

| APPLICABLE STANDARD                                            |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
|----------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|
| RATING                                                         | OPERATING TEMPERATURE RANGE | -55℃ TO +85℃                                                                                          | STORAGE TEMPERATURE RANGE           | -10℃ TO +50℃(PACKED CONDITION)                                                                                                                                                        |                |          |
|                                                                | VOLTAGE                     | 50V AC/DC                                                                                             | OPERATING OR STORAGE HUMIDITY RANGE | RELATIVE HUMIDITY 90%MAX(NOT DEWED)                                                                                                                                                   |                |          |
|                                                                | CURRENT                     | 0.5A (note1)                                                                                          | APPLICABLE CABLE                    | t=0.3±0.05mm, GOLD PLATED                                                                                                                                                             |                |          |
| SPECIFICATIONS                                                 |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
| ITEM                                                           |                             | TEST METHOD                                                                                           |                                     | REQUIREMENTS                                                                                                                                                                          | QT             | AT       |
| CONSTRUCTION                                                   |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
| GENERAL EXAMINATION                                            |                             | VISUALLY AND BY MEASURING INSTRUMENT.                                                                 |                                     | ACCORDING TO DRAWING.                                                                                                                                                                 | ×              | ×        |
| MARKING                                                        |                             | CONFIRMED VISUALLY.                                                                                   |                                     |                                                                                                                                                                                       | ×              | ×        |
| ELECTRIC CHARACTERISTICS                                       |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
| VOLTAGE PROOF                                                  |                             | 150V AC FOR 1 min±5sec.                                                                               |                                     | NO FLASHOVER OR BREAKDOWN.                                                                                                                                                            | ×              | ×        |
| INSULATION RESISTANCE                                          |                             | 100±10V DC.                                                                                           |                                     | 500MΩ MIN.                                                                                                                                                                            | ×              | ×        |
| CONTACT RESISTANCE                                             |                             | AC 20mV MAX (1KHz), 1mA.                                                                              |                                     | 100mΩ MAX.<br>INCLUDING FPC,FFC BULK RESISTANCE (L=8mm)                                                                                                                               | ×              | ×        |
| MECHANICAL CHARACTERISTICS                                     |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
| VIBRATION                                                      |                             | FREQUENCY 10 TO 55 Hz, HALF AMPLITUDE 0.75 mm FOR 10 CYCLES IN 3 AXIAL DIRECTIONS.                    |                                     | ① NO ELECTRICAL DISCONTINUITY OF 1 μ s.<br>② CONTACT RESISTANCE: 100mΩ MAX.<br>③ NO DAMAGE, CRACK AND LOOSENESS OF PARTS.                                                             | ×              | —        |
| SHOCK                                                          |                             | 981 m/s <sup>2</sup> , DURATION OF PULSE 6ms AT 3 TIMES IN 3 BOTH AXIAL DIRECTIONS.                   |                                     |                                                                                                                                                                                       | ×              | —        |
| MECHANICAL OPERATION                                           |                             | 20 TIMES INSERTIONS AND EXTRACTIONS.                                                                  |                                     | ① CONTACT RESISTANCE: 100mΩ MAX.<br>② NO DAMAGE, CRACK AND LOOSENESS OF PARTS.                                                                                                        | ×              | —        |
| FPC RETENTION FORCE                                            |                             | MEASURED BY APPLICABLE FPC/FFC.<br>(THICKNESS OF FPC SHALL BE t=0.30mm AT INITIAL CONDITION.)         |                                     | DIRECTION OF INSERTION:<br>22N MIN.<br>(note2)                                                                                                                                        | ×              | —        |
| ENVIRONMENTAL CHARACTERISTICS                                  |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
| CORROSION SALT MIST                                            |                             | EXPOSED AT 35±2℃,<br>CONCENTRATION 5±1wt%,pH VALUE 6.5 TO 7.2<br>SALT WATER SPRAY FOR 96h.            |                                     | ① CONTACT RESISTANCE: 100mΩ MAX.<br>② NO DAMAGE, CRACK AND LOOSENESS OF PARTS.<br>③ NO EVIDENCE OF CORROSION WHICH AFFECTS TO OPERATION OF CONNECTOR.                                 | ×              | —        |
| RAPID CHANGE OF TEMPERATURE                                    |                             | TEMPERATURE -55→+15 TO +35→+85→+15 TO +35 °C<br>TIME 30 → 2 TO 3 → 30 → 2 TO 3 min<br>UNDER 5 CYCLES. |                                     | ① CONTACT RESISTANCE: 100mΩ MAX.<br>② INSULATION RESISTANCE: 50MΩ MIN.<br>③ NO DAMAGE, CRACK AND LOOSENESS OF PARTS.                                                                  | ×              | —        |
| DAMP HEAT (STEADY STATE)                                       |                             | EXPOSED AT 40±2℃,<br>RELATIVE HUMIDITY 90 TO 95%, 96h.                                                |                                     | ① CONTACT RESISTANCE: 100mΩ MAX.<br>② INSULATION RESISTANCE: 1MΩ MIN. (AT HIGH HUMIDITY)<br>③ INSULATION RESISTANCE: 50MΩ MIN. (AT DRY)<br>④ NO DAMAGE, CRACK AND LOOSENESS OF PARTS. | ×              | —        |
| DAMP HEAT,CYCLIC                                               |                             | EXPOSED AT -10 TO +65 °C<br>RELATIVE HUMIDITY 90 TO 96 %<br>10 CYCLES, TOTAL 240h.                    |                                     |                                                                                                                                                                                       | ×              | —        |
|                                                                | COUNT                       | DESCRIPTION OF REVISIONS                                                                              | DESIGNED                            | CHECKED                                                                                                                                                                               | DATE           |          |
| △                                                              |                             |                                                                                                       |                                     |                                                                                                                                                                                       |                |          |
