Application Instructions of Battery Fuses "SEFUSE® SCyyzzBJ Series"

The followings are application instructions of battery fuses SCyyzzBJ series for the customers of such devices. The following items are recommended to maintain the operation performance of battery fuses and equipment which use it.

1. Ratings

Table 1. Fuse specifications

Series Name	Rated Current (A)	Rated Voltage (Vdc)	Breaking Capacity (A)	Fuse Resistance (mΩ)
SCyy12BJ	12	36	50	2.0±1.0
SCyy15BJ	15			1.5±1.0
SCyy22BJ	22	62	80	0.7±0.5

Table 2. Heater specifications

Product Name	Applicable Series Cell Number	Applicable Voltage Range (V)	Heater Resistance (Ω)	Applicable Wattage Range (W) Note 1
SC0112BJ	1	3.0～5.0	1.10±20%	6.8～28.5
SC0115BJ			1.05±20%	7.1～29.8
SC0212BJ	2	4.8～9.6	3.00±15%	6.6～36.2
SC0215BJ			2.80±15%	7.1～38.8
SC0222BJ		6.0～9.6	2.80±15%	11.1～38.8
SC0312BJ	3	7.4～14.4	7.20±15%	6.6～33.9
SC0315BJ			6.80±15%	7.0～35.9
SC0322BJ		9.0～14.4	6.40±15%	11.0～38.2
SC0412BJ	4	10.5～19.6	14.4±15%	6.6～31.4
SC0415BJ			13.6±15%	7.0～33.3
SC0422BJ		12.0～19.2	11.2±15%	11.0～38.8
SC0512BJ	5	12.5～24.0	20.0±15%	6.7～33.9
SC0515BJ		14.4～24.0	25.0±15%	7.2～27.2
SC0522BJ		15.9～24.0	19.8±15%	11.1～34.3
SC0612BJ	6	15.0～28.8	30.0±15%	6.5～32.6
SC0715BJ	6 and 7	18.8～32.9	42.0±15%	7.3～30.4

Note 1. Reference

2. Application Instructions

2.1 Design Caution

2.1.1 The customer should judge the propriety of mounting location and mounting method for each application. The body temperature of the battery fuses becomes higher as current passes through, and might rise higher than the ambient atmosphere temperature. Therefore, after mounting the battery fuses under the same conditions you would use for the actual operation, please run the final product and confirm whether the battery fuse operate normally. Please confirm and test whether battery fuses does not cause problem repeatedly, under normal conditions as well as under predicted maximum abnormal conditions.

2.1.2 Do not use this device in aerospace equipment, aeronautical equipment, nuclear reactor control systems, life support equipment or systems, transportation machinery engine control or safety-related equipment. This device is designed for use in household electric appliance, office automation equipment, audio and video equipment, computer communications equipment, test and measurement equipment, personal electronic equipment and transportation equipment (excluding engine control).

2.1.3 Do not contact the battery fuses and resin-mold. The resin might infiltrate into the product, and it doesn't meet the specification when the resin-mold is done to this product. These products after resin-mold will not be guaranteed.

2.1.4 In case too much amount of solder is mounted on the battery fuses, there are possibilities that the heat-capacity and heat-radiation around the battery fuses are bigger, and electrical performance of the battery fuses is influenced by them. In addition, if it creeps up to the top of the ceramic base of the battery fuse, the fuse element may be melted in rare occasions. Therefore, make sure that the actual reflow condition is appropriate, and the height of solder fillet is under the height of the ceramic base of the battery fuse.

2.1.5 The battery fuses use resin adhesive between the cap and the ceramic base. Then, after reflow process, there are possibilities that the adhesive gets soft right temporarily, so if a stress applies to the cap at that condition, it may drop off or move from the initial position. Therefore, do not apply any stress to the cap under high temperature condition in your actual production process.

2.1.6 Do not use the battery fuses in the liquid as water or organic solvents, in the atmosphere as sulfurous acid gas, nitrogen oxide gas, or high humidity. And, ultrasonic-cleaning or immersion-cleaning and so on must not be done to the battery fuses before and after mounted. When cleaning is done, flux on element would flow, and it would not be satisfied its specifications. Moreover, a similar influence happens when the product comes in contact with cleaning-solution. These products after cleaning will not be guaranteed.

