

# MP-S01

Part No. 3110-0001

## Product Specification

Qualification Test Report No. TR-16040

Rev.	ECN	Date	Prepared by	Checked by	Approved by
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0	S16233	April 21, 2016	K.Suzuki	S.Suzuki	T.Hirakawa

## 1. Scope

This product specification defines the test conditions and the performances of the MP-S01, a PCB mounting spring for electronic connection.

## 2. Product Name and Parts No.

### 2.1 Product Name

MP-S01

### 2.2 Parts No.

3110-0001

## 3. Construction, Material and Finish

Construction, material and finish of the connector are covered as each drawing.

## 4. Rating

### 4-1. Operating condition

Temperature . . . -40~85°C , (Containing temperature rise by current.)

Humidity . . . 85% MAX.

### 4-2. Storage condition

Temperature . . . -25~60°C ,

Humidity . . . 85% MAX. (No condensation)

## 5. Test and Performance

### Test Condition

The initial condition in this test means the condition before shipment.

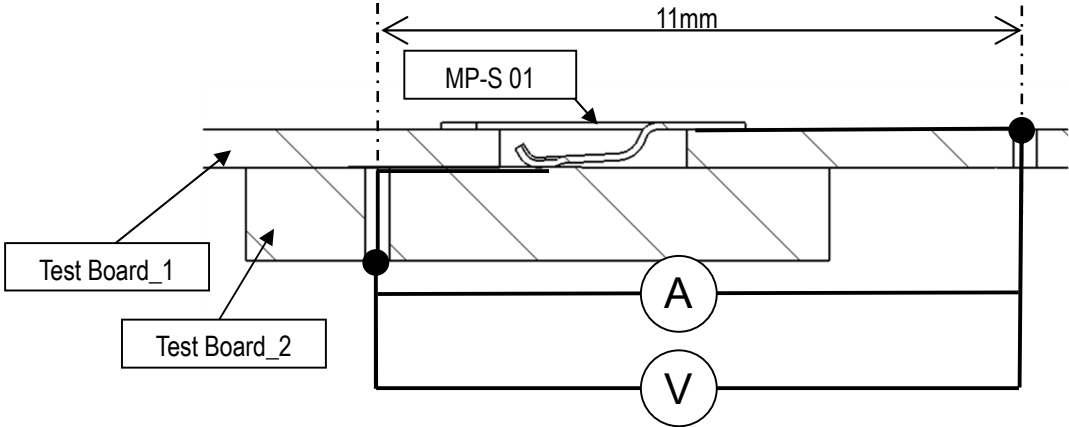
Unless otherwise specified, all tests and measurements should be performed under the following conditions in accordance with MIL-STD-202G.

Temperature . . . 15°C~35°C

Pressure . . . 866hPa~1066hPa (650mmHg~800 mmHg)

Relative Humidity . . . 50±2%R.H.

5.1. Electrical Performance

1. Contact resistance	
Reference standard:	MIL-STD-202G, Method 307.
Test conditions:	Solder the MP-S01 to the test board , then contact is pressed against the test board , then measure the contact resistance shown in Fig.1 by the four terminal method. Open circuit voltage : 20mV MAX. Circuit current : 10mA MAX.
	
Fig.1	
Pass criteria:	Initial : 25mΩ MAX. After testing : 25mΩMAX

2. Rated Voltage/Current	
Test conditions:	Equilibrium Temperature shall be measured by a thermocouple measuring method with rated current. Rated Current : 0.7A Rated Voltage : 5V
Pass criteria:	Temperature rise Δ30°C MAX



**5.3. Environmental Performance**

<b>1. Cold Test</b>	
Reference standard:	IEC-60068-2-1
Test conditions:	Apply the following environment to the mating MP-S01. Temperature : $-40\pm 2^{\circ}\text{C}$ Duration : 48 hours
Pass criteria:	Contact resistance: Shall meet 5.1.1. Appearance: No abnormality adversely affecting the performance shall occur.

<b>2. Heat Test</b>	
Reference standard:	MIL-STD-202, Method 108A, Condition A
Test conditions:	Apply the following environment to the mating MP-S01. Temperature : $85\pm 2^{\circ}\text{C}$ Duration : 96 hours
Pass criteria:	Contact resistance: Shall meet 5.1.1. Appearance: No abnormality adversely affecting the performance shall occur.

