

RELIABILITY TEST REPORT

TESTITEM : 1.ELECTRICAL PERFORMANCE
2.MECHANICAL PERFORMANCE
3.ENVIRONMENTAL PERFORMANCE

SERIES NO. : TERMINAL:

P/N:CP35TN**P*S

HOUSING:

P/N:CP35**S001S

HEADER:

P/N: CP35**P*VS0-S-LF

P/N: CP35**P*VST-S-LF

TEST EQUIPMENT : 1.INSERTION & REMOVAL APPARATUS
2.ELECTRONIC MEASURING APPARATUS
3.ENVIRONMENTAL APPARATUS

DATE OF TESTING : 2007/07/24

TEST DEPART : R&D

TESTER : Eager. Wu

CONTAIN : ATTACHED

REVIEWED : Alex APPROVED : David VERIFIED : Eager .

1. ELECTRICAL PERFORMANCE :

| | ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | |
|------|---------------------------------------|--|-------------------|-------------|--------------------|
| | | | | Sample | |
| 1-1 | Contact resistance | Dry circuit of DC 20mV max.,100mA max. Wire resistance shall be removed from the measured value | Less than 10 mΩ | Sample | 10 mΩ max. |
| | | | | 1 | 5.53 mΩ |
| | | | | 2 | 5.42 mΩ |
| | | | | 3 | 5.69 mΩ |
| | | | | 4 | 5.46 mΩ |
| | | | | 5 | 5.66 mΩ |
| | | | | Min. | 5.42 mΩ |
| | | | | Max. | 5.69 mΩ |
| Ave. | 5.552 mΩ | | | | |
| 1-2 | Dielectric strength | When applied AC 1500V 1 minute between adjacent terminal | No Breakdown | Sample | No Breakdown |
| | | | | 1 | Pass |
| | | | | 2 | Pass |
| | | | | 3 | Pass |
| | | | | 5 | Pass |
| 1-3 | Insulation resistance | When applied DC 500 V between adjacent terminal or ground | More than 1000 MΩ | Sample | 1000 MΩ min. |
| | | | | 1 | 10*10 ⁶ |
| | | | | 2 | 10*10 ⁶ |
| | | | | 3 | 10*10 ⁶ |
| | | | | 5 | 10*10 ⁶ |
| 1-4 | Contact resistance on Crimped portion | Crimp the wire to the terminal, measure by dry circuit, 20m V max.,100mA max., Wire resistance shall be removed from the measured value. | Less than 5 mΩ | Sample | 5 mΩ max. |
| | | | | 1 | 3.38 mΩ |
| | | | | 2 | 3.13 mΩ |
| | | | | 3 | 3.22 mΩ |
| | | | | 4 | 3.25 mΩ |
| | | | | 5 | 3.31 mΩ |
| | | | | Min. | 3.13 mΩ |
| | | | | Max. | 3.38 mΩ |
| Ave. | 3.258 mΩ | | | | |

2. MECHANICAL PERFORMANCE :

| | ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | |
|------|-------------------------|--------------------------------|-------------------|-------------|--------------|
| | | | | Sample | |
| 2-1 | Terminal crimp strength | When crimped AWG #20 size wire | More than 7.0 Kgf | Sample | 7.0 Kgf min. |
| | | | | 1 | 8.57 Kgf |
| | | | | 2 | 9.01 Kgf |
| | | | | 3 | 8.69 Kgf |
| | | | | 4 | 9.24 Kgf |
| | | | | 5 | 9.27 Kgf |
| | | | | Min. | 8.57 Kgf |
| | | | | Max. | 9.27 Kgf |
| Ave. | 8.956 Kgf | | | | |

| ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | | |
|------|--------------------------------------|---|-------------------|-------------|--------------|
| | | | Sample | TEST RESULT | |
| 2-1 | Terminal crimp strength | When crimped AWG #22 size wire | More than 5.0 Kgf | Sample | 5.0 Kgf min. |
| | | | | 1 | 6.15 Kgf |
| | | | | 2 | 6.22 Kgf |
| | | | | 3 | 6.09 Kgf |
| | | | | 4 | 6.18 Kgf |
| | | | | 5 | 6.20 Kgf |
| | | | | Min. | 6.09 Kgf |
| | | | | Max. | 6.22 Kgf |
| | | | | Ave. | 6.168 Kgf |
| | | When crimped AWG #24 size wire | More than 3.0 Kgf | Sample | 3.0 Kgf min. |
| | | | | 1 | 4.56 Kgf |
| | | | | 2 | 4.24 Kgf |
| | | | | 3 | 4.02 Kgf |
| | | | | 4 | 4.37 Kgf |
| | | | | 5 | 4.50 Kgf |
| | | | | Min. | 4.02 Kgf |
| | | | | Max. | 4.56 Kgf |
| | | | | Ave. | 4.338 Kgf |
| 2-2 | Terminal insertion force | Insertion speed 25±3 mm per minute into housing | Less than 1.5 kgf | Plug | 1.5 Kgf max. |
| | | | | 1 | 0.614 Kgf |
| | | | | 2 | 0.575 Kgf |
| | | | | 3 | 0.592 Kgf |
| | | | | 4 | 0.599 Kgf |
| | | | | 5 | 0.561 Kgf |
| | | | | Min. | 0.561 Kgf |
| | | | | Max. | 0.614 Kgf |
| | | | | Ave. | 0.5882 Kgf |
| | | | | Recep. | 1.5 Kgf max. |
| | | | | 1 | 0.619 Kgf |
| | | | | 2 | 0.638 Kgf |
| | | | | 3 | 0.628 Kgf |
| | | | | 4 | 0.603 Kgf |
| | | | | 5 | 0.622 Kgf |
| | | | | Min. | 0.603 Kgf |
| | | | | Max. | 0.638 Kgf |
| | | | | Ave. | 0.622 Kgf |
| 2-3 | Contact retaining force in insulator | Retention speed 25±3 mm per minute from housing | More than 3.0 kgf | Plug | 3.0 Kgf min. |
| | | | | 1 | 5.65 Kgf |
| | | | | 2 | 5.66 Kgf |
| | | | | 3 | 5.44 Kgf |
| | | | | 4 | 5.53 Kgf |
| | | | | 5 | 5.75 Kgf |
| | | | | Min. | 5.44 Kgf |
| | | | | Max. | 5.75 Kgf |
| | | | | Ave. | 5.606 Kgf |

| ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | | |
|------|--------------------------------------|---|---|--------|----------------|
| | | | | | |
| 2-3 | Contact retaining force in insulator | Retention speed 25±3 mm per minute from housing | More than 3.0 kgf | Recep. | 3.0 Kgf min. |
| | | | | 1 | 5.14 Kgf |
| | | | | 2 | 5.28 Kgf |
| | | | | 3 | 5.22 Kgf |
| | | | | 4 | 5.05 Kgf |
| | | | | 5 | 5.35 Kgf |
| | | | | Min. | 5.05 Kgf |
| | | | | Max. | 5.35 Kgf |
| | | | | Ave. | 5.208 Kgf |
| 2-4 | Single contact insertion force | Measure force to insertion using mating square pin at speed 25±3 mm per minute | 700 gram max | Sample | 700 gram max. |
| | | | | 1 | 362 gram |
| | | | | 2 | 354 gram |
| | | | | 3 | 370 gram |
| | | | | 4 | 382 gram |
| | | | | 5 | 363 gram |
| | | | | Min. | 354 gram |
| | | | | Max. | 382 gram |
| | | | | Ave. | 366.2 gram |
| 2-5 | Single contact withdrawal force | Measure force to withdrawal using mating square pin at speed 25±3 mm per minute | 150 gram min | Sample | 150 gram min.. |
| | | | | 1 | 435 gram |
| | | | | 2 | 415 gram |
| | | | | 3 | 383 gram |
| | | | | 4 | 398 gram |
| | | | | 5 | 397 gram |
| | | | | Min. | 383 gram |
| | | | | Max. | 435 gram |
| | | | | Ave. | 405.6 gram |
| 2-6 | Mating and Unmating force | Measure force to insertion and withdrawal using mating square pin at speed 25±3 mm per minute | (03pin) mating force 2.45 Kgf Max. | Sample | Mating |
| | | | | 1 | 2.25 Kgf |
| | | | | 2 | 2.41 Kgf |
| | | | | 3 | 2.34 Kgf |
| | | | | 4 | 2.37 Kgf |
| | | | | 5 | 2.35 Kgf |
| | | | | Min. | 2.25 Kgf |
| | | | | Max. | 2.41 Kgf |
| | | | | Ave. | 2.344 Kgf |
| | | | (03pin) Unmating force 1.13 Kgf Min. | Sample | Unmating |
| | | | | 1 | 1.48 Kgf |
| | | | | 2 | 1.46 Kgf |
| | | | | 3 | 1.52 Kgf |
| | | | | 4 | 1.51 Kgf |
| | | | | 5 | 1.43 Kgf |
| | | | | Min. | 1.43 Kgf |
| | | | | Max. | 1.52 Kgf |
| | | | | Ave. | 1.48 Kgf |

| ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | |
|------|--|--|-------------|--------------|
| | | | Sample | Mating |
| 2-6 | Mating and Unmating force Measure force to insertion and withdrawal using mating square pin at speed 25±3 mm per minute | (12pin) mating force 9.79 Kgf Max. (12pin) Unmating force 4.53 Kgf Min. | Sample | Mating |
| | | | 1 | 9.68 Kgf |
| | | | 2 | 9.58 Kgf |
| | | | 3 | 9.63 Kgf |
| | | | 4 | 9.54 Kgf |
| | | | 5 | 9.61 Kgf |
| | | | Min. | 9.54 Kgf |
| | | | Max. | 9.68 Kgf |
| | | | Ave. | 9.608 Kgf |
| | | | Sample | Unmating |
| | | | 1 | 5.88 Kgf |
| | | | 2 | 5.93 Kgf |
| | | | 3 | 5.82 Kgf |
| | | | 4 | 5.85 Kgf |
| | | | 5 | 5.87 Kgf |
| | | | Min. | 5.82 Kgf |
| | | | Max. | 5.93 Kgf |
| Ave. | 5.87 Kgf | | | |
| 2-7 | Durability Connector shall be subjected to 30 cycles fo insertion and withdrawal | Contact resistance : Less than twice of initial | Sample | 20 mΩ max. |
| | | | 1 | 8.12 mΩ |
| | | | 2 | 8.03 mΩ |
| | | | 3 | 8.18 mΩ |
| | | | 4 | 8.21 mΩ |
| | | | 5 | 8.16 mΩ |
| | | | Min. | 8.03 mΩ |
| | | | Max. | 8.21 mΩ |
| | | | Ave. | 8.14 mΩ |
| 2-8 | Pin retention force in board mount Header Push Pin for insulator base at speed 25±3 mm per minute | More than 1.5 kgf. | Sample | 1.5 Kgf min. |
| | | | 1 | 2.98 Kgf |
| | | | 2 | 2.86 Kgf |
| | | | 3 | 2.79 Kgf |
| | | | 4 | 2.82 Kgf |
| | | | 5 | 2.96 Kgf |
| | | | Min. | 2.79 Kgf |
| | | | Max. | 2.98 Kgf |
| | | | Ave. | 2.882 Kgf |
| 2-9 | Locking force While with drawing plug & receptacle without terminal at speed 25±3 mm per minute | More than 5.5 kgf. | Sample | 5.5 Kgf min. |
| | | | 1 | 8.98 Kgf |
| | | | 2 | 8.93 Kgf |
| | | | 3 | 9.12 Kgf |
| | | | 4 | 9.08 Kgf |
| | | | 5 | 9.03 Kgf |
| | | | Min. | 8.93 Kgf |
| | | | Max. | 9.12 Kgf |
| | | | Ave. | 9.028 Kgf |