2.1.7 Make sure that the terminals of this product are connected property on the land of circuit board, and the value falls in the rated heater resistance between Terminal「1」-「4」and「3」-「4」. (Please refer to specifications or drawing for Terminal number.)

2.1.8 Please do not re-use of the battery fuses removed by solder correction.

2.1.9 If it is expected that the general consumers who are not aware of the usage cautions for the battery fuses handle it, please warn not to mount, remove or replace the battery fuses through the user's manual and other related material.

2.2 Disposal Considerations

2.2.1 The battery fuses corresponds to industrial waste, so dispose it according to the government, provincial regulations, or entrust the licensed disposal contractor.

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3. Examination for damage

Since battery fuses may be damaged by the mechanical force or the thermal force in the installation process of battery fuses to equipment. The following checks are also recommended often installing.

(1) Appearance check for outside of battery fuses.
(2) Conductivity check.
(3) X-ray check for inside of battery fuses.
(4) Operation check by sampling.

4. For reasons of safety

The battery fuses is a non-repairable item and, in case of replacement, an equivalent battery fuses from the same manufacturer and having the same catalogue reference should be used, mounted in exactly the same way. If applicable, it is recommended to warn general consumers, who are not aware of the usage cautions for the battery fuses, remove or replace the battery fuses through a note to this effect in the user's manual and other related material.

三端保险丝“SEFUSE® SCyyzzBJ系列”的使用说明

以下是针对此类设备的客户所提供的SCyyzzBJ系列三端保险丝的应用说明。为了保持三端保险丝和使用它的设备的工作性能，建议采取以下措施。

1. 额定值

表1　保险丝规格

系列名称	额定电流（A）	额定电压（Vdc）	最大过电流（A）	保险丝内阻（mΩ）
SCyy12BJ	12	36	50	2.0±1.0
SCyy15BJ	15			1.5±1.0
SCyy22BJ	22	62	80	0.7±0.5

表2　加热器规格

产品型号	适用电芯数	动作电压范围（V）	加热器电阻（Ω）	适用功率范围（W） 注1
SC0112BJ	1	3.0～5.0	1.10±20%	6.8～28.5
SC0115BJ			1.05±20%	7.1～29.8
SC0212BJ	2	4.8～9.6	3.00±15%	6.6～36.2
SC0215BJ			2.80±15%	7.1～38.8
SC0222BJ		6.0～9.6	2.80±15%	11.1～38.8
SC0312BJ	3	7.4～14.4	7.20±15%	6.6～33.9
SC0315BJ			6.80±15%	7.0～35.9
SC0322BJ		9.0～14.4	6.40±15%	11.0～38.2
SC0412BJ	4	10.5～19.6	14.4±15%	6.6～31.4
SC0415BJ			13.6±15%	7.0～33.3
SC0422BJ		12.0～19.2	11.2±15%	11.0～38.8
SC0512BJ	5	12.5～24.0	20.0±15%	6.7～33.9
SC0515BJ		14.4～24.0	25.0±15%	7.2～27.2
SC0522BJ		15.9～24.0	19.8±15%	11.1～34.3
SC0612BJ	6	15.0～28.8	30.0±15%	6.5～32.6
SC0715BJ	6～7	18.8～32.9	42.0±15%	7.3～30.4

注1 参考

2. 应用说明

2.1 设计注意事项

2.1.1 客户应判断每种应用的安装位置和安装方法是否合适。当电流通过时，三端保险丝的本体温度会升高，并且可能会高于环境温度。因此，在以与实际操作相同的条件安装三端保险丝后，请运行最终产品并确认三端保险丝是否正常工作。请确认并测试三端保险丝在正常情况下以及在预计的最大异常情况下是否不会引起问题。

