JST J.S.T. Mfg. Co., Ltd.

PRODUCT SPECIFICATION		Issue No. T-1-1014	Rev. 7
Customer:	GENERAL	Issue date: April 4, 1979	
Product Name:	SM Connector	Revision date: May 15. 2019	

This product specification contains the results of performance tests for the SM Connector.

JST J.S.T.(H.K.)Co., Ltd. 05 JUL 2019 J H 日压端子(香港)有限公司

– Index –

Prepared by:	Checked by:	Reviewed by:	Approved by:
T.Kusuda	M.Ueda	N.Tsuji	H.Tomimoto

1. PART NAME, PART NUMBER & DRAWING NUMBER

Part Name	Part Number	Drawing Number
Socket contact	SHF-001T-0.8BS	KRD-10930-1
Pin contact	SYM-001T-0.6	KRD-2550-3
Receptacle housing	SMR-*$_1$V-*$_2$	KRD-10145-1
	SMR-18V-*$_2$	KRD-5516-2
Plug housing	SMP-02VF-*$_2$	KRD-14174-1
	SMP-*$_1$V-*$_2$C	KRD-10146-2
	SMP-18V-*$_2$C	KRD-12352-2

Note$_1$: Number of circuits in one or two-digit figure is indicated in *$_1$.
Note$_2$: A character of an alphabet in color is indicated in *$_2$.
N: Natural (White), B: Black

2. CONSTRUCTION, DIMENSIONS, MATERIAL & SURFACE FINISH

Construction and dimensions shall be in accordance with the referenced drawings.
Material and surface finish shall be as specified below.

Part Name	Material	Surface Finish, etc.
Socket contact	Phosphor bronze	Tin-plated
Pin contact	Brass	
Receptacle housing	PA 6	UL94V-0
Plug housing		

3. CHARACTERISTICS

Item		Rated Value	
Current rating		3 A (AC, DC)	
Voltage rating		250 V (AC, DC)	(Note$_3$)
Temperature range		-25 to +85°C	(Note$_4$)
Applicable wire	Conductor size	AWG #28 to #22 (0.08 to 0.33 mm^2)	
	Insulation O.D.	ϕ1.2 to ϕ1.8 mm	

Note$_3$: Except for the application of Electrical Appliance and Material Safety Law in Japan.
Note$_4$: Including temperature rise in applying an electrical current.

4. PERFORMANCE

4.1 SPECIMEN

Part Name	Part Number
Socket contact	SHF-001T-0.8BS
Pin contact	SYM-001T-0.6
Receptacle housing	SMR-*V-B
Plug housing	SMP-*V-BC

Note$_5$: Number of circuits in one or two-digit figure is indicated in *.

4.2. TEST CONDITIONS

1) When tested in accordance with the test condition and method specified in each item, each requirement shall be met.

2) Unless otherwise specified, tests shall be conducted under the following ambient conditions specified in JIS C 60068-1 (IEC 60068-1) [Basic Environmental Testing Procedures General and Guidance].

Temperature: 15 to 35 °C
Relative humidity: 25 to 75 %

3) For environmental tests, as a rule, the specimen assembled for actual use and a wire of UL1007 AWG #22 shall be used.

4.3 REQUIREMENTS, TEST METHODS & TEST RESULTS

4.3.1 Appearance

Requirement: There shall be no crack, deformation or discoloration which may affect the performance specified in this specification.

Test method: Visual inspection.

Test result: Good.

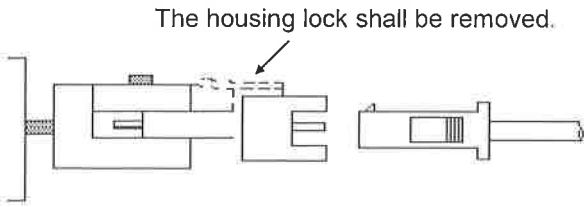
4.3.2 Mechanical Performance Test

4.3.2.1 Insertion Force (I.F.) & Withdrawal Force (W.F.)

Requirement:

