# **Molex** 73838-0006 **PDF**



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NOTE: ALL OF THE <u>ORIGINAL</u> ISOMETRIC ASSEMBLY VIEWS AND FIGURES SHOWN IN THIS PRODUCT SPEC CAN BE FOUND IN FILE: F:\SHARED\SPECS\SLTRS\73838ps.dgn

| REVISION:    | ECR/ECN INFORMATION:        | TITLE: PRODUCT S           | ITLE:         PRODUCT SPECIFICATION FOR THE SL |          |                  |
|--------------|-----------------------------|----------------------------|--|----------|------------------|
| C            | EC No:UCP2003-0045          | PRODUCT FAN                |  | POSITION | 1 of 11          |
|              | <u>DATE:</u> 2013 / 02 / 18 |                            | ASSURANCE<br>(T.P.A.)                          |          | 10114            |
| DOCUMEN      | NUMBER:                     | CREATED / REVISED BY:      | CHECKED BY:                                    | APPROV   | ED BY:           |
| PS-73838-005 |                             | <b>REISDORF/JANTELEZIO</b> | JANTELEZIO                                     | BANA     | AKIS             |
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### **PRODUCT SPECIFICATION**

#### 1.0 **SCOPE**

This specification is intended to define the mechanical performance requirements of the SL connector assemblies with the Terminal Position Assurance device. This device is intended to provide additional retention for terminals that have been properly installed and seated in the housing.

#### 2.0 **PRODUCT DESCRIPTION:**

2.1 The product is available in this single row configuration with 2 - 8 circuits on (2.54mm) .100in. centerline spacing. Assemblies of this configuration are

|           | PRODUCT NAME                      |   | DRAWING             | NUMBER                  |                   |
|-----------|-----------------------------------|---|---------------------|-------------------------|-------------------|
|           | Terminal Position Ass             | urance For SL Crimp Hou                     | singSD-73838-00     | )4                      |                   |
|           | Terminal Position Ass             | urance Latch Insert                         | SD-74109-0          | 001                     |                   |
|           | Housing, SL Crimp, Fe             | or Terminal Position Assu                   | ranceSD-70066-38    | 36                      |                   |
|           | Terminal - Box Crimp.             |   | SD-70058-***        | **(-0004 thru           | -0226)            |
|           | Terminal - Box Crimp              | High Force Contact                          | SD-71851-**         | <sup></sup> (-0004 thru | -0226)            |
| 2.2       | Safety Agency Approv              | /als:                                       |                     |                         |                   |
|           | UL File Number<br>CSA File Number | E29179<br>LR19980                           |                     |                         |                   |
|           | TPA<br>7383<br>SL Crim<br>70066-0 | Device<br>8-00*<br>up Housing<br>1386 -0392 | Figure One          |                         |                   |
| REVISION: | ECR/ECN INFORMATION:              |   | SPECIFICATION FOR T | HE SL                   | SHEET No.         |
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| PS        | 5-73838-005                       | REISDORF/JANTELEZIO                         | JANTELEZIO          | BANA                    | AKIS              |
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#### 3.0 ASSEMBLY INSTRUCTIONS:



**TPA G Latch insert (Optional)** 

ECR/ECN INFORMATION:

EC No: UCP2003-0045

TITLE:

**REVISION:** 





#### 3.0 ASSEMBLY INSTRUCTIONS CONT'D:

3.1 Terminal Installation (Fig. Two):

Orient the crimp terminal assembly with the latch toward the large openings. Push the crimp terminal assembly into the housings until the latch is visible thru the terminal lock window as indicated in figure two.

Visually inspect all terminals for proper latch seating and crimp orientation as shown in figure two before proceeding with TPA installation.

Improper terminal orientation may prevent the insertion of the TPA support fingers into the terminal cores. Failure to recognize improperly oriented terminals prior to attempting to install may cause damage to the TPA.

Terminals not fully seated may prevent alignment of the latches and therefore may cause damage to the TPA.

3.2 Terminal Position Assurance (TPA) Installation: (Fig. Three)

Align the TPA support fingers with the terminal cores. Tilt TPA and insert fingers into the terminal cores. Push the TPA forward until the support latches align with the latch windows on the sides of the housing. Push down on TPA to secure latches. Verify latching on each side of housing. See figure three for graphics and more details.