2.1.2 请勿在航空航天设备，航空设备，核反应堆控制系统，生命支持设备或系统，运输机械发动机控制或安全相关设备中使用此设备。该设备设计用于家用电器，办公自动化设备，音频和视频设备，计算机通信设备，测试和测量设备，个人电子设备和运输设备（不包括引擎控制）。

2.1.3 不要在树脂中使用三端保险丝，树脂可能会渗入保险丝内部从而导致产品不符合规格。此类产品将不会在产品质量保证范围之内。

2.1.4 如果三端保险丝上焊料的量过多，三端保险丝周围的热容量和热辐射可能会变大，从而影响三端保险丝的电气性能。此外，如果焊料爬升到三端保险丝陶瓷底座的顶部，在极少数情况下，保险丝内部合金可能会熔化。因此，请确认实际回流条件是否合适，并且焊料高度低于三端保险丝陶瓷底座的高度。

2.1.5 三端保险丝的盖子和陶瓷底座之间使用树脂粘合剂。所以，在回流焊工艺之后，粘合剂可能会暂时变软。如果在这种情况下对盖子施加压力，盖子可能会脱落或从初始位置移动。因此，在实际生产过程中，请勿在高温条件下对盖子施加任何压力。

2.1.6 不要在液体（水或有机溶剂）或异常大气（二氧化硫、氧化氮或高湿度）中使用三端保险丝。三端保险丝安装前后不得进行超声波清洗或浸洗。这种类型的清洗可能导致可熔合金上的助溶剂流动从而导致产品无法达到规格要求。此外，产品与清洗剂接触后也会产生相同影响。此类产品将不会在产品质量保证范围之内。

2.1.7 确保本产品的端子在电路板上为连接属性，使其值处于端子「1」-「4」和「3」-「4」之间的额定加热器电阻内。（端子编号请参阅规格书或图纸。）

2.1.8 请不要重复使用通过焊料校正拆下的三端保险丝。

2.1.9 如果预计一般消费者不了解三端保险丝的使用注意事项，请通过用户手册和其他相关资料提醒不要安装，拆卸或更换保险丝。

2.2 处置注意事项

2.2.1 三端保险丝与工业废料相对应，因此请按照政府，省级法规进行处理，或委托给有资质的第三方处置。

3. 使用时的检测

因为在三端保险丝安装到设备上的过程中，可能会受到机械力或热力的损坏，建议经常实施以下检测。

(1) 三端保险丝外部外观检测
(2) 导电性检测
(3) 三端保险丝内部的X光检测
(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，如果要更换，应使用来自同一制造商且具有相同目录参考的等效三端保险丝，并以完全相同的方式安装。如果适用，建议提醒不了解三端保险丝使用注意事项的一般消费者，参考用户使用手册和其他相关材料中的注释来移除或更换三端保险丝。

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Application Instructions of Battery Fuses "SEFUSE® SCyyzzFK Series"

The followings are application instructions of battery fuses SCyyzzFK series for the customers of such devices. The following items are recommended to maintain the operation performance of battery fuses and equipment which use it.

1. Ratings

Table 1. Fuse specifications

Product Name	Rated Current (A)	Rated Voltage (Vdc)	Breaking Capacity (A)	Fuse Resistance (mΩ)
SC0122FK, SC0222FK	22	20	80	0.7±0.3

Table 2. Heater specifications

Product Name	Applicable Series Cell Number	Applicable Voltage Range (V)	Heater Resistance (Ω)	Applicable Wattage Range (W) Note 1
SC0122FK	1	4.3～5.0	1.10±20%	14.0～28.5
SC0222FK	2	8.5～10.0	4.40±15%	14.2～26.8

Note 1. Reference

2. Application Instructions

2.1 Design Caution

2.1.1 The customer should judge the propriety of mounting location and mounting method for each application. The body temperature of the battery fuses becomes higher as current passes through, and might rise higher than the ambient atmosphere temperature. Therefore, after mounting the battery fuses under the same conditions you would use for the actual operation, please run the final product and confirm whether the battery fuse operate normally. Please confirm and test whether battery fuses does not cause problem repeatedly, under normal conditions as well as under predicted maximum abnormal conditions.