No. of circuits	At Initial		At 30th
	I.F. (N max.)	W.F. (N min.)	W.F. (N min.)
2	19.6	1.0	0.8
3	24.5	1.5	1.0
4	29.4	2.0	1.2
5	34.3	2.5	1.5
6	39.2	2.9	2.0
7	44.1	3.4	2.5
8	49.0	3.9	2.9
9	49.0	4.4	3.4
10	53.9	4.9	3.9
11	53.9	5.4	4.4
12	58.8	5.9	5.9
18	118	17.6	9.8

Test method: A receptacle housing with crimped pin contacts and a plug housing with crimped socket contacts shall be mated and unmated on the same axis. Initial insertion and withdrawal forces, and withdrawal force at 30th shall be measured, removing the housing lock. (Testing speed: 1 to 5 mm/sec.)



JST	Product Name: SM Connector	No. T-1-1014

Test result: UNIT: N

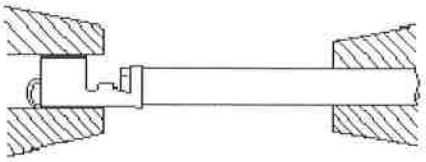
No. of circuits	Items	Ave.	Max.	Min.
2	Initial I.F.	10.0	11.8	7.8
	Initial W.F.	4.6	5.9	3.9
	W.F. at 30th	2.8	3.9	2.0
3	Initial I.F.	12.0	14.7	10.8
	Initial W.F.	6.6	7.8	5.9
	W.F. at 30th	3.7	4.9	2.9
4	Initial I.F.	17.9	19.6	15.7
	Initial W.F.	8.6	9.8	7.8
	W.F. at 30th	4.7	5.9	3.9
5	Initial I.F.	21.1	22.5	18.6
	Initial W.F.	10.9	12.7	9.8
	W.F. at 30th	5.4	6.9	3.9
6	Initial I.F.	25.8	27.4	22.5
	Initial W.F.	12.7	14.7	11.8
	W.F. at 30th	6.3	7.8	4.9
7	Initial I.F.	27.3	29.4	26.5
	Initial W.F.	13.5	14.7	11.8
	W.F. at 30th	7.2	8.8	5.9
8	Initial I.F.	28.8	30.4	26.5
	Initial W.F.	14.4	15.7	11.8
	W.F. at 30th	8.2	8.8	6.9
9	Initial I.F.	31.7	33.3	30.4
	Initial W.F.	14.8	16.7	12.7
	W.F. at 30th	8.3	11.8	6.9
10	Initial I.F.	35.2	37.2	32.3
	Initial W.F.	15.3	17.6	12.7
	W.F. at 30th	10.9	11.8	9.8
11	Initial I.F.	37.0	39.2	35.3
	Initial W.F.	16.1	17.6	14.7
	W.F. at 30th	11.3	11.8	9.8
12	Initial I.F.	40.0	42.1	38.2
	Initial W.F.	17.6	18.6	16.7
	W.F. at 30th	11.6	12.7	10.8
18	Initial I.F.	80.1	86.2	74.5
	Initial W.F.	33.1	37.2	30.4
	W.F. at 30th	18.6	20.6	17.6

n=10

4.3.2.2 Crimp Tensile Strength

Requirement:

Wire to be used		Requirements (N min.)
AWG #28	0.08 mm^2	9.8
AWG #26	0.13 mm^2	14.7
AWG #24	0.21 mm^2	19.6
AWG #22	0.33 mm^2	34.3



Test method: Pulling load shall be applied between a correctly crimped contact and a wire. The load required to pull the wire out of the contact or break the wire shall be measured. (Testing speed: 25 mm/min.)

Test result:

[Socket contact] UNIT: N

Wire size	Ave.	Max.	Min.
AWG #28	19.8	23.5	14.7
AWG #26	37.4	41.2	32.3
AWG #24	52.5	57.8	48.0
AWG #22	81.1	84.3	76.4

n=20

[Pin contact] UNIT: N

Wire size	Ave.	Max.	Min.
AWG #28	19.3	22.5	16.7
AWG #26	37.3	40.2	34.3
AWG #24	57.3	62.7	53.9
AWG #22	78.6	83.3	73.5

n=20

4.3.2.3 Contact Retention Force

Requirement: 19.6 N min.

