

|                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|
| Applicable standard                                                                                                                                                                                                                                                                                                |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
| Rating                                                                                                                                                                                                                                                                                                             | Operating Temperature Range | -55 to +105°C (Note1)                                                                                                                                                       | Storage Temperature Range                                                                                              | -10 °C to +60°C (Note3) |                  |
|                                                                                                                                                                                                                                                                                                                    | Operating Humidity Range    | 20% to 80% (Note2)                                                                                                                                                          | Storage Humidity Range                                                                                                 | 40% to 70% (Note3)      |                  |
|                                                                                                                                                                                                                                                                                                                    | Voltage                     | 250 V AC/DC                                                                                                                                                                 | UL • C-UL Rating                                                                                                       | Voltage                 | 30 V AC/DC       |
|                                                                                                                                                                                                                                                                                                                    | Current                     | AWG 22 : 3.0A<br>AWG 24 : 2.5A<br>AWG 26 : 2.0A<br>AWG 28 : 1.0A<br>AWG 30 : 0.5A                                                                                           |                                                                                                                        | Current                 | 2.0A             |
|                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             | Applicable Connector                                                                                                   | DF51-4DS-2C             |                  |
|                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             | Applicable Contact                                                                                                     | DF11-****SC(F)(##)      |                  |
| <b>Specifications</b>                                                                                                                                                                                                                                                                                              |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
| Item                                                                                                                                                                                                                                                                                                               |                             | Test method                                                                                                                                                                 | Requirements                                                                                                           | QT                      | AT               |
| <b>Construction</b>                                                                                                                                                                                                                                                                                                |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
| General Examination                                                                                                                                                                                                                                                                                                |                             | Visually and by measuring instrument.                                                                                                                                       | According to drawing.                                                                                                  | X                       | X                |
| Marking                                                                                                                                                                                                                                                                                                            |                             | Confirmed visually.                                                                                                                                                         |                                                                                                                        | X                       | X                |
| <b>Electric Characteristics</b>                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
| Contact Resistance<br>Millivolt Level Method                                                                                                                                                                                                                                                                       |                             | 20mV MAX, 1mA (DC or 1000Hz).                                                                                                                                               | 30 mΩ MAX.                                                                                                             | X                       | —                |
| Insulation Resistance                                                                                                                                                                                                                                                                                              |                             | 500 V DC.                                                                                                                                                                   | 1000 MΩ MIN.                                                                                                           | X                       | —                |
| Voltage Proof                                                                                                                                                                                                                                                                                                      |                             | 650 V AC for 1 min.                                                                                                                                                         | No flashover or breakdown.                                                                                             | X                       | —                |
| <b>Mechanical Characteristics</b>                                                                                                                                                                                                                                                                                  |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
| Mechanical Operation                                                                                                                                                                                                                                                                                               |                             | 30 times insertion and extraction.                                                                                                                                          | 1.Contact resistance: 30 mΩ MAX.<br>2.No damage, crack or looseness of parts.                                          | X                       | —                |
| Mating and unmating force                                                                                                                                                                                                                                                                                          |                             | It takes out and inserts with a conformity connector.                                                                                                                       | 1.Insertion Force :24.2 N MAX.<br>2.Extraction Force :1.2 N MIN.                                                       | X                       | —                |
| Vibration                                                                                                                                                                                                                                                                                                          |                             | Frequency 10 to 55 Hz, single amplitude 0.75 mm, at 10 cycles for 3 directions.                                                                                             | 1.No electrical discontinuity of 1 μ s.<br>2.No damage, crack or looseness of parts.                                   | X                       | —                |
| Shock                                                                                                                                                                                                                                                                                                              |                             | Acceleration 490 m/s <sup>2</sup> duration of pulse 11 ms at 3 times for 3 directions.                                                                                      |                                                                                                                        | X                       | —                |
| <b>Environmental Characteristics</b>                                                                                                                                                                                                                                                                               |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
| Damp Heat<br>(Steady State)                                                                                                                                                                                                                                                                                        |                             | Exposed at 40 ± 2°C , humidity 90 to 95 %, 96 h.<br>(After leaving the room temperature for 1 to 2h.)                                                                       | 1.Contact resistance: 30 mΩ MAX.<br>2.Insulation resistance: 500 MΩ MIN.<br>3.No damage, crack or looseness of parts.  | X                       | —                |
| Rapid Change Of Temperature                                                                                                                                                                                                                                                                                        |                             | Temperature -55°C→ +105°C<br>Time 30min→ 30min<br>Under 5 Cycles.<br>(The transferring time of the tank is 2 to 3 MIN)<br>(After leaving the room temperature for 1 to 2h.) | 1.Contact resistance: 30 mΩ MAX.<br>2.Insulation resistance: 1000 MΩ MIN.<br>3.No damage, crack or looseness of parts. | X                       | —                |
| Dry Heat                                                                                                                                                                                                                                                                                                           |                             | Exposed at 105±2°C, 96h                                                                                                                                                     | 1.Contact resistance: 30 mΩ MAX.<br>2.Insulation resistance: 1000 MΩ MIN.<br>3.No damage, crack or looseness of parts. | X                       | —                |
| Cold                                                                                                                                                                                                                                                                                                               |                             | Exposed at -55±3°C, 96h                                                                                                                                                     | 1.Contact resistance: 30 mΩ MAX.<br>2.Insulation resistance: 1000 MΩ MIN.<br>3.No damage, crack or looseness of parts. | X                       | —                |
| <b>Remarks</b><br>Note 1:Include the temperature rising by current.<br>Note 2:No condensing<br>Note 3:Apply to the condition of long term storage for unused products before mount on pcb,<br>After mounted on pcb, operating temperature and humidity range is applied for interim storage during transportation. |                             |                                                                                                                                                                             |                                                                                                                        |                         |                  |
|                                                                                                                                                                                                                                                                                                                    | COUNT                       | DESCRIPTION OF REVISIONS                                                                                                                                                    | DESIGNED                                                                                                               | CHECKED                 | DATE             |
|                                                                                                                                                                                                                                                                                                                    | 1                           | DIS-H-00005276                                                                                                                                                              | TS. MIYAKI                                                                                                             | SZ. ONO                 | 20190917         |
| Unless otherwise specified, refer to IEC 60512.                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             | APPROVED                                                                                                               | HS. OKAWA               | 20180403         |
|                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             | CHECKED                                                                                                                | ST. WADA                | 20180403         |
|                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             | DESIGNED                                                                                                               | TH. SATO                | 20180403         |
|                                                                                                                                                                                                                                                                                                                    |                             |                                                                                                                                                                             | DRAWN                                                                                                                  | TH. SATO                | 20180403         |
| Note QT:Qualification Test AT:Assurance Test X:Applicable Test                                                                                                                                                                                                                                                     |                             |                                                                                                                                                                             | DRAWING NO.                                                                                                            |                         | ELC-363503-00-00 |
|                                                                                                                                                                                                                                                                                                                    | SPECIFICATION SHEET         |                                                                                                                                                                             | PART NO.                                                                                                               | DF51A-4DP-2DSA          |                  |
|                                                                                                                                                                                                                                                                                                                    | HIROSE ELECTRIC CO., LTD.   |                                                                                                                                                                             | CODE NO.                                                                                                               | CL543-5015-0-00         | 1/2              |

[illegible]