2.1.2 Do not use this device in aerospace equipment, aeronautical equipment, nuclear reactor control systems, life support equipment or systems, transportation machinery engine control or safety-related equipment. This device is designed for use in household electric appliance, office automation equipment, audio and video equipment, computer communications equipment, test and measurement equipment, personal electronic equipment and transportation equipment (excluding engine control).

2.1.3 The customer should judge the propriety of resin-mold method and condition for each application. Therefore, after resin-molding the battery fuses under the same conditions you would use for the actual operation, please run the final product and confirm whether the battery fuse operate normally. Please confirm and test whether battery fuses does not cause problem repeatedly, under normal conditions as well as under predicted maximum abnormal conditions. The structure of our battery fuses prevents the mold resin from infiltrating into the product, however it cannot be completely prevented. When the mold resin infiltrates into the inside of it, it would not be satisfied the specification. Please note that these products after resin-mold invaded will not be guaranteed.

2.1.4 In case too much amount of solder is mounted on the battery fuses, there are possibilities that the heat-capacity and heat-radiation around the battery fuses are bigger, and electrical performance of the battery fuses is influenced by them. In addition, if it creeps up to the top of the ceramic base of the battery fuse, the fuse element may be melted in rare occasions. Therefore, make sure that the actual reflow condition is appropriate, and the height of solder fillet is under the height of the ceramic base of the battery fuse.

2.1.5 The battery fuses use resin adhesive between the cap and the ceramic base. Then, after reflow process, there are possibilities that the adhesive gets soft right temporarily, so if a stress applies to the cap at that condition, it may drop off or move from the initial position. Therefore, do not apply any stress to the cap under high temperature condition in your actual production process.

2.1.6 Do not use the battery fuses in the liquid as water or organic solvents, in the atmosphere as sulfurous acid gas, nitrogen oxide gas, or high humidity. And, ultrasonic-cleaning or immersion-cleaning and so on must not be done to the battery fuses before and after mounted. When cleaning is done, flux on element would flow, and it would not be satisfied its specifications. Moreover, a similar influence happens when the product comes in contact with cleaning-solution. These products after cleaning will not be guaranteed.

2.1.7 Make sure that the terminals of this product are connected property on the land of circuit board, and the value falls in the rated heater resistance between Terminal「1」-「4」 and 「3」-「4」. (Please refer to specifications or drawing for Terminal number.)

2.1.8 Please do not re-use of the battery fuses removed by solder correction.

2.1.9 If it is expected that the general consumers who are not aware of the usage cautions for the battery fuses handle it, please warn not to mount, remove or replace the battery fuses through the user's manual and other related material.

2.2 Disposal Considerations

2.2.1 The battery fuses corresponds to industrial waste, so dispose it according to the government, provincial regulations, or entrust the licensed disposal contractor.

3. Examination for damage

Since battery fuses may be damaged by the mechanical force or the thermal force in the installation process of battery fuses to equipment. The following checks are also recommended often installing.

(1) Appearance check for outside of battery fuses.
(2) Conductivity check.
(3) X-ray check for inside of battery fuses.
(4) Operation check by sampling.

4. For reasons of safety

The battery fuses is a non-repairable item and, in case of replacement, an equivalent battery fuses from the same manufacturer and having the same catalogue reference should be used, mounted in exactly the same way. If applicable, it is recommended to warn general consumers, who are not aware of the usage cautions for the battery fuses, remove or replace the battery fuses through a note to this effect in the user's manual and other related material.