3. ENVIRONMENTAL PERFORMANCE:

| | ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | |
|-----|------------|--|---|-------------|-------------------|
| | | | | Sample | |
| 3-1 | Heat aging | 105 ± 2 °C ,96 hours | No damage | Sample | No damage |
| | | | | 1 | OK |
| | | | | 2 | OK |
| | | | | 3 | OK |
| | | | | 4 | OK |
| | | | | 5 | OK |
| 3-2 | Humidity | 60 ± 2 °C ,90-95% RH, 96 hours measurement must be taken within 30 min. after tested | Appearance: No damage | Sample | No damage |
| | | | | 1 | Pass |
| | | | | 2 | Pass |
| | | | | 3 | Pass |
| | | | | 4 | Pass |
| | | | | 5 | Pass |
| | | | Contact resistance: Less than twice of initial | Sample | <twice of initial |
| | | | | 1 | 6.31 mΩ |
| | | | | 2 | 6.35 mΩ |
| | | | | 3 | 6.42 mΩ |
| | | | | 4 | 6.43 mΩ |
| | | | | 5 | 6.38 mΩ |
| | | | | Min. | 6.31 mΩ |
| | | | | Max. | 6.43 mΩ |
| | | | Contact resistance: Less than twice of initial for crimped portion | Sample | <twice of initial |
| | | | | 1 | 3.32 mΩ |
| | | | | 2 | 3.41 mΩ |
| | | | | 3 | 3.38 mΩ |
| | | | | 4 | 3.45 mΩ |
| | | | | 5 | 3.58 mΩ |
| | | | | Min. | 3.32 mΩ |
| | | | | Max. | 3.58 mΩ |
| | | | Dielectric strength: To pass para 1-2 | Sample | Pass para 1-2 |
| | | | | 1 | Pass |
| 2 | Pass | | | | |
| 3 | Pass | | | | |
| 4 | Pass | | | | |
| 5 | Pass | | | | |

| ITEM | TEST CONDITION | REQUIREMENT | TEST RESULT | |
|----------------------------|---|---|-------------|-------------------|
| | | | Sample | TEST RESULT |
| 3-3 Temperature cycling | One cycle consists of : (1) -55^{+0}_{-3} °C , 30 min. (2) Room temp. 10-15 min. (3) 105^{+3}_{-0} °C , 30 min. (4) Room temp. 10-15 min. | Appearance : No damage | Sample | No damage |
| | | | 1 | Pass |
| | | | 2 | Pass |
| | | | 3 | Pass |
| | | | 4 | Pass |
| | | 5 | Pass | |
| | | Contact resistance: Less than twice of initial | Sample | <twice of initial |
| | | | 1 | 8.93 mΩ |
| | | | 2 | 8.95 mΩ |
| | | | 3 | 9.13 mΩ |
| | | | 4 | 9.22 mΩ |
| | | | 5 | 9.18 mΩ |
| | | | Min. | 8.93 mΩ |
| | | | Max. | 9.22 mΩ |
| Ave. | 9.082 mΩ | | | |
| 3-4 Salt spray | Temperature: 35 ± 3 °C Solution: 5 ± 1 % Spray time: 48 ± 4 hours Measurement must be taken after water rinse | Appearance : No damage | Sample | No damage |
| | | | 1 | Pass |
| | | | 2 | Pass |
| | | | 3 | Pass |
| | | | 4 | Pass |
| | | 5 | Pass | |
| | | Contact resistance: Less than twice of initial | Sample | <twice of initial |
| | | | 1 | 8.85 mΩ |
| | | | 2 | 8.73 mΩ |
| | | | 3 | 8.68 mΩ |
| | | | 4 | 8.81 mΩ |
| | | | 5 | 8.91 mΩ |
| | | | Min. | 8.68 mΩ |
| | | | Max. | 8.91 mΩ |
| Ave. | 8.796 mΩ | | | |

4. AMBIENT TEMPERATURE RANGE: -40 to +105 °C