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|-------------------|------------|-----------------------------------------------------------|--------------------|
| ENGINEERING DEPT. |            | PRODUCT SPECIFICATION<br>For CF35 Series Connector System | SPEC.NO.: SPCF053C |
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1. SCOPE:

This product specification contains the test method the general performance and requirement for CF35 series connectors.

2. APPLICABLE DOCUMENTS:

Reference documents listed below shall be the latest revision unless otherwise specified. Should a conflict occur between this specification and any of the listed documents then this specification shall prevail.

2.1 Industry standards :

EIA-364-□□ electrical connector test procedures

3. SHAPE, CONSTRUCTION AND DIMENSIONS

See attached drawings

4. MATERIALS

See attached drawings

5. ACCOMMODATED P.C.BOARD

5.1 Thickness: 0.5 mm (.020") ~ 2.0 mm (.079")

5.2 P.C. Board Layout: See attached drawings

6. FPC/FFC RECOMMENDED SPECIFICATION:

Thickness :  $0.30 \pm 0.03$  mm (.012  $\pm$  .001")



REVIEWED : Eisley APPROVED : Eisley VERIFIED : Sandy .

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#### 7. ELECTRICAL PERFORMANCE:

|     | ITEM                      | TEST CONDITION                                                                                                        | REQUIREMENT                                            |
|-----|---------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| 7.1 | Rated current and voltage |                                                                                                                       | 0.5A DC<br>50V AC                                      |
| 7.2 | Contact Resistance        | Measured at 20 mV maximum open circuit at 100mA .Mated test contacts must be in a connector housing.<br>( EIA364-23 ) | Initially :Less than 20 mΩ<br>Finally :Less than 40 mΩ |
| 7.3 | Dielectric strength       | Test between adjacent contacts with a voltage of 500 VAC for 1 minute at Sea level. ( EIA364-20 Method B )            | No current leakage and flashover or damage detected.   |
| 7.4 | Insulation Resistance     | After 500 VDC for 1 minute , measure the insulation resistance between the adjacent contacts. ( EIA364-21 )           | More than 500 MΩ                                       |

#### 8. MECHANICAL PERFORMANCE:

|     | ITEM                    | TEST CONDITION                                                                                                             | REQUIREMENT                                                                                                                |
|-----|-------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 8.1 | FFC/FPC Retention Force | Apply axial load to FFC/FPC by operating at the speed rate of 25 mm per minute.                                            | 0.02 Kgf / Pin min.                                                                                                        |
| 8.2 | Durability              | Mate applicable FFC/FPC and insert and withdraw actuator at the speed rate of 25 mm per minute.<br>Times :Up to 20 cycles. | Appearance : No damage<br>Contact Resistance :<br>Less than 40 mΩ<br>FFC/FPC retention force shall meet requirement of 8.1 |

#### 9. ENVIRONMENTAL PERFORMANCE:

|     | ITEM             | TEST CONDITION                                                                                                                                                         | REQUIREMENT                                                                                                                                                                                      |
|-----|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9.1 | Temperature rise | The object of this test procedure is to detail a standard method to assess the current carrying capacity of mated battery connector contact.<br>( EIA364-70 Method B ) | 0.5 A per pin minimum.<br>The temperature rise above ambient shall not exceed 30°C at any point in the connector when contact positions are powered. The ambient condition is still air at 25°C. |

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|     | ITEM                         | TEST CONDITION                                                                                                                                                                                                         | REQUIREMENT                                                                                                 |
|-----|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 9.2 | Vibration                    | Subject mated FFC/FPC, All contacts shall be connected in series and DC 100mA shall be applied.<br>Frequency:10~55 Hz<br>Full amplitude1.5mm in 3 directions for 2 hours respectively.<br>( EIA 364 – 28 Condition I ) | Appearance: No damage<br>Discontinuity:<br>1 micro second max.                                              |
| 9.3 | Physical Shock               | Subject mated FFC/FPC to 50 g's half-sine shock pulses of 11ms duration. Three shocks in each direction applied along three mutually perpendicular planes for a total of 18 shocks.<br>( EIA364-27 condition A )       | Appearance: No damage<br>Discontinuity:<br>1 micro second max.                                              |
| 9.4 | Solder ability               | Steam age 1 hour at 90°C~96°C<br>Solder time to be 5±1 seconds at 245°C, using unactivated flux.<br>( EIA364-52 )                                                                                                      | Minimum:<br>95% of immersed area                                                                            |
| 9.5 | Resistance to soldering heat | Soldering time: 10 Sec Max.<br>Soldering pot: 250~260°C max.<br>Reflow soldering (Infrared):<br>Refer soldering method<br>The conditions specified on the recommended temperature profile Shall be repeated twice.     | No damage                                                                                                   |
| 9.6 | Heat aging                   | Subject unmated connectors to temperature life at 85°C±2°C for 96 hours. ( EIA 364 – 17 Test Condition III Method A )                                                                                                  | Appearance : No damage<br>Contact resistance :<br>40 mΩ Max.                                                |
| 9.7 | Humidity                     | Subject unmated connectors to 96 hours at 40°C with 90% to 95% RH.<br>( EIA 364 – 31 Method II Test Condition A )                                                                                                      | Appearance : No damage<br>Contact resistance :<br>40 mΩ Max.<br>Insulation resistance :<br>More than 500 MΩ |
| 9.8 | Temperature cycling          | Subject unmated connectors shall be tested in accordance with EIA364-32 Test Condition I .<br>(1)-55°C,30 minute<br>(2)+25°C,5 minute<br>(3)+85°C,30 minute<br>(4)+25°C,5 minute<br>consecutive 10 cycles.             | Appearance: No damage<br>Contact resistance :<br>40 mΩ Max.                                                 |