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三端保险丝“SEFUSE® SCyyzzFK系列”的使用说明

以下是针对此类设备的客户所提供的SCyyzzFK系列三端保险丝的应用说明。为了保持三端保险丝和使用它的设备的工作性能，建议采取以下措施。

1. 额定值

表1　保险丝规格

系列名称	额定电流（A）	额定电压（Vdc）	最大过电流（A）	保险丝内阻（mΩ）
SC0122FK, SC0222FK	22	20	80	0.7±0.3

表2　加热器规格

产品型号	适用电芯数	动作电压范围（V）	加热器电阻（Ω）	适用功率范围（W）注1
SC0122FK	1	4.3～5.0	1.10±20%	14.0～28.5
SC0222FK	2	8.5～10.0	4.40±15%	14.2～26.8

注1 参考

2. 应用说明

2.1 设计注意事项

2.1.1 客户应判断每种应用的安装位置和安装方法是否合适。当电流通过时，三端保险丝的本体温度会升高，并且可能会高于环境温度。因此，在以与实际操作相同的条件安装三端保险丝后，请运行最终产品并确认三端保险丝是否正常工作。请确认并测试三端保险丝在正常情况下以及在预计的最大异常情况下是否不会引起问题。

2.1.2 请勿在航空航天设备，航空设备，核反应堆控制系统，生命支持设备或系统，运输机械发动机控制或安全相关设备中使用此设备。该设备设计用于家用电器，办公自动化设备，音频和视频设备，计算机通信设备，测试和测量设备，个人电子设备和运输设备（不包括引擎控制）。

2.1.3 客户应针对具体的应用场景，自行评估树脂成型（灌封）方法及工艺条件的适宜性。因此，请在模拟实际运行工况的条件下对三端保险丝进行树脂成型处理，随后运行最终产品，以确认三端保险丝是否工作正常。请务必在正常工况以及预估的最严苛异常工况下，反复进行确认与测试，确保三端保险丝不会引发任何问题。虽然本公司三端保险丝的结构设计旨在防止树脂成型材料渗入产品内部，但无法完全杜绝此类现象。一旦树脂成型材料渗入产品内部，产品性能将无法满足既定的规格要求。敬请留意，对于因树脂成型材料渗入而受损的产品，本公司将不予提供质量保证。

2.1.4 如果三端保险丝上焊料的量过多，三端保险丝周围的热容量和热辐射可能会变大，从而影响三端保险丝的电气性能。此外，如果焊料爬升到三端保险丝陶瓷底座的顶部，在极少数情况下，保险丝内部合金可能会熔化。因此，请确认实际回流条件是否合适，并且焊料高度低于三端保险丝陶瓷底座的高度。

2.1.5 三端保险丝的盖子和陶瓷底座之间使用树脂粘合剂。所以，在回流焊工艺之后，粘合剂可能会暂时变软。如果在这种情况下对盖子施加压力，盖子可能会脱落或从初始位置移动。因此，在实际生产过程中，请勿在高温条件下对盖子施加任何压力。

2.1.6 不要在液体（水或有机溶剂）或异常大气（二氧化硫、氧化氮或高湿度）中使用三端保险丝。三端保险丝安装前后不得进行超声波清洗或浸洗。这种类型的清洗可能导致可熔合金上的助溶剂流动从而导致产品无法达到规格要求。此外，产品与清洗剂接触后也会产生相同影响。此类产品将不会在产品质量保证范围之内。

2.1.7 确保本产品的端子在电路板上为连接属性，使其值处于端子「1」-「4」和「3」-「4」之间的额定加热器电阻内。（端子编号请参阅规格书或图纸。）

2.1.8 请不要重复使用通过焊料校正拆下的三端保险丝。

2.1.9 如果预计一般消费者不了解三端保险丝的使用注意事项，请通过用户手册和其他相关资料提醒不要安装，拆卸或更换保险丝。

2.2 处置注意事项

2.2.1 三端保险丝与工业废料相对应，因此请按照政府，省级法规进行处理，或委托给有资质的第三方处置。

3. 使用时的检测

因为在三端保险丝安装到设备上的过程中，可能会受到机械力或热力的损坏，建议经常实施以下检测。

(1) 三端保险丝外部外观检测
(2) 导电性检测
(3) 三端保险丝内部的X光检测
(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，如果要更换，应使用来自同一制造商且具有相同目录参考的等效三端保险丝，并以完全相同的方式安装。如果适用，建议提醒不了解三端保险丝使用注意事项的一般消费者，参考用户使用手册和其他相关材料中的注释来移除或更换三端保险丝。

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