

## SPECIFICATION AND PERFORMANCE

|               |                   |             |                          |             |            |
|---------------|-------------------|-------------|--------------------------|-------------|------------|
| <b>Series</b> | 303C-541219-25-XX | <b>File</b> | 303C-541219-25-XX_SPEC_2 | <b>Date</b> | 2025/04/10 |
|---------------|-------------------|-------------|--------------------------|-------------|------------|

### Scope:

This specification covers the requirements for product performance, test methods and quality assurance provisions of 303C-541219-25-XX

### Performance and Descriptions:

The product is designed to meet the electrical, mechanical and environmental performance requirements specification. Unless otherwise specified, all tests are performed at ambient environmental conditions.

### RoHS:

All material in according with the RoHS environment related substances list controlled.

| MATERIAL AND FINISH |                                                                                                    |                                     |
|---------------------|----------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>HOUSING</b>      | <b>Material</b>                                                                                    | PPA, UL94HB, Black                  |
| <b>PIN</b>          | <b>Material</b>                                                                                    | Copper alloy Brass                  |
|                     | <b>Plating</b>                                                                                     | 40μ" Gold Min.<br>120μ" Nickel Min. |
| <b>BARREL</b>       | <b>Material</b>                                                                                    | Copper alloy Brass                  |
|                     | <b>Plating</b>                                                                                     | 2μ" Gold Min.<br>80μ" Nickel Min.   |
| <b>SPRING</b>       | <b>Material</b>                                                                                    | Stainless Steel                     |
| <b>O-RING</b>       | <b>Material</b>                                                                                    | Silicone Rubber                     |
| <b>RATING</b>       | Current Rating: 3A24V AC/DC<br>Operating Temperature : -40°C to +85°C<br>Durability: 20,000 cycles |                                     |



## ELECTRICAL

| Item               | Requirement                                   | Test Condition                                        |
|--------------------|-----------------------------------------------|-------------------------------------------------------|
| Contact Resistance | 50mΩ Max. at 0.9mm stroke (at standing still) | Voltage drop system four-wire system with below 300mA |

## MECHANICAL

| Item                  | Requirement                | Test Condition                                                    |
|-----------------------|----------------------------|-------------------------------------------------------------------|
| Pin Force             | 1.0N±0.25N at 0.9mm stroke | 0.9mm compression                                                 |
| Pin Strength          | No appearance damage       | Apply 9.8N static load on the plunger in direction for 1 minute.  |
| Pin Pulling Off Force | No appearance damage       | Apply 4.9N static load on the pin in axis direction for 1 minute. |

## ENVIRONMENTAL

| Item                        | Requirement                                                                                                | Test Condition                                                                                                  |
|-----------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Operation durability        | No appearance damage<br>Contact Resistance:<br>100mΩ Max.<br>Pin Force: 1.0N±0.25N<br>No appearance damage | 0.9mm pin compression for the nominal stroke at a frequency of 10 to 20 times per minute for 20,000 cycles.     |
| Low Temperature Durability  | Contact Resistance:<br>100mΩ Max.<br>No appearance damage                                                  | Store in temp: -40°C±3°C for 96hrs, then leave in the ambient temperature for 1 hour.                           |
| High Temperature Durability |                                                                                                            | Store in temp: +85°C±2°C for 96hrs, then leave in the ambient temperature for 1 hour.                           |
| Humidity Durability         |                                                                                                            | Store in temp: 60°C±2°C with humidity of 90% ~ 95% for 96hrs, then leave in the ambient temperature for 1 hour. |



|                                     |                                                                                         |                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Cycle Test              | Contact Resistance:<br>100mΩ Max.<br>No appearance damage                               | Cycle 5 times<br>(Table 1 Shows test condition for 1 circle).<br>Leave in the ambient temp for 1 hour.                                                                                                                                                                                                                                                              |
| Temperature And Humidity Cycle Test |                                                                                         | Operate cycle test 10 times. (See Fig1)<br>Then leave in the ambient temp for 1 hour.<br>The other issues are in conformity to JIS C60068-2-38.                                                                                                                                                                                                                     |
| Salt Spray                          | No excessive surface corrosion                                                          | The electrical performance shall be measured after continuous spray of salt water with 5±1% density and 35°C±2°C temperature for 48 hours, cleaning with lukewarm water and dry, and leaving in ambient temperature for 1 hour.                                                                                                                                     |
| Vibration                           | Contact Resistance:<br>100mΩ Max.<br>No appearance damage<br>Intermittency below 1μ sec | Connect each connector pin in series, conducting current of 0.1A. After that, the vibration described below is added. <ul style="list-style-type: none"><li>● Amplitude: 1.5mm</li><li>● Sweeping cycle: 10~55~10 Hz/minute</li><li>● Duration of test: 2 hours for each of X, Y, Z axis</li></ul>                                                                  |
| Shock                               |                                                                                         | Connect each connector pin in series, conducting current of 0.1A. After that, the shock described below is added. <ul style="list-style-type: none"><li>● Accelerating rate: 490m/s<sup>2</sup></li><li>● Operating time of the test: 11ms</li><li>● The number of operating times:<br/>3 shocks at X, Y, Z axis both in negative and positive direction.</li></ul> |



