SPECIFICATION FOR
CONNECTOR USED FOR FPC/FFC WITH 0.8mm CONTACT SPACING
COPING WITH AUTOMATIC MOUNTING & SMT
HFR_ _R-2STE_

1. SCOPE

This specification covers the requirements for the connector (HFR_ _R-2STE_) with 0.8mm spacing to which the edge of FPC(Flexible Printed Circuit) and FFC(Flexible Flat Cable) can be connected by Zero-Insertion-Force method and which copes with automatic mounting and SMT.

2. APPICABLE STANDARDS

JIS C 5402	Method for Test of Connectors for Electronic Equipment
JIS C 0806	Packing of Electronic Components on Continuous Tapes (Surface Mount Components)
UL – 94	TESTS FOR FLAMMABILITY OF PLASTIC MATERIALS FOR PARTS IN DEVICES AND APPLIANCES.

3. CATALOG No. STRUCTURE

4. CONNECTOR SHAPE, DIMENSIONS AND MATERIALS

See attached drawings.

5. ACCOMMODATED CONDUCTORS (FPC/FFC)

See attached drawings.

6. PACKAGING CONDITION

See attached drawings.

7. RECOMMENDED MOUNTING PATTERN DIMENSIONS

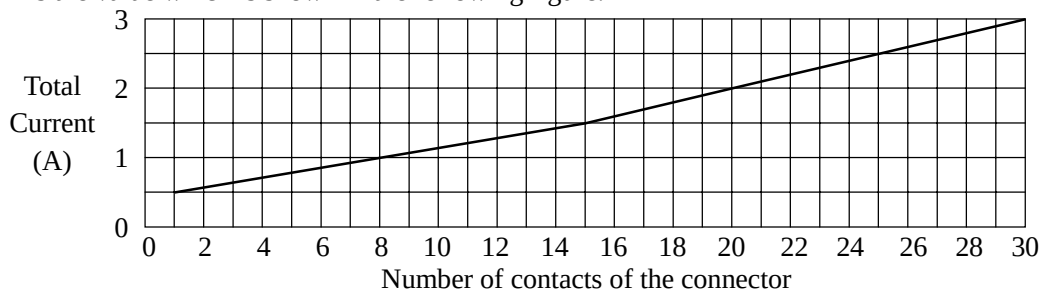
See attached drawings.

8. RATING

8-1. Voltage : A.C.100V D.C.100V
8-2. Current : A.C.0.5A D.C.0.5A (Refer to the following note.)
8-3. Operating Temperature : -55°C ~ +85°C
(Including temperature rises according to the current flows)

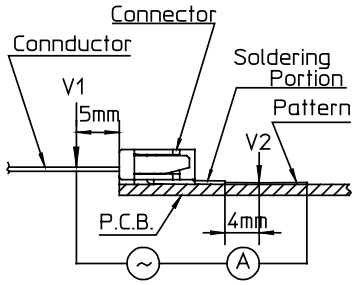
NOTE

Allowable maximum current for one contact is 0.5A. Total allowable current for a whole connector is the value which is shown in the following figure.



9. PERFORMANCE CHARACTERISTICS

9-1. Electrical Performance

No.	Test Item	Test Method	Requirements
9-1-1	Contact resistance	1)Measure contact resistance between V_1-V_2 by voltage drop method by the following circuit by mating accommodated conductor stipulated in clause 5 after reflow soldering the connector on the P.CB. and cleaning flux dregs.  2)Open circuit voltage :Less than A.C.20mV 3)Test current : Less than A.C.20mA	1)Initial value : Less than 30mΩ 2)Contact resistance after the test is in accordance with the value specified in each test item.
9-1-2	Insulation resistance	1)Measure insulation resistance between adjacent contacts in a connector individual. 2)Test voltage : D.C.500V 3)Read value one minute after applying test voltage.	1)More than 500MΩ
9-1-3	Dielectric withstanding voltage	1)For one minute, apply A.C.500V between adjacent contacts in a connector individual. 2)Set current : A.C.1mA	1)Free from any short circuit and insulation breakdown.

9-2. Mechanical Performance

No.	Test Item	Test Method	Requirements
9-2-1	Durability (Insertion & Extraction)	1)Measure contact resistance before and after the test by the method in clause 9-1-1 by mating the accommodated conductor specified in clause 5. 2)Number of slider open and close :30 times 3)Speed of insertion & extraction :Less than 10 times per minute.	1)Initial contact resistance :Less than 30mΩ 2)Contact resistance after the test : Less than 50mΩ 3)Free from any defect such as break etc. on the connector and conductor.
9-2-2	Vibration (Sinusoidal)	JIS C 0040 1) Frequency range : 10 ~ 500Hz 2) Amplitude : 0.75mm or Acceleration : 100m/s^2 3) Sweep rate : 1 octave/minute 4) Kind of test : Sweep endurance test 5) Test time : 10 cycles	1)During the test, no circuit opening for more than 1μs. 2)Free from any defect such as break, deformation, loosing and falling off etc. on each portion of the connector.

9-3. Environmental Performance

No.	Test Item	Test Method	Requirements
9-3-1	Damp heat (Steady state)	JIS C 0022 1)Measure contact resistance before and after the test by the method in clause 9-1-1 by using the accommodated conductor specified in clause 5. 2)Measure insulation resistance after the test by the method in clause 9-1-2. 3)Bath temperature : 40°C 4)Bath humidity : 90 ~ 95%(relative humidity) 5)Period of exposure : 48 hours 6)Expose conductor and connector in mated condition and leave them under normal temperature. (Without insertion and separation)	1)Initial contact resistance : Less than 30mΩ 2)Contact resistance after the test : Less than 50mΩ 3)Insulation resistance after the test : More than 100MΩ
9-3-2	Salt spray	JIS C 0023 1)Measure contact resistance before and after the test according to the method in clause 9-1-1 by using accommodated conductor specified in clause 5. 2)Salt solution concentration : 5% 3)Period of exposure : 48 hours 4)Expose conductor and connector in mated condition and leave them under normal temperature after posttreatment.	1)Initial contact resistance : Less than 30mΩ 2)Contact resistance after the test : Less than 50mΩ
9-3-3	Change of temperature	JIS C 0025 1)Measure contact resistance before and after the test according to the method in clause 9-1-1 by using accommodated conductor in clause 5. 2)One cycle of temperature is as follow and test 5 cycles. Step / Temp.(°C) / Time(min.) 1 / -55±3 / 30 2 / 25±2 / 2 ~ 3 3 / 85±2 / 30 4 / 25±2 / 2 ~ 3 3)Expose conductor and connector in mated condition and leave them under normal temperature.	1)Initial contact resistance : Less than 30mΩ 2)Contact resistance after the test : Less than 50mΩ 3)Free from any defect such as crack, warping and deformation etc. on each portion the connector.

9-4. Other performance

No.	Test Item	Test Method	Requirements
9-4-1	Soldering (Resistance to reflow soldering)	1)Solder by setting reflow bath on the following condition. 2)Preheating : 150±10°C, 60~120 s 3)Soldering : 240±5°C, 30±1s NOTE : Temperature must be measured at contact terminal portion and peak temperature on the upper surface of P.C.B must be less than 260°C. 4)Solder paste to be used is JIS Z 3282 H60A or H63A. Soldering particle is more than 200 mesh and flux is inactive rosin family flux.	1)Contact resistance after the test : Less than 50mΩ 2)Insulation resistance after the test : More than 100MΩ 3)No short circuit and insulation breakdown for dielectric withstanding voltage test after this test. 4)Free from any damage on performance and contact performance after soldering.

No.	Test Item	Test Method	Requirements
9-4-2	Soldering (Solderability) (Reflow)	1)Solder by setting reflow bath on the following condition. 2)Preheating : 150±10°C, 60~120 s 3)Soldering : 215±5°C, 10±1s NOTE : Temperature must be measured at contact terminal portion and peak temperature on the upper surface of P.C.B must be less than 260°C. 4)Solder paste to be used is JIS Z 3282 H60A or H63A. Soldering particle is more than 200 mesh and flux is inactive rosin family flux.	1)Actual soldered area must be more than 90% of the dipped area intended to be soldered.

10. INDICATION AND PACKAGING

10-1. Indication

1) Catalog number and lot number are not be indicated on the connector.
2) Catalog number and quantity shall be indicated on the surface of the package box.

10-2. Packaging

1) The connector individuals are packed by tapes with specified quantity in accordance with [JIS C 0806"Packaging of Electronic Components on Continuous Tapes (Surface Mount components)"] and put into package box in accordance with FCI JAPAN packaging specification.

11. Remarks

11-1. Cleaning of flux is recommended by considering the reliability of insulation resistance and corrosion characteristic after soldered.

11-2. Since this connector can not be used for CIC (Conductor such as silver paste, carbon etc.) as accommodated conductor, please consult us separately.