SI 第2段階適合

CONTROL NO. SES C-6001B

SPECIFICATION FOR FUSERS
(FOR AUTOMOBILES)

PREPARED ON : NOVEMBER 1, 1996

SUMITOMO WIRILIG SYSTEMS, LTD.

1. Scope of Application

This specification specifies automotive single pole fuses cases (hereinafter referred to as "fusers") that use a cylindrical fuse element JASO D 601-88.

Remark: Units and figures put in the parentheses { } found in this specification are values of conventional units converted from those of SI units (International Unit Systems).

2. Name and Part No. of Components

Classification	Part name	Material	Part No.	Color
Fuse case	Fuser	Polypropylene	6310-6005	Natural, black
Fuse case	Fuser L	Polypropylene	6310-6010	Natural
Fuse case	Fuser LT	66 nylon	6310-2724	〃
Fuse case	Fuser LT-VO	66 nylon (equivalent to V-0 of UL Standard)	6353-0117	〃
Fuse case	Large fuser	66 nylon	6343-4624	Black
Fuse holder	F connector	Brass	8280-6600	———
Fuse holder	F connector with ST	Brass (Sn plated)	8280-6032	———

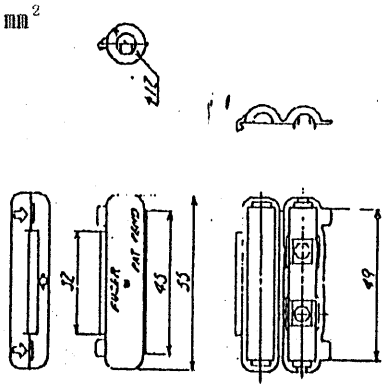
3. Performance

3-1 Construction and Features

Simple type single fuse cases that can accommodate cylindrical fuse element JASO D 601-88 are defined as "fusers".

(1) Fuser: A fuse element can be accommodated with a single action using the hinge.

Wire size: 0.5～2mm²

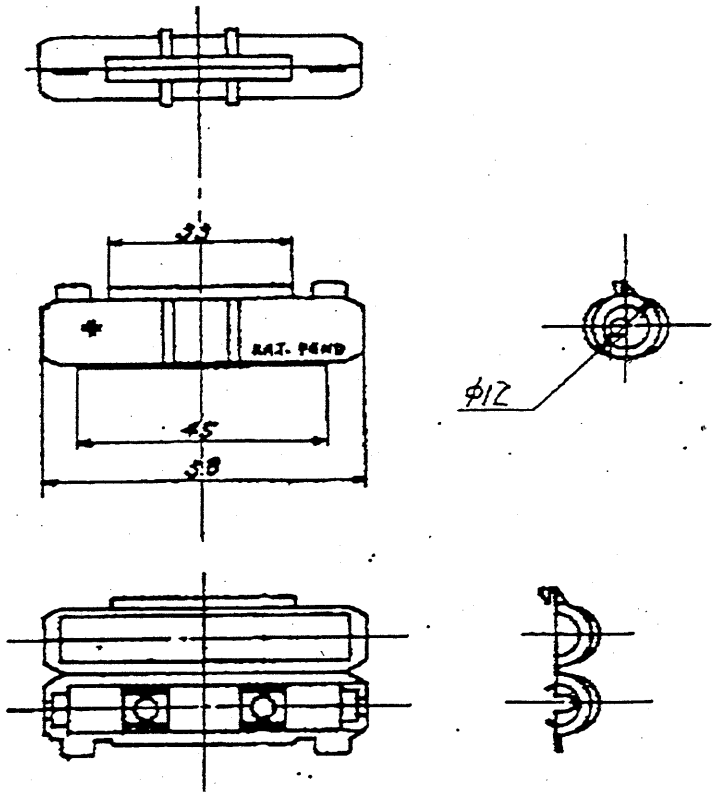


Referred standards

JIS C 8306(94)	Wiring Device Test Method	JASO D 601-88	Fuses
JIS H 3250(92)	Copper and Copper Alloy Bars	JASO D 604-88	Fuses Boxes

