

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COUNT                       | DESCRIPTION OF REVISIONS                                                                            | BY                            | CHKD | DATE     |                                                                                                             | COUNT                            | DESCRIPTION OF REVISIONS             | BY                                                                                    | CHKD | DATE |  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------|------|----------|-------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------|---------------------------------------------------------------------------------------|------|------|--|--|--|--|--|--|--|
| △                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                                     |                               |      |          | △                                                                                                           |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| △                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                                     |                               |      |          | △                                                                                                           |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| <b>APPLICABLE STANDARD</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| RATING                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OPERATING TEMPERATURE RANGE |                                                                                                     | -40℃ ~ +105℃ (note 1)         |      |          | STORAGE TEMPERATURE RANGE                                                                                   |                                  | -10℃ ~ +50℃ (Packed Condition)       |                                                                                       |      |      |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | VOLTAGE                     |                                                                                                     | 50V [AC(rms) / DC]            |      |          | OPERATING OR STORAGE HUMIDITY RANGE                                                                         |                                  | RELATIVE HUMIDITY 90% MAX(NOT DEWED) |                                                                                       |      |      |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CURRENT                     |                                                                                                     | 0.5A (note 2)                 |      |          | APPLICABLE CABLE                                                                                            |                                  | FPC/FFC (t=0.26±0.03mm)              |                                                                                       |      |      |  |  |  |  |  |  |  |
| <b>SPECIFICATIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| ITEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             | TEST METHOD                                                                                         |                               |      |          | REQUIREMENTS                                                                                                |                                  |                                      |                                                                                       | QT   | AT   |  |  |  |  |  |  |  |
| <b>CONSTRUCTION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| GENERAL EXAMINATION                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             | VISUALLY AND BY MEASURING INSTRUMENT                                                                |                               |      |          | ACCORDING TO DRAWING                                                                                        |                                  |                                      |                                                                                       | 0    | 0    |  |  |  |  |  |  |  |
| MARKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | CONFIRMED VISUALLY                                                                                  |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       | 0    | 0    |  |  |  |  |  |  |  |
| <b>ELECTRICAL CHARACTERISTICS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| CONTACT RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                             | MATE APPLICABLE FPC/FFC AND APPLY A CURRENT OF 1mA, 20mV AC                                         |                               |      |          | 50 mΩ MAX.<br>INCLUDING FPC/FFC BULK RESISTANCE(L=8mm)                                                      |                                  |                                      |                                                                                       | 0    | 0    |  |  |  |  |  |  |  |
| INSULATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             | MATE APPLICABLE FPC/FFC AND APPLY A VOLTAGE OF DC 500V                                              |                               |      |          | 500 MΩ MIN.                                                                                                 |                                  |                                      |                                                                                       | 0    | 0    |  |  |  |  |  |  |  |
| VOLTAGE PROOF                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             | MATE APPLICABLE FPC/FFC AND APPLY A VOLTAGE OF AC 250V FOR 1 min.                                   |                               |      |          | NO FLASHOVER OR BREAKDOWN.                                                                                  |                                  |                                      |                                                                                       | 0    | 0    |  |  |  |  |  |  |  |
| <b>MECHANICAL CHARACTERISTICS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| FFC RETENSION FORCE                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             | MEASURE BY APPLICABLE FPC/FFC AT INITIAL CONDITION                                                  |                               |      |          | HORIZONTAL DIRECTION : 0.4N * n MIN.<br>(n = Number of Contacts)(note 3)                                    |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| MECHANICAL OPERATION                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             | 20 TIMES INSERTIONS AND EXTRATIONS                                                                  |                               |      |          | ①CONTACT RESISTANCE: 50mΩ MAX<br>②NO DAMAGE, CRACK AND LOOSENESS OF PARTS                                   |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             | FREQUENCY 10 ~ 55 Hz, TOTAL AMPLITUDE 1.5 mm AT 2h, IN 3 DIRECTIONS                                 |                               |      |          | ①NO ELECTRICAL DISCONTINUITY OF 1μs.<br>②CONTACT RESISTANCE : 50mΩ MAX                                      |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| SHOCK                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             | 981m/s <sup>2</sup> DIRECTION OF PULSE 6ms AT 3 TIMES IN 3 DIRECTIONS.                              |                               |      |          | ③NO DAMAGE, CRACK AND LOOSENESS OF PARTS                                                                    |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| <b>ENVIRONMENTAL CHARACTERISTICS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| DAMP HEAT(STEADY STATE)                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | EXPOSED AT 40±2℃, 90~95 %, 96Hr.                                                                    |                               |      |          | ①CONTACT RESISTANCE: 50 mΩ MAX.                                                                             |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| RAPID CHAGE OF TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             | TEMPERATURE : -40±3 → 15~35 → +105±2 → 15~35℃<br>TIME : 30 → 2~3 → 30 → 2~3 min.<br>UNDER 5 CYCLES. |                               |      |          | ②INSULATION RESISTANCE: 100 MΩ MIN.<br>③NO DAMAGE, CRACK OR LOOSENESS OF PARTS.                             |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                             | DAMP HEAT, CYCLE<br>TEMPERATURE -10→+65<br>HUMIDITY : 90~95%<br>10 CYCLE(240Hr)                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| DRY HEAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             | EXPOSED AT 105±2℃, 96Hr                                                                             |                               |      |          | ①CONTACT RESISTANCE : 50mΩ MAX                                                                              |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| COLD                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             | EXPOSED AT -40±3℃, 96Hr                                                                             |                               |      |          | ②NO DAMAGE, CRACK OR LOOSENESS OF PARTS.                                                                    |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| CORROSION SALT SPRAY                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             | EXPOSED AT 35±2℃, 5±1% SALT WATER SPRAY FOR 96Hr                                                    |                               |      |          | ①CONTACT RESISTANCE 50mΩ MAX<br>②NO DAMAGE, CRACK OR LOOSENESS OF PARTS.                                    |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| HYDROGEN SULPHIDE                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             | EXPOSED IN 3 PPM FOR 96Hr.<br>(TEST STANDARD : JEIDA-38)                                            |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| RESISTANCE TO SOLDERING HEAT                                                                                                                                                                                                                                                                                                                                                                                                                                            |                             | REFLOW SOLDERING:<br>PEAK TMP. : 250℃ MAX.<br>REFLOW TMP. 230℃ MIN FOR 30s                          |                               |      |          | ①NO DEFORMATION OF CASE OF EXCESSIVE<br>LOOSENESS OF THE TERMINALS.<br>②NO DAMAGE OF ELECTRICAL PERFORMANCE |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| SOLDER ABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             | SOLDER DIPPING TEMPERATURE 245±3℃                                                                   |                               |      |          | 95% MIN. A NEW UNIFORM<br>COATING OF SOLDER                                                                 |                                  |                                      |                                                                                       | 0    | -    |  |  |  |  |  |  |  |
| <p>(note 1)<br/>FOLLOW THE SPECIFICATIONS OF FPC/FFC IF IT'S ALLOWABLE MAXIMUM OPERATING TEMPERATURE IS BELOW 105℃</p> <p>(note 2)<br/>WHEN THE SAME VALUE OF CURRENT ARE APPLIED TO ALL CONTACTS AT THE SAME TIME IN ONCE,<br/>SET THE CURRENT TO THE 70% OF THE RATED CURRENT VALUE.</p> <p>(note 3)<br/>THERE'S A CASE WHICH FPC/FFC RETENTION FORCE DOESN'T FULFILL THE VALUE,<br/>BECAUSE FPC/FFC SPECIFICATION AFFECTS THE RESULT OF FPC/FFC RETENTION FORCE.</p> |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             | CONDITIONS FOR TESTING                                                                              |                               |      | DRAWN    | DESIGNED                                                                                                    | CHECKED                          | APPROVED                             | RELEASED                                                                              |      |      |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                             |                                                                                                     |                               |      | S.G.LEE  | S.G.LEE                                                                                                     | S.G.LEE                          | D.H.CHO                              |  |      |      |  |  |  |  |  |  |  |
| UNLESS OTHERWISE SPECIFIED, REFER TO IEC 60512.                                                                                                                                                                                                                                                                                                                                                                                                                         |                             |                                                                                                     |                               |      | 19.01.02 | 19.01.02                                                                                                    | 19.01.02                         | 19.01.02                             |                                                                                       |      |      |  |  |  |  |  |  |  |
| NOTE QT: QUALIFICATION TEST AT: ASSURANCE TEST O: APPLICABLE TEST                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                                     |                               |      |          |                                                                                                             |                                  |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| HIROSE KOREA CO.,LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |                                                                                                     | SPECIFICATION SHEET           |      |          |                                                                                                             | PART NO.<br>TF45-**S-0.5SH (800) |                                      |                                                                                       |      |      |  |  |  |  |  |  |  |
| CODE NO.(OLD)<br>CL                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                                                                                     | DRAWING NO.<br>ELC4-632748-80 |      |          | CODE NO.<br>CL 6555-0018-5-800                                                                              |                                  |                                      | 1/1                                                                                   |      |      |  |  |  |  |  |  |  |