| REMARK<br><br>Unless otherwise specified, refer to JIS C 5402. |                             |                                                                                                       |                                     | APPROVED                                                                                                                                                                              | MO.ISHIDA      | 13.09.02 |
|                                                                |                             |                                                                                                       |                                     | CHECKED                                                                                                                                                                               | YN.TAKASHITA   | 13.09.02 |
|                                                                |                             |                                                                                                       |                                     | DESIGNED                                                                                                                                                                              | SU.SUNAGA      | 13.08.30 |
|                                                                |                             |                                                                                                       |                                     | DRAWN                                                                                                                                                                                 | SU.SUNAGA      | 13.08.30 |
| Note QT:Qualification Test AT:Assurance Test X:Applicable Test |                             |                                                                                                       | DRAWING NO.                         |                                                                                                                                                                                       | ELC4-348616-00 |          |
| HRS                                                            | SPECIFICATION SHEET         |                                                                                                       | PART NO.                            | FH50-28S-0.5SH                                                                                                                                                                        |                |          |
|                                                                | HIROSE ELECTRIC CO., LTD.   |                                                                                                       | CODE NO.                            | CL580-4005-5-00 △ 1/2                                                                                                                                                                 |                |          |

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                        |                                                                                                                                                       |                 |                                                                                       |     |
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| ITEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | TEST METHOD                                                                                                                            | REQUIREMENTS                                                                                                                                          | QT              | AT                                                                                    |     |
| DRY HEAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | EXPOSED AT 85±2℃, 96h.                                                                                                                 | ① CONTACT RESISTANCE: 100mΩ MAX.<br>② NO DAMAGE, CRACK AND LOOSENESS OF PARTS.                                                                        | ×               | —                                                                                     |     |
| COLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EXPOSED AT -55±3℃, 96h.                                                                                                                |                                                                                                                                                       | ×               | —                                                                                     |     |
| SULPHUR DIOXIDE<br>[JIS C 60068-2-42]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | EXPOSED AT 40±2℃,<br>RELATIVE HUMIDITY 80±5 %,<br>25±5 ppm FOR 96h.                                                                    | ① CONTACT RESISTANCE: 100mΩ MAX.<br>② NO DAMAGE, CRACK AND LOOSENESS OF PARTS.<br>③ NO EVIDENCE OF CORROSION WHICH AFFECTS TO OPERATION OF CONNECTOR. | ×               | —                                                                                     |     |
| HYDROGEN SULPHIDE<br>[JIS C 60068-2-43]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | EXPOSED AT 40±2℃,<br>RELATIVE HUMIDITY 80±5 %,<br>10 TO 15 ppm FOR 96h.                                                                |                                                                                                                                                       | ×               | —                                                                                     |     |
| SOLDERABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SOLDERED AT SOLDER TEMPERATURE, 245±3℃<br>FOR IMMERSION DURATION, 3±0.3 sec.                                                           | A NEW UNIFORM COATING OF SOLDER<br>SHALL COVER A MINIMUM OF 95 %<br>OF THE SURFACE BEING IMMERSED.                                                    | ×               | —                                                                                     |     |
| RESISTANCE TO<br>SOLDERING HEAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1) REFLOW SOLDERING:<br>PEAK TMP. 250℃MAX.<br>REFLOW TMP. OVER 230℃ WITHIN 60 sec.<br>2) SOLDERING IRONS:<br>TMP. 350±10℃ FOR 5±1 sec. | NO DEFORMATION OF CASE<br>OF EXCESSIVE LOOSENESS<br>OF THE TERMINALS.                                                                                 | ×               | —                                                                                     |     |
| <div>(note1)</div> <div>WHEN THE SAME VALUE OF CURRENT ARE APPLID TO ALL CONTACTS AT THE SAME TIME IN ONCE,<br/>SET THE CURRENT TO THE 70 % OF THE RATED CURRENT VALUE.</div> <div>(note2)</div> <div>FIXING THE FPC/FFC IS RECOMMENDED, IF THE VERTICAL LOAD IS EXPECTED TO BE APPLIED TO THE FPC/FFC.</div> <div>(note3)</div> <div>BLISTERS WHICH MAY BE GENERATED ON THE HOUSING DO NOT AFFECT PRODUCT PERFORMANCE.</div> <div>(note4)</div> <div>INCOMPLETE MATING PREVENTION STRUCTURE OF THIS CONNECTOR DOES NOT COVER<br/>ALL THE POSSIBLE CASES OF INCOMPLETE MATING MODE.<br/>BE SURE TO NEED THE INSTRUCTION MANUAL FOR YOUR UNDERSTANDING OF THE FEATURES AND ATTENSIONS.</div> |                                                                                                                                        |                                                                                                                                                       |                 |                                                                                       |     |
| Note QT:Qualification Test AT:Assurance Test X:Applicable Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                        | DRAWING NO.                                                                                                                                           | ELC4-348616-00  |                                                                                       |     |
| HRS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SPECIFICATION SHEET                                                                                                                    | PART NO.                                                                                                                                              | FH50-28S-0.5SH  |                                                                                       |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HIROSE ELECTRIC CO., LTD.                                                                                                              | CODE NO.                                                                                                                                              | CL580-4005-5-00 |  | 2/2 |