

Application Instructions of Thermal Links “SEFUSE®”

The following application instructions of SEFUSE® SH series are for the safety operation performance of thermal links and the product which use it. Please read and attention for following points.

1. Ratings

Cord No.	Functioning Temperature (Tf) °C *1	Holding Temperature (Th) °C *2	Maximum Temperature Limit (Tm) °C *3	Electrical Ratings
D6i(-215,-050)	139	90	180	32V _{DC} ,9A
D6(-215)				32V _{DC} ,10A
D6X(-215,-050)				32V _{DC} ,12A
D6Y(-215)				32V _{DC} ,15A
D6WX(-215,-050)				32V _{DC} ,15A
D6T(-215,-050)(-S1,-S2)				32V _{DC} ,12A

*1 Functioning Temperature (Tf) : The temperature at which a thermal links changes its state of conductivity to open circuit with detection current as the only load.

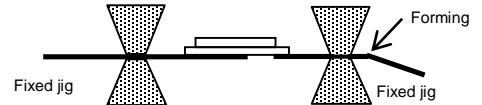
*2 Holding Temperature (Th) : The maximum temperature at which a thermal links can be maintained while conducting rated current for 168 hours which will not cause a change in state of conductivity to open circuit.

*3 Maximum Temperature Limit (Tm) : The maximum temperature at which a thermal links which has changed its state of conductivity can be maintained for 10 minutes which its mechanical and electrical properties will not be impaired.

2. Application Instructions

2-1. Lead forming

Since we adopt copper wire as lead of SH series, lead can be bent. However, it is recommended not bend frequently, over 90° and not twist to protect the leads from broken. The stress shall not be applied to SEFUSE® itself at lead forming process, because the strong stress to SEFUSE® may break the case or sealing resin and cause the non-hermetic state. Therefore, it is recommended to hold the leads at lead forming process as shown below. If bending is required, a distance of minimum 1/5 in. (5mm) from the case of the SEFUSE® should be maintained. And especially nickel lead wire can be bent only one time.



2-2. Caution to keep mechanical strength

a) Tension of lead

The tension to the lead shall not exceed 9.8N to achieve the long term performance.

b) Connection of lead

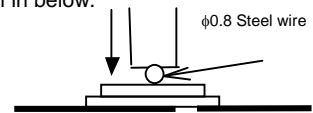
The strong stress shall not be applied to the fixed side of lead with case at the connection process of lead. The strong stress to the fixed side of lead with case may cause the break of case or removing of lead.

c) Case strength

The mechanical strength to the case shall not exceed 4.9N by the test method shown in below.

The strong stress to the case may cause the break of itself.

And it shall avoid to load continuously the stress on the case.



2-3. Soldering or Welding of leads

When SEFUSE® is installed to electrical circuit by soldering or welding, the high heat transmission from working position of lead to SEFUSE® shall be minimized so that SEFUSE® is not operated by heat. In order to minimize the heat transmission to SEFUSE®, the working position shall as apart as possible from SEFUSE®. The pre-soldering of lead is also very effective to prevent the operation of SEFUSE® at soldering process. And in the period of welding, welding current shall not be passed through in the SEFUSE®.

2-4. Location of SEFUSE®

SEFUSE® shall be located carefully at proper position to keep the performance of SEFUSE®. SEFUSE® may operate at lower temperature than expectation under some high environmental temperature condition. The location of SEFUSE® shall be decided often checking the temperature of SEFUSE® at normal operation. Also, it is recommended to measure the temperature of SEFUSE® considering the heat-up by normal current and overshoot current before the decision of location of SEFUSE®. The measured temperature of SEFUSE® shall be 30°C lower than actual opening temperature.

2-5. Protection against wetness

SEFUSE® is not suitable to use in liquid (water, organic solvent etc.) and in the environment of harmful gas (sulfurous anhydride, nitrogen oxide gas etc.). It is also recommended to apply suitable protection such as cover for humidity.

3. Examination for damage

SEFUSE® may be damaged by the mechanical load and or heating (soldering etc.) at the assembly process to equipment. Therefore, we are recommended to inspect about the following inspections.

- | | |
|---|---------------------------------|
| (1) Appearance check for outside of SEFUSE® | (2) Conductivity check |
| (3) X-ray check for inside of SEFUSE® | (4) Operation check by sampling |

4. For reasons of safety

Thermal links is a non-repairable item. In case of replacement, choice the same manufacturer's equivalent thermal links (from the same catalogue reference), and mounted in exactly the same way. It is recommended to warn on the user's manual for general consumers who are not aware of the usage cautions for the thermal links. About, not to mount, remove or replace the thermal links.