Test method: A crimped contact shall be inserted into a housing and pulled in the axial direction. The load required to pull the contact out of the housing shall be measured. (Testing speed: 1 to 5 mm/sec.)

Test result: UNIT: N

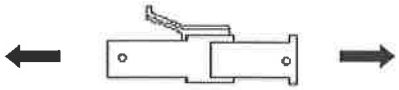
	Ave.	Max.	Min.
Socket contact	48.4	56.8	41.2
Pin contact	38.7	42.1	34.3

n=50

4.3.2.4 Housing Lock Strength

Requirement: 9.8 N min.

Test method: A receptacle housing and a plug housing shall be mated, and pulling load shall be applied to them. The load required to unlock the housing lock shall be measured. Contacts shall not affect housing lock strength. (Testing speed: 1 to 5 mm/sec.)



Test result: UNIT: N

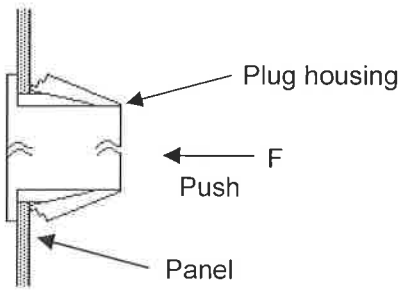
No. of circuits	Ave.	Max.	Min.
2-circuit	30.6	34.3	27.4
3-circuit or more	35.9	38.2	32.3

n=10

4.3.2.5 Panel Lock Strength

Requirement: 78.4 N min.

Test method: A load shall be applied to the plug housing by the method shown in the figure below. The load required to separate the housing from the panel shall be measured. (Testing speed: 1 to 5 mm/sec.)



(Panel dimension: KRD-16083-1)

Test result: UNIT: N

Max.	Min.	Ave.
136	153	116

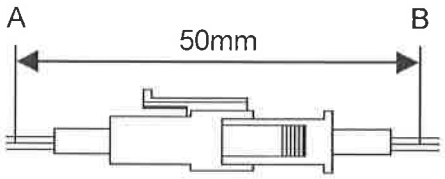
n=10

4.3.3 Electrical Performance Test

4.3.3.1 Contact Resistance

Requirement: Initial: 10 mΩ max.
After tests: 20 mΩ max.

Test method: Contact resistance between points A and B of a specimen assembled for actual use as shown in the figure on the right side shall be measured under the following conditions.



Test current: 10 mA (DC)
Open voltage: 20 mV max.
Wire to be used: AWG #22

Test result: See each environmental test item.

4.3.3.2 Current Continuity

Requirement: There shall be no current discontinuity longer than 1 microsecond during the vibration test.

Test method: Each circuit of a specimen assembled for actual use shall be connected in series and test current of 10 mA (DC) shall be applied. Current discontinuity longer than 1 microsecond during the test shall be detected by continuity meter.

Test result: See vibration test item.

4.3.3.3 Insulation Resistance

Requirement: Initial: 500 MΩ min.
After test: 300 MΩ min. (Humidity test)

Test method: 500 VDC shall be applied between the outer surface of a housing and a contact and also between adjacent contacts of a mated specimen to measure insulation resistance.

Test result: UNIT: MΩ

Items	Housing-Contact	Contact-Contact
Initial	1,000 min.	1,000 min.
After humidity test	1,000 min.	1,000 min.

n=10

4.3.3.4 Dielectric Withstanding Voltage

Requirement: There shall be no breakdown or flashover.

Test method: Testing voltage specified below shall be applied between the outer surface of a housing and a contact and also between adjacent contacts of a mated specimen for one minute.

Initial: 1,500 VAC
After test: 1,000 VAC (Humidity test)

Test result:

Items	Housing-Contact	Contact-Contact
Initial	Good.	Good.
After humidity test	Good.	Good.

n=10

4.3.4 Environmental Test

4.3.4.1 Durability

Requirement: Contact resistance shall be 20 mΩ max. after the test.