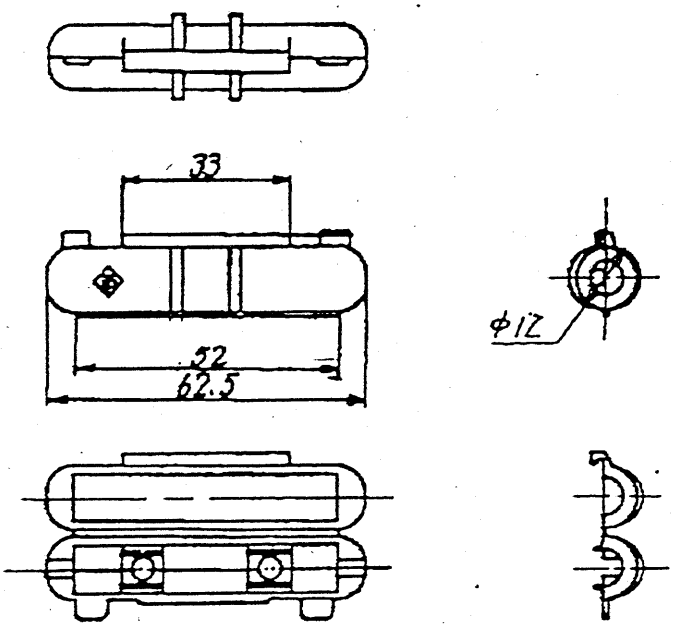
(2) Fuser L: Designed with a forn that can be fastened with a binder.

Suitable wire size: 0.5～2㎟



(3) Fuser LT: Uses a heat resisting material and designed with a form that can be fastened with a binder.

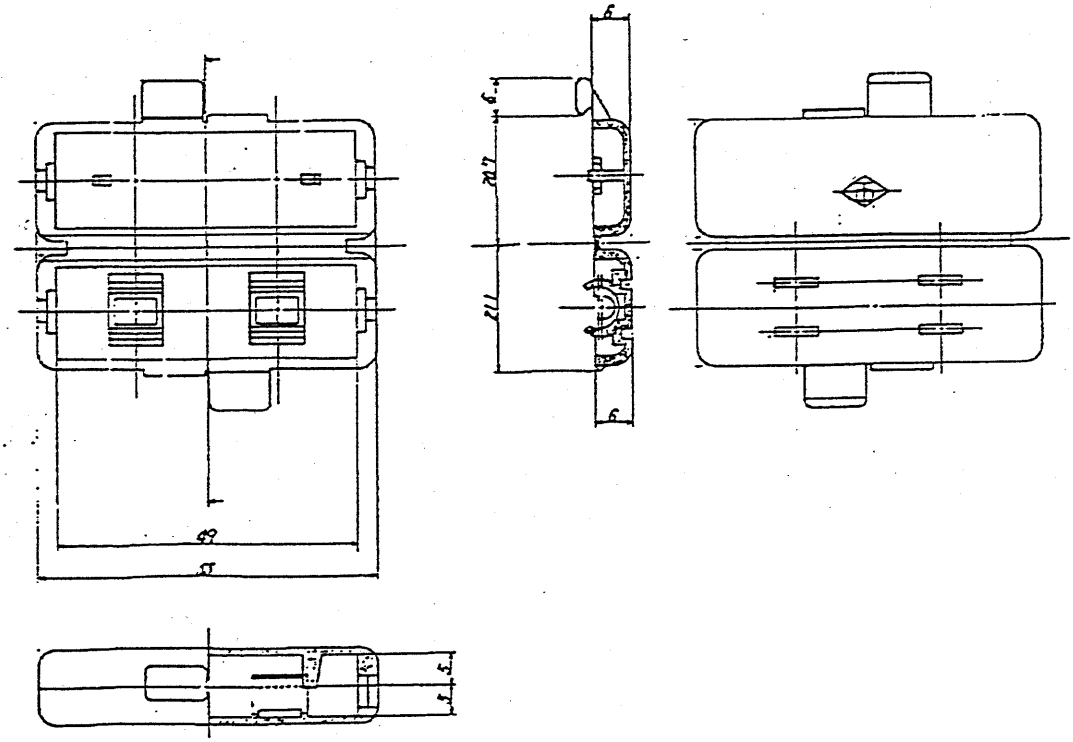
Suitable wire size: 0.5～2㎟



(4) Large Fuser: A large fuser of a high heat resistance.