#### 4.0 PERFORMANCE CRITERIA:

4.1 Mechanical Performance:

- 4.1.1 Terminal Retention: (See Table One, Items 2 and 6)
  - a) -The retention force for a terminal without the TPA to exceed 4.0 lbs. (17.8 N)
  - b) -The retention force for a terminal with the TPA to exceed 8.0 lbs. (35.6 N).
     -( forces applied at a rates of 1.0 in per minute. (25.4 mm / min.)

4.1.2 70066 Housing Mating Latch Strength: ("G" latch option) (See Table One Item 5)

-The mated assembly to withstand 15 lbs (67.2N) for 60 seconds applied directly to the housing.

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| DOCUMENT  | <u>NUMBER:</u>              | CREATED / REVISED BY: | CHECKED BY:                            | <u>APPROV</u> | ED BY:                |
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4.1 Mechanical Performance (cont'd):

- 4.1.3 Terminal Mating/Unmating Forces:
  - Insertion force not to exceed 1.0 lb (4.45 N) per contact (70058).
  - Insertion force not to exceed 3.0 lb (13.34 N) per contact (71851).
  - Withdrawal force 0.125 lb (0.56 N) minimum per contact (70058).
  - Withdrawal force 0.375 lb (1.67 N) minimum per contact (71851).
- 4.1.4 Terminal Insertion Forces: (See Table, One Item 3)

-The force to install the terminal into the housing shall not exceed 3.0 lbs (13.45N).

4.1.5 Vibration:

-Mated assemblies to withstand Vibration per mil-std 202 method 201, 10-55-10 HZ 1 min. cycles, 2 hr. ea. axis .03 excursion, 10 G's. Visual inspection of this assembly to show no deleterious effects from this exposure.

4.1.6 Mechanical Shock:

-Mated assemblies to withstand Mechanical Shock per mil-std -202 method 213, 50 G's, 3 shock per axis, . Visual inspection assembly to show no deleterious effects from this exposure.

- 4.2 Environmental Performance:
  - 4.2.1 Thermal Shock:

-Mated assemblies to withstand 10 cycles, -40 to +105 deg. C , ½ hr dwell, per mil-std-202, method 107D. Visual inspection assembly to show no deleterious effects from this exposure.

4.2.2 Thermal Age:

-Mated assemblies to withstand 240 hours at 105 deg C, per mil-std-202, method 108A. Visual inspection assembly to show no deleterious effects from this exposure.

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4.2 Environmental Performance Cont'd:

4.2.3 Cyclic Humidity:

-Mated assemblies to withstand 240 hours of cyclic humidity, +25 to 65 deg. C, 90 to 95% R.H., per mil-std-202, method 106E, omitting steps 7a & 7b. Assemblies to show no deleterious effects from this exposure.

#### 5.0 **<u>TEST PLAN:</u>**

#### 5.1 Terminal Retention Performance Characteristics.

| ITEM       | TES  | ST CATEGORY<br>AND<br>ESCRIPTION                 |  | T<br>TES  | ABLE ONE:   |  | ACCEPTANCE<br>CRITERIA                                | REFERENCE   | SAMPLE<br>SIZE                    |
|------------|--|--|--|---|---|--|---|-------------|-----------------------------------|
| 1          | CRI  | BASELINE<br>MP STRENGTH<br>RMINAL ONLY           | Crimp term<br>pull test, re<br>occurred.                           | ninal 70058 o<br>ecord type of  | r 71851 to a 22<br>failure and forc   | awg wire. Perform<br>e value at which it                         | 8.0 lbs min.<br>(35.6 N)                              |             | 5 terminals                       |
| 2          | BAS<br>TERMI<br>STAN   | ELINE, SINGLE<br>INAL RETENTION<br>DARD HOUSING. | Insert a 70<br>, into the co<br>out of the h<br>to extract t       | 058 or 71851<br>enter cavity c<br>nousing , and<br>he terminal.   | l terminal , crim<br>of the housing.<br>I record the valu                       | ped to 22 awg wