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|  | PRODUCT SPECIFICATION | F C I JAPAN |
|---|-----------------------|-------------|

CONNECTOR USED FOR FPC/FFC WITH 0.5mm CONTACT SPACING
COPING WITH AUTOMATIC MOUNTING & SMT

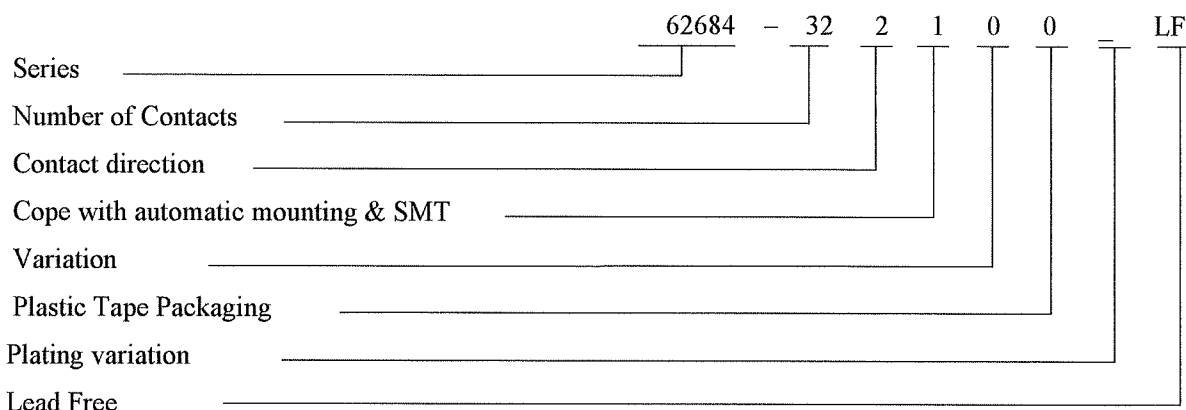
1. SCOPE

This specification covers the requirements for the connector (62684- _____) with 0.5mm 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. APPLICABLE 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)

See attached drawings.

6. PACKAGING CONDITION

See attached drawings.

7. RECOMMENDED MOUNTING PATTERN DIMENSIONS

See attached drawings.

| | | | | | | |
|------|-----------------------|----------|-----|------------------------|----------------------------|----------------------|
| E | Revised ECN J06-0194 | 5/17/06 | H.T | PREP'D | NO: 110-450H | REV. E |
| D | Revised ECN J04-0456 | 12/14/04 | H.T | BY: <i>[Signature]</i> | | |
| C | Revised ECN J04-0432 | 12/1/04 | H.T | ISS'D | | |
| B | Revised ECN J04-0353 | 10/6/04 | H.T | BY: <i>[Signature]</i> | | |
| A | Released ECN J04-0276 | 8/26/04 | H.T | APPR'D | | |
| REV. | CONTENTS | DATE | BY | BY: <i>[Signature]</i> | | |

8. RATING

8-1. Voltage : A.C.50V

D.C.50V

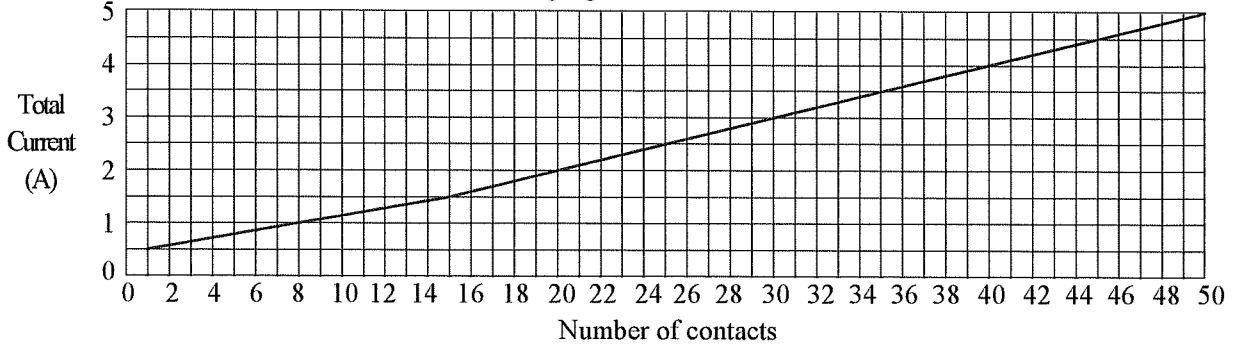
8-2. Current : A.C.0.5A

D.C.0.5A (Refer to the following note.)

8-3. Operating Temperature : -55°C ~ +85°C (Including terminal temperature rises)

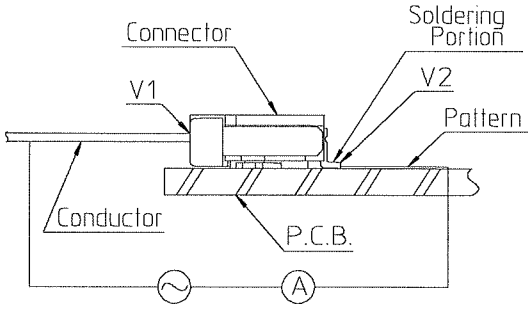
NOTE

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.C.B.  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 100MΩ |
| 9-1-3 | Dielectric withstanding voltage | 1) For one minute, apply A.C.200V between adjacent contacts in a connector individual. 2) Set current : A.C.1mA | 1) Free from any short circuit and insulation breakdown. |

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9-2. Mechanical Performance

| No. | Test Item | Test Method | Requirements |
|-------|----------------------------------|--|---|
| 9-2-1 | Durability (Slider operation) | 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 : 20 times (Insert and extract the conductor for each opening of the slider.) | 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, loosening 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. (24 hours) | 1) Initial contact resistance : Less than 30mΩ 2) Contact resistance after the test : Less than 50mΩ |

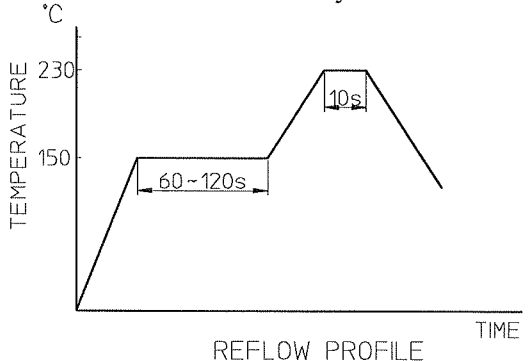
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| No. | Test Item | Test Method | Requirements | | | | | | | | | | | | | | | |
|-------|-----------------------|--|--------------|-----------|------------|---|-------|----|---|------|-------|---|------|----|---|------|-------|--|
| 9-3-3 | Change of temperature | <p>JIS C 0025</p> <p>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.</p> <p>2) One cycle of temperature is as follow and test 5 cycles.</p> <table border="1"> <thead> <tr> <th>Step</th> <th>Temp.(°C)</th> <th>Time(min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>2 ~ 3</td> </tr> <tr> <td>3</td> <td>85±2</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>2 ~ 3</td> </tr> </tbody> </table> <p>3) Expose conductor and connector in mated condition and leave them under normal temperature.</p> | Step | Temp.(°C) | Time(min.) | 1 | -55±3 | 30 | 2 | 25±2 | 2 ~ 3 | 3 | 85±2 | 30 | 4 | 25±2 | 2 ~ 3 | <p>1) Initial contact resistance : Less than 30mΩ</p> <p>2) Contact resistance after the test : Less than 50mΩ</p> <p>3) Free from any defect such as crack, warping and deformation etc. on each portion the connector.</p> |
| Step | Temp.(°C) | Time(min.) | | | | | | | | | | | | | | | | |
| 1 | -55±3 | 30 | | | | | | | | | | | | | | | | |
| 2 | 25±2 | 2 ~ 3 | | | | | | | | | | | | | | | | |
| 3 | 85±2 | 30 | | | | | | | | | | | | | | | | |
| 4 | 25±2 | 2 ~ 3 | | | | | | | | | | | | | | | | |

9-4. Other performance

| No. | Test Item | Test Method | Requirements |
|-------|--|--|--|
| 9-4-1 | Soldering (Resistance to reflow soldering) | <p>1) Solder by setting reflow bath on the following condition.</p> <p>2) Preheating : 150±10°C, 60~120 s</p> <p>3) Soldering : 240±5°C, 30±1s</p> <p>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.</p> <p>4) Solder paste to be used is JIS Z 3282 H60A or H63A. Soldering particle is more than 325 mesh and flux is inactive rosin family flux.</p> <p style="text-align: center;">REFLOW PROFILE</p> | <p>1) Contact resistance after the test : Less than 50mΩ</p> <p>2) Insulation resistance after the test : More than 100MΩ</p> <p>3) No short circuit and insulation breakdown for dielectric withstanding voltage test after this test.</p> <p>4) Free from any damage on performance and contact performance after soldering.</p> |

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| 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 : 230±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 325 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. |
| 9-4-3 | Conductor retention force (Reference) | 1) Measure initial retention force after inserted and locked by using our company's test conductor. | 1) More than 0.25N/contact |

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. Please use for Gold plating FPC as accommodated conductor.
- 11-2. Retention force specified in clause 9-4-3 differs due to it's kind, structure and surface treatment of conductor. Therefore, the value of retention force specified in the clause for performance is reference value.

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