|                        |                                                           |                                                                                                                                                                                                                                                                                                                                                |
|------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Heat Resistance        | Contact Resistance:<br>100mΩ Max.<br>No appearance damage | <ul style="list-style-type: none"><li>● The electrical performance shall be measured after soldering for 3seconds or less per terminal.<br/>(Temperature of soldering iron:350°C)</li><li>● The electrical performance shall be measure in ambient temperature after soldering in accordance with the reflow profile.<br/>(See Fig2)</li></ul> |
| Waterproof test (IP67) | No water leakage found<br>form the test fixture inside    | Set a connector with the testing fixture (See Fig3) and submerge it in water at 1m depth for 30 minute.                                                                                                                                                                                                                                        |



Table 1 -Temperature Cycle

| Step | Temperature (°C) | Time (minutes) |
|------|------------------|----------------|
| 1    | -40±3            | 30~35          |
| 2    | 5~35             | 10~15          |
| 3    | 85±2             | 30~35          |
| 4    | 5~35             | 10~15          |

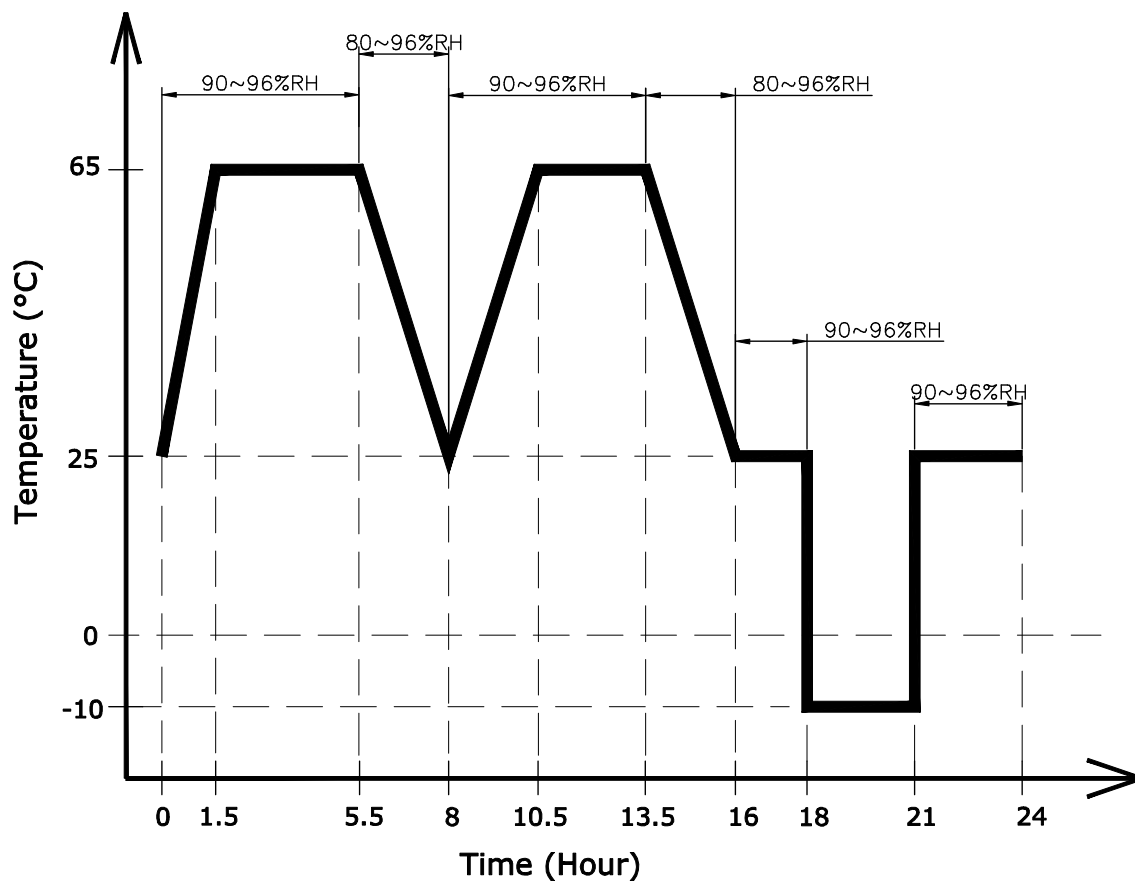


Fig1 Temperature And Humidity Cycle

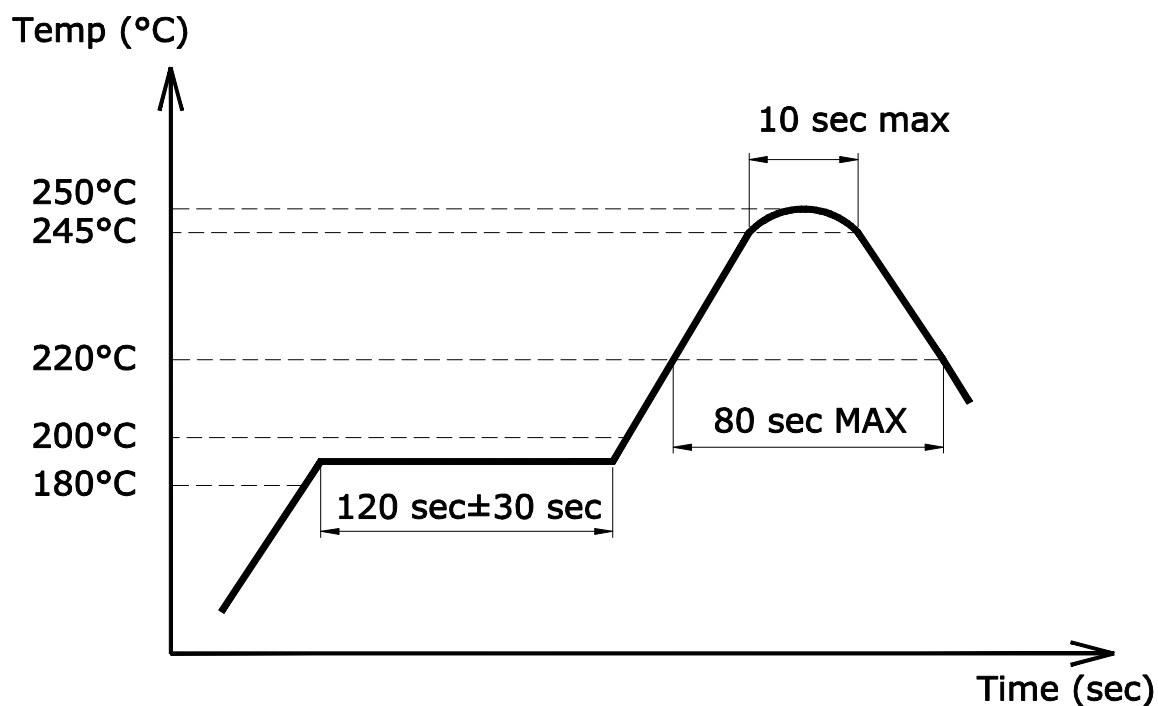


Fig2 Reflow Profile

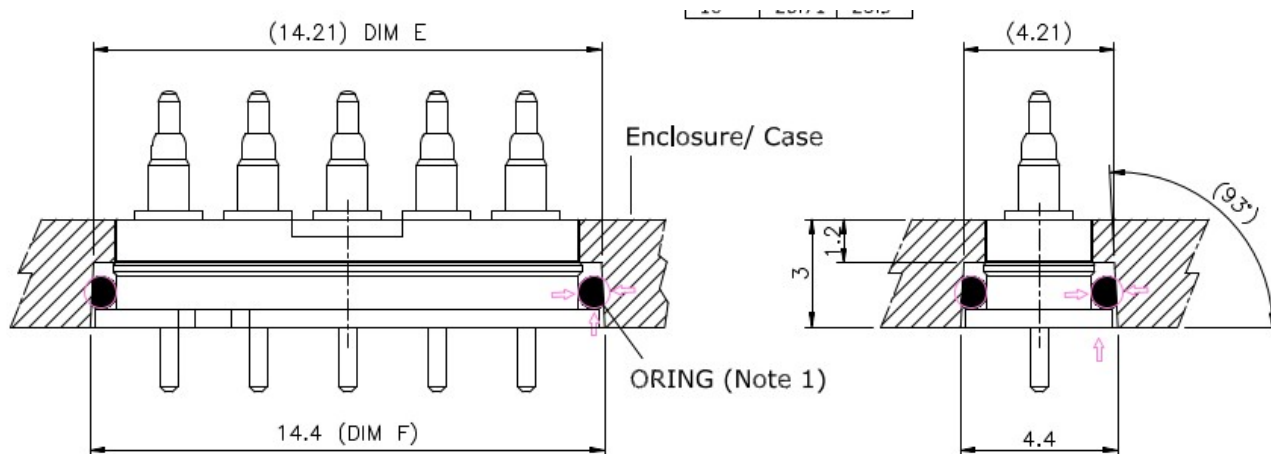


Fig3 Waterproof fixture