigate by yourselves.

It is assumed that the customer who uses the thermal cutoffs must determine the type of thermal cutoffs, their operating temperature, installation position and method, and assume the risks and responsibilities associated with these decisions.

1 CAUTION FOR INSTALLATION

- Each the thermal cutoff has its rating voltage, rating current, functioning temperature, holding temperature and maximum temperature, and make sure to use the thermal cutoff within those limits. In the cases of these limits would be ignored and used unsuitable the thermal cutoff may not work properly. It is not guaranteed that the thermal cutoff work properly current as safety products when they are used unsuitable.
- FUJI brand the thermal cutoff are made for civilian usage like home electrical appliances, office automations. Do not use for aviation machinery, medical appliances for life keeping, any appliance of atomic power, etc. All risks and responsibilities must be taken by users in the case of using the thermal cutoff for improper things. Testing must be done to check whether your choices of types, function temperatures mounting positions and mounting ways are proper & adjusting.
- Test enough sets of your final products with the thermal cutoff assembled in normal and abnormal situations, and make sure your selection are correct.
- In particular, the closer the temperature is to the functioning temperature of the thermal cutoff, the shorter the life of the thermal cutoff.
- Do not use thermal cutoffs in liquids such as water or organic solvents, in corrosive atmospheres such as sulfur dioxide gas, chlorine gas, or ammonia gas, or in high humidity or high pressure atmospheres. If thermal cutoffs are used in such an atmosphere, there is a risk of damage and malfunction.
- If the thermal cutoff is incompatible with the device in use, or if the thermal cutoff is damaged for any reason There is a possibility that the thermal cutoff may not work properly and the circuit may not be interrupted. Therefore, one or more thermal cutoffs may be installed in series if more safety is required. We recommend that you do this.

2 SELECTION

What degrees of temperature will be the thermal cutoffs mounting position? What electric rating will be applicable? First of all, set up what is the most suitable thermal cutoff after measuring the increase of temperature at the mounting portion. Further, check which approval are required. About temperature of the thermal cutoffs, please do not exceed a value described in following table when normal usage.

(We strongly recommend If exceed this value, Thermal Cutoffs has a possibility of losing performance.)

Catalog No.	Maximum Using Temperature (°C)	Catalog No.	Maximum Using Temperature (°C)
FTF-182,-282,-482	52	FTF-S070J,-S071	40
FTF-198E,-298E,-398E,-498E	68	FTF-S076J	46
FTF-112,-212,-312,-412	82	FTF-S082J,-S083	52
FTF-137,-237,-337,-437	90	FTF-S091J	61
FTF-140,-240,-340,-440	90	FTF-S096J	66
		FTF-S099J,-S099	69
		FTF-S109J,-S112	79
		FTF-S119J,-S117	89
		FTF-S126J,-S127	90
		FTF-S132J,-S132	90
		FTF-S139J	90
		FTF-S142J,-S143	90
		FTF-S154J,-S154	124
		FTF-S169J,-S169	139
		FTF-S182J,-S181,-S187	152
		FTF-S192J	155
		FTF-S214J,-S215	155
		FTF-S226J	155
		FTF-S229J,-S229	155



CAUTION

3 MOUNTING POSITION

- The thermal cutoffs reacts delicately against heat. Mount it at the place where it would react only to abnormal temperature, and there is no heat influence from other heat sources.
- When connecting the thermal cutoff to electric wires, make sure that there would be not tensile force, down pressure, torsion etc. to the thermal cutoff.
- It would be better that the lead wires are used in long size.
- For the FTF-1, FTF-2, FTF-3 and FTF-4 series, install them in a location where the lead wires are heated as evenly as possible. If there is a temperature difference, smooth operation may not be possible, which may affect the electrical insulation performance after operation.
- If the FTF-S series is installed in such a way that the temperature of the lead wire B is higher than that of the lead wire A, the temperature of the internal thermosensitive pellets will be higher and the life of the thermal cutoff will be shorter.

For this reason, the thermal cutoff should be installed so that it heats up as evenly as possible.

4 PRECAUTIONS FOR MOUNTING

The thermal cutoffs can be mounted by means of soldering, welding and crimping.

Avoid soldering as much as possible. If soldering is unavoidable, the customer must determine the working conditions and the conditions must be met in the actual process. Make sure it is properly managed.

- (1) Lead wires which are fixed to a case body by epoxy resin will gradually be softened and dieteriorated in mechanical strength on account of the heat of soldering and welding. Pay attention that there will be no force of tension, down pressure, torsion, etc. because it will cause failures like a disconnection.
- (2) When forming a secondary processing after soldering and welding, leave it for more than 30 seconds until the resin completely cools down.
- (3) Please refer to the values in the table below as they are indicative of the soldering time. Soldering is done at 20mm from the edge of the case, at 300°C, with 60% Sn in the solder bath Soldering is done using the following. The information in this table should be used as a guide to help you determine the conditions for your work.
- (4) When it is desired to use shorter lead wires, soldering time shall be reduced and radiator shall be used performing soldering work in order to increase radiation effect and reduce the effect of soldering heat to thermal cutoff.

Functioning Temperature	Soldering time
Under 119°C	Within 2 seconds
Over 124°C	Within 3 seconds

- (5) In case of crimping and connecting lead wires, use the most suitable tools to prevent from contact resistance.
- (6) In case of bending lead wires, check the hold with pliers will be fixed at more than 5mm distance from the resin of the body and there will be no force on the resin portion. Make sure not to hold the case body with a tool. The following shows the mechanical data of the case body:

	FTF-1,2,3,4	FTF-S	
Acceptable tensile force	5.7N(1.3lbf)	15.7N(3.6lbf)	1N=0.102kgf
Acceptable thrust force	1.4N(0.3lbf)	3.9N(0.9lbf)	1lbf=0.45kgf

5 OTHERS

- Thermal cutoffs do not function as current fuses.
- Check the thermal cutoff at the time of reception. Since the thermal cutoff actuates even in no loading. Condition when its ambient temperature gets higher enough for opening, it would be damaged due to an accident during transportation.
- As for the FTF-S series, lead wire A and the case are silver plated, which may cause discoloration of the surface. A special inner bag is used for the FTF-S series, however, if the product is to be stored in a cardboard box or any other place where sulfur content is likely to be generated, it is recommended that the product be double-wrapped in a plastic bag, etc. to make sure it is completely sealed.
- Measuring variation in the resistance before and after mounting and using of X-ray device will enable more secure product control.