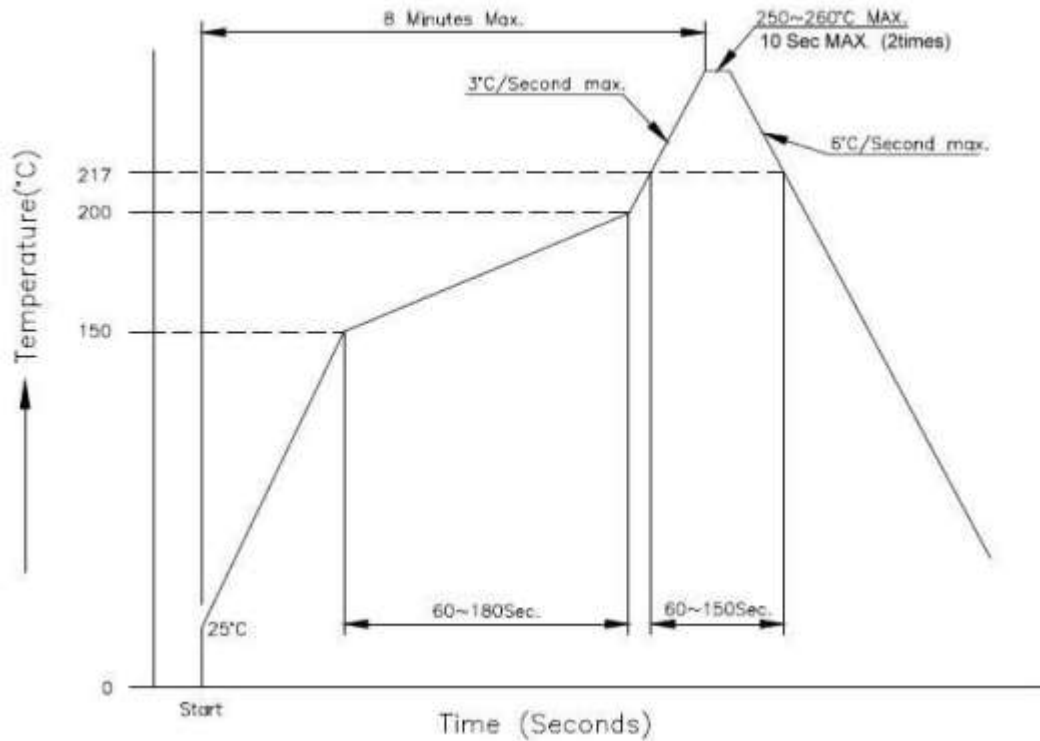
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|      | ITEM                  | TEST CONDITION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | REQUIREMENT                                                                             |
|------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 9.9  | Salt Spray            | <p>Temperature: <math>35 \pm 3^{\circ}\text{C}</math><br/> Solution: <math>5 \pm 1\%</math><br/> Spray time: <math>48 \pm 4</math> hours<br/> (Stamping before plated)<br/> Spray time: <math>24 \pm 4</math> hours<br/> (Stamping after plated)<br/> Mate connectors and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water and dried naturally, after which the specified measurements shall be performed.<br/> The specimens shall be suspended from the top using waxed twine, string or nylon thread.<br/> The test only define the plating area, without plating area (as copper cross section) will not be defined.<br/> (EIA 364-26B / MIL-STD-202 Method 101)</p> | <p>Appearance:<br/> No damage on function<br/> Contact resistance :<br/> 40 mΩ Max.</p> |
| 9.10 | Mixed Flowing Gas     | <p>There shall be no change in contact resistance greater than 20 mΩ from initial when mated specimens are subjected to environmental class II .<br/> Test as per EIA364-65 for 4 days mated.<br/> Relative Humidity : <math>70 \pm 2\%</math><br/> Relative Temp. : <math>30 \pm 2^{\circ}\text{C}</math><br/> Pollutant Concentration :<br/> Cl<sub>2</sub> : <math>10 \pm 3</math> ppb<br/> NO<sub>2</sub> : <math>200 \pm 50</math> ppb<br/> H<sub>2</sub>S : <math>10 \pm 5</math> ppb</p>                                                                                                                                                                                                                                                                                       | <p>Appearance: No damage<br/> Contact resistance :<br/> 40 mΩ Max.</p>                  |
| 9.11 | Hand Soldering Method | <p>Use a soldering iron that has a sufficient head capacity and high stability of temperature. The tip of the iron should be shaped so as not to touch the part body directly.<br/> Temperature : <math>380 \pm 10^{\circ}\text{C}</math> 3s</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | No damage                                                                               |