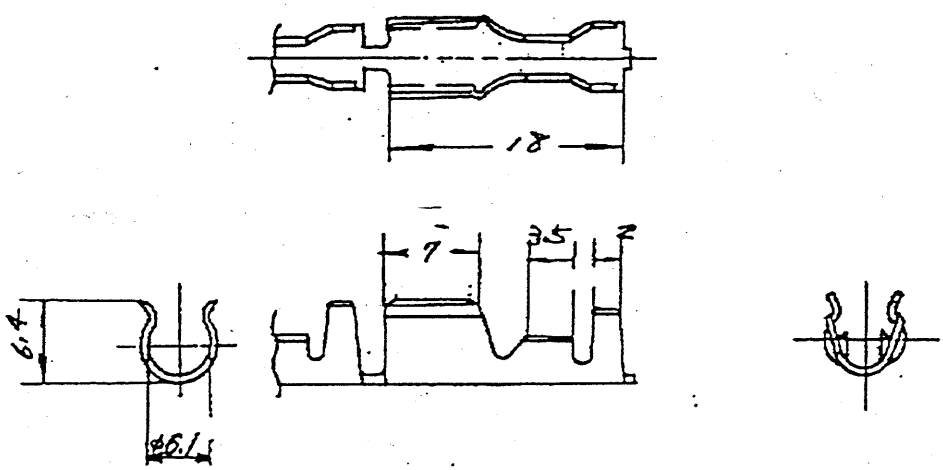
Integrating a fuse holder called "F Connector (Fuse Connector)" to the large fuser, the fuse holding function can be furnished.

Suitable wire size: 0.5～3㎟



(5) F Connector: Designed for low current circuits and enables easy change of fuse elements.

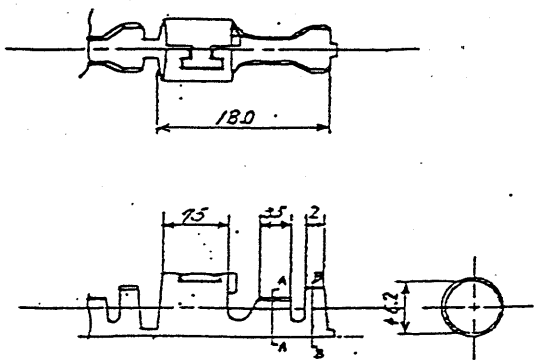
Suitable wire size: 0.5～2㎟



(6) F Connector with ST

ST means stopper, and designed with a structure to prevent deformation of the holder caused by the fuser. It is used for high current circuits (up to 30A).

Suitable wire size: 0.5～3㎟



Section A-A　Section B-B

3-2 Reference Value for Mounting

To select fuse cases and fuse holders, it is necessary to define the fuse capacity, connecting wire size, and ambient temperature. There values are shown for reference. It is also necessary to perform tests for each fuser type based on its specific conditions.

(1) Determination of the fuse

Use the cylindrical fuse element JASO D 601-88. Load current should be 60～70% of the rated current.

(2) Determination of the connecting wire size

The table ② shows connecting wire sizes referred to ambient temperature and rated fuse current. AV type wires are to be used.

①Fuse holder:Wire size for using F Connector
(Unit:mm²)

Ambient temperature(℃) \ Rated fuse current(A)	10	15	20	30
20	0.85 or greater	1.25 or greater	—	—
50	1.25 or greater	2 or greater	—	—
70	—	—	—	—

Fuse case:A fuser(polypropylene)can be used.

②Fuse holder:Wire size for using F Connector with ST
(Unit:mm²)

Ambient temperature(℃) \ Rated fuse current(A)	10	15	20	30
20	0.85 or greater	0.85 or greater	1.25 or greater	3 or greater
50	0.85 or greater	1.25 or greater	2 or greater	※3 or greater
70	1.25 or greater	2 or greater	※2 or greater	—

Item with asterisk(※)use heat resisting wires.

Fuse case

Items surrounded by double lines in the above table:Fuser LT(66 nylon) is use.

30A fuse:Large Fuser(66nylon)is in use.

4. Performance

The performance of the holders and cases should be in accordance with Table 1 in the tests specified by 6. below. Note that 2.00mm² AV wire is used for connection and that 6.4mm dia. copper bar (hereinafter referred to as "dummy fuse") specified by JIS H 3250 is used in place of a fuse. The dummy fuse should be nickel plated.

Table1

Item		Performance	Test method
Electric performance	Insulation resistance 6－1	Greater than 100mΩ	6－1
	Contact resistance 6－2	Less than 3mΩ across holders, Use dummy fuse.	6－2
	Temperature rise 6－3	Less than 30 degrees at ratcd fuse current	6－3
Mechanical performance	Opening/closing force 6－4	6.9N～29.4N {0.7kgf～3.0kgf}	6－4
	Opening/closing repeated strength 6－5	After 100 times of repetition,performance as per 6-4 should be satisfied, and there should be no crack, deformation, and loosening.	6－5
	Crimped part tensile strength 6－6	Values specified by Table 2 should be satisfied.	6－6
Environmenta lperformance	Heat resistance 6－7	There should be no swell, softening, and loosening.	6－7
	Humidity resistance 6－8	Any part should be free from deterioration and satisfy the performance as per 4-1.	6－8
	Cold resistance 6－9	There should be no crack, deformation, and loosening.	6－9

Table2

Wire size	0.5	0.85	1.25	2	3
Min.tensile strength N {kgf}	88.2{9}	127.4{18}	166.6{17}	245{25}	294{30}

5. Test Conditions

5－1 Ambient Conditions

Unless otherwise specified, performance test should be performed under the following conditions.