三端保险丝“SEFUSE®”的应用说明

以下SEFUSE®SH系列应用说明是针对三端保险丝和使用该产品的安全操作性能的。请阅读并注意以下几点。

1. 额定值

型号	额定动作温度 (Tf) °C *1	保持温度 (Th) °C *2	极限温度 (Tm) °C *3	电气额定值
D6i(-215,-050)	139	90	180	32V _{DC} , 9A
D6(-215)				32V _{DC} , 10A
D6X(-215,-050)				32V _{DC} , 12A
D6Y(-215)				32V _{DC} , 15A
D6WX(-215,-050)				32V _{DC} , 12A
D6T(-215,-050)(-S1,-S2)				

*1 额定动作温度 (Tf)：热熔断体按标准规定方法测试，改变其导电状态的温度。按基于IEC60691安全标准规定，热熔断体必须在上述温度+0/-10°C 范围内动作。（日本电气用品管理法规定公差范围为+/-7°C 范围内动作）。

*2 保持温度 (Th)：热熔断体在通过额定电流时，能保持168小时而不会改变其导电状态的最高温度。

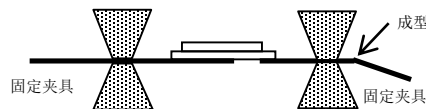
*3 极限温度 (Tm)：热熔断体能承受10分钟而不会发生重新接触接通现象的最高温度。

2. 应用说明

2-1. 引线加工

由于我们采用铜线作为SH系列的引线，因此引线可以弯曲。但是建议不要经常弯曲超过90°，也不要扭曲以防止引线断裂。应力不应在引线成型过程中施加到SEFUSE®本身，因为对SEFUSE®施加的强应力可能会破坏外壳或密封树脂破裂并导致非密封状态。因此，建议如下图所示在引线形成过程中固定引线。如果需要弯曲，则最小距离应当保持在SEFUSE®外壳外的1/5英寸（5mm）处。

特别是镍铅引线只能弯曲一次。



2-2. 注意保持机械强度

a) 铅的张力

引线的张力不得超过9.8N，以实现长期性能。

b) 引线连接

在引线连接过程中，不得对引线与外壳的固定侧加强应力。

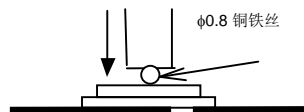
对带有外壳的引线固定侧施加的强应力可能会导致外壳破裂或引线脱落。

c) 外壳强度

通过以下所示的测试方法，外壳的机械强度不得超过4.9N。

外壳承受的巨大压力可能会导致外壳破裂。

并且应避免将持续的压力施加在外壳上。



2-3. 引线的焊接或熔接

当通过焊接或熔接将SEFUSE®安装到电路上时，应将引线从工作位置到SEFUSE®的高热量传递降至最低，以免SEFUSE®受到热量的影响。为了最大程度地减少传递到SEFUSE®的热量，工作位置应与SEFUSE®尽可能分开。铅的预焊接对于防止SEFUSE®在焊接过程中的运行也非常有效。并且在焊接期间，不得在SEFUSE®中通过焊接电流。

2-4. SEFUSE®的位置

SEFUSE®必须小心放置在适当的位置，以保持SEFUSE®的性能。在某些高环境温度条件下，SEFUSE®的工作温度可能比预期的低。SEFUSE®的位置应在正常运行时经常检查SEFUSE®的温度来确定。另外，建议在确定SEFUSE®位置之前考虑正常电流和过冲电流的加热来测量SEFUSE®的温度。SEFUSE®的测得温度应比实际打开温度低30°C。

2-5. 防潮

SEFUSE®不适合在液体（水，有机溶剂等）和有害气体（亚硫酸酐，氮氧化物气体等）环境中使用。还建议采取适当的保护措施，例如加湿盖。

3. 使用时的检测

在设备组装过程中，机械负载和/或加热（焊接等）可能会损坏SEFUSE®。因此，建议进行以下检测。

(1) 外部外观检测

(2) 导电检测

(3) X光内部检测

(4) 动作试验（抽样）

4. 出于安全考虑

三端保险丝是不可修复的部件。如果需要更换，请选择相同制造商的等效三端保险丝（来自相同的目录参考），并以完全相同的方式安装。对于不了解三端保险丝使用注意事项的一般用户，建议对用户手册给出警告不要对其进行安装，拆卸或更换三端保险丝。