10. Operating temperature range :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ; Storage temperature range :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$

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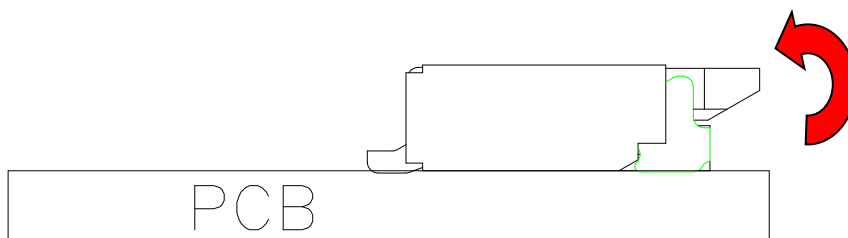
### 11.Recommended Temperature Profile(Lead-Free):



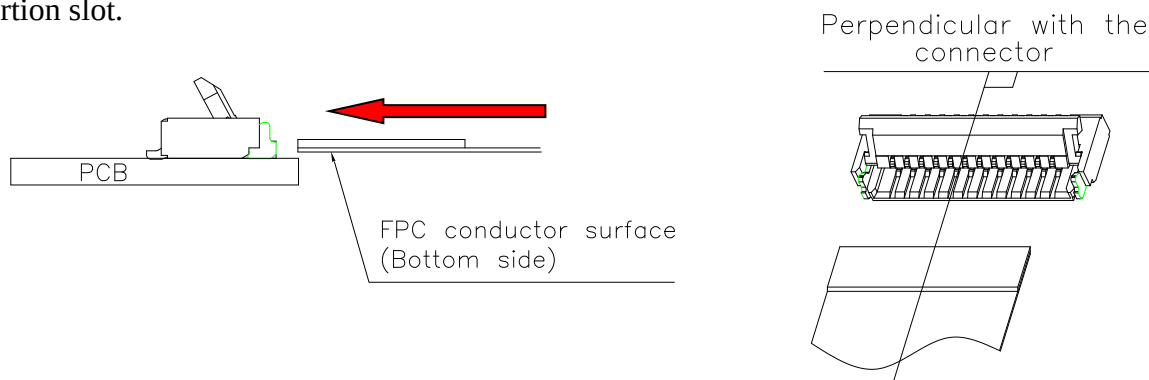
### 12. OPERATING INSTRUCTIONS AND PRECAUTIONS:

#### 12.1 Operating instruction

##### 12.1.1 Lift up the actuator. Use thumb or forefinger.

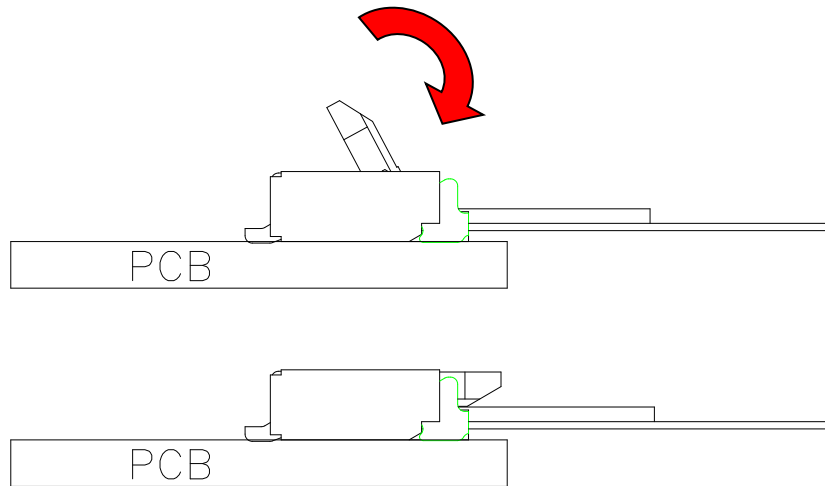


12.1.2 Fully insert the FFC/FPC in the connector parallel to mounting surface, with the exposed conductive traces facing down. And ensure that the FFC/FPC is properly inserted into the connector insertion slot.

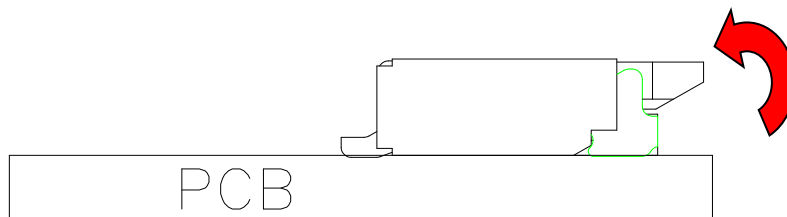


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12.1.3 Rotate down the actuator until firmly closed. It is critical that the inserted FFC/FPC is not moved and remains fully inserted.



12.1.4 Lift up the actuator and pull out the FFC/FPC after the lock is released.



## 12.2 Precautions for use

Do not apply force in the upward direction (as illustrated). Do not bend the FPC/FFC too close to the actuator.