<b>3. Thermal Shock</b>	
Reference standard:	MIL-STD-202, Method 107G, Condition A
Test conditions:	Apply the following environment to the mating MP-S01. Temperature : $-55^{\circ}\text{C}:30\text{min.} \rightarrow 85^{\circ}\text{C}:30\text{min.}$ Transition time : 5min. MAX. No. of cycles : 5 cycles
Pass criteria:	Contact resistance: Shall meet 5.1.1. Appearance: No abnormality adversely affecting the performance shall occur.

<b>4. Humidity (Steady State)</b>	
Reference standard:	MIL-STD-202, Method 103B, Condition B
Test conditions:	Apply the following environment to the mating MP-S01. Temperature : $40\pm 2^{\circ}\text{C}$ Humidity : 90~95%RH Duration : 96 hours
Pass criteria:	Contact resistance: Shall meet 5.1.1. Appearance: No abnormality adversely affecting the performance shall occur.

5.4. Others

1. Solderability

Reference standard: -

Test conditions: The component should be tested according to JESD22-B102E.  
Reflow temperature profile. : Fig.3  
(Based by J-STD-020D) The number of reflow is 1 times.

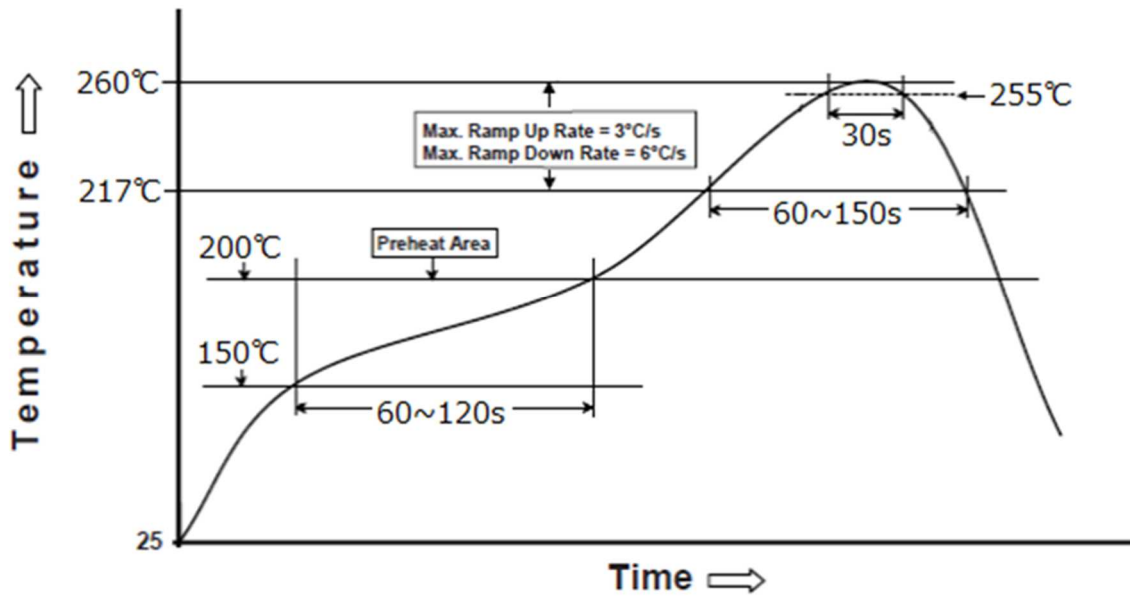


Fig.3

Pass criteria: At least 95% of immersed area should be adequately wetted  
No voids larger than 25% of solder area is found on solder joints

2. Resistance to soldering heat

Reference standard: -

Test conditions: Reflow temperature profile. : Fig.3 (Based by J-STD-020D)  
The number of reflow is 3 times.  
Moisture sensitivity : Level 1 (Based by J-STD-20 Table5-1)

Pass criteria: Contact resistance: Shall meet 5.1.1.  
Appearance: No abnormality adversely affecting the performance shall occur.

## 5.5 Test Sequence and Specimen Quantity

Table 1 Test Sequence and Sample Quantity

Test Item	Group												
	A	B	C	D	E	F	G	H	J	K	L	M	N
Contact resistance			1,4	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3		2
Rated voltage/Current	1												
Contact force		1	3										
Durability			2										
Shock				2									
Vibration					2								
Cold test						2							
Heat test							2						
Thermal shock test								2					
Humidity (steady state)									2				
H <sub>2</sub> S gas										2			
Saltwater spray											2		
Surface mount solderability test												1	
Resistance to reflow soldering heat													1
Specimen quantity	5	10	10	5	5	5	5	5	5	5	5	5	5

※Numbers indicate sequence in which tests are performed.

## 6. Recommended Metal Mask

Refer to drawing for the recommended metal mask thickness and opening dimension.