Test method: A receptacle housing with crimped pin contacts and a plug housing with crimped socket contacts shall be mated and unmated.
After repeated 30 cycles, contact resistance shall be measured.

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.20	7.9	7.0	7.37	8.3	7.0

n=20

4.3.4.2 Humidity

Requirement: Contact resistance shall be 20 mΩ max. after the test.
Insulation resistance shall be 300 MΩ min. after the test.
There shall be no breakdown or flashover on the dielectric withstanding voltage test.

Test method: The specimen shall be placed in a humidity chamber of the following conditions.
After the test, contact resistance, insulation resistance, dielectric withstanding voltage and capacitance shall be measured.

Temperature: 40 ± 2°C
Relative humidity: 90 to 95%
Period: 240 hours

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.20	7.9	7.0	7.51	8.0	7.2

n=20

4.3.4.3 Heat Aging

Requirement: Contact resistance shall be 20 mΩ max. after the test.

Test method: The specimen shall be placed in a heat oven of the following conditions. After the test, contact resistance shall be measured.

Temperature: 85 ± 2°C
Period: 250 hours

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.31	7.7	7.0	7.47	8.1	7.1

n=20

4.3.4.4 Thermal Shock

Requirement: Contact resistance shall be 20 mΩ max. after the test.

Test method: The specimen shall be subjected to a thermal shock test of the following conditions. After the test, contact resistance shall be measured.

1 cycle consists of:
-55 ± 3°C for 30 minutes
+85 ± 2°C for 30 minutes
Total cycles: 25 cycles

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.02	7.3	6.8	7.56	7.8	6.8

n=20

4.3.4.5 Hydrogen Sulfide Gas

Requirement: Contact resistance shall be 20 mΩ max. after the test.

Test method: The specimen shall be subjected to hydrogen sulfide gas of the following conditions. After the test, contact resistance shall be measured.

Concentration: 3 ± 1 ppm
Temperature: 40 ± 2°C
Relative humidity: 80 ± 5%
Period: 240 hours

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.19	7.4	6.9	7.37	7.9	7.0

n=20

4.3.4.6 Salt Spray

Requirement: Contact resistance shall be 20 mΩ max. after the test.

Test method: The specimen shall be subjected to a salt spray test of the following conditions. After the test, it shall be washed with running water and dried naturally before the measurement of contact resistance.

1 cycle consists of:
Temperature: 35 ± 2°C
Concentration: 5% in weight
Period: Spray ON: 8 hours
OFF: 16 hours
Total cycle: 3 cycles

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.15	7.9	7.0	7.56	8.7	7.1

n=20

4.3.4.7 Vibration

Requirement: Contact resistance shall be 20 mΩ max. after the test.
There shall be no current discontinuity longer than 1 microsecond during the test.

Test method: The specimen mounted on a printed circuit board (PCB) shall be subjected to a vibration test of the following conditions. During the test, current continuity shall be checked. After the test, contact resistance shall be measured.

Frequency: 10-55-10 Hz/minute
Amplitude: 1.5 mm
Direction: Each of X, Y and Z-axis directions
*Each axis shall be at right angles to others.
Period: 2 hours for each direction

Test result: UNIT: mΩ

Test item	Initial			After the test		
Contact resistance	Ave.	Max.	Min.	Ave.	Max.	Min.
	7.08	7.4	6.8	7.59	8.4	7.0

n=20

Current continuity	There was no current discontinuity longer than 1 microsecond.

5. NOTICE

The occurrence of breaking or cracking (stress corrosion cracking) of contact by the moisture (condensation, etc.) and the corrosive gas such as ammonia and sulfur may cause of the contact failure, when the contact material of the terminals or connectors is a brass.
If the place of use of terminals or connectors and their equipment is expected to influence of the corrosive gases such as ammonia and sulfur as described in the above, please use the phosphor bronze type product (Product specification No.T-1-1230).

单击下面可查看定价，库存，交付和生命周期等信息

>>JST(杰世腾)