Temperature：15～35℃
Humidity：　45～75%

5－2 Test Sample

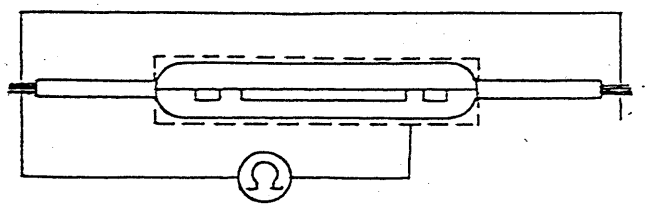
Prepare a performance test sample using a wire of specified suitable range of application, and crimp it with the specified crimp height.

6. Test Method

6-1 Insulation Test

According to 8.5 of JASO D 604-88, the circuit should be as shown in Fig. 1, and use a insulation tester of a range of 500VDC, 1000MΩ.

Fig. 1

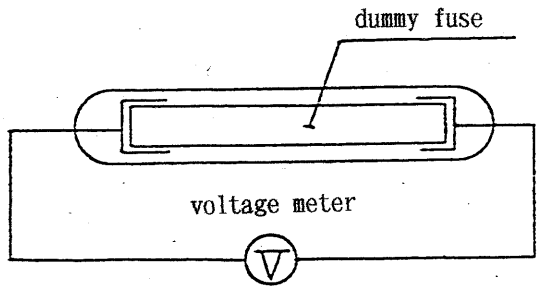


Insulation resistance meter

6-2 Contact Resistance

Use a circuit specified in Fig. 2. With a current 1 ADC, measure the voltage drop across the fuse holders to find the contact resistance. Use a dummy fuse instead of a fuse element.

Fig. 2



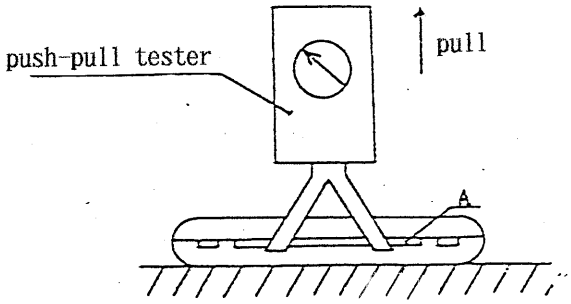
6-3 Temperature Rise

Insert a dummy fuse into the fuse holder, and check the temperature rise in the middle of the dummy fuse caused by each rated fuse current. Measure the temperature when it is stabilized.

6-4 Opening/Closing Force

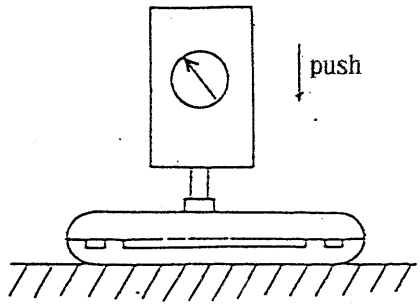
1) Hook the nail of a push-pull tester on the part A of the fuse case as shown in Fig. 3. pull the tester, and measure the force of opening the fuse case.

Fig.3



2) Follow the method shown in Fig. 4, and measure the force of closing the fuse case.

Fig.4



6-5 Opening/Closing Repeated Strength

Use a fuse case alone, count "close → open → close" as one cycle. and repeat the cycle.

6-6 Crlmped part Tensile Strength

With a Schopper tension tester (pulling speed 200 mm/min), pull the fuse holder in the direction of the wire.

6-7 Heat Resistance

According to 14 of JIS C 8306, keep the fuse case, furnished with a fuse holder and a fuse, under a temperature of 110 ± 3℃ for 126 hours. After setting it back to a normal temperature, visually check the appearance.

6-8 Humidity Resistance

According to 15 of JIS C 8306, keep the test sample for 96 hours under a temperature 40 ± 2℃ and a humidity 90-95%. Then set it back to a normal temperature , dry dew drops, and measure the insulation resistance within 30 minutes according to the test method 6-1. Simultaneously, visually check the appearance.

6-9 Cold Resistance

Keep the fuse case alone under a temperature of 40 ± 2℃ for 48 hours. Afterwards, set it back to a normal temperature, and visually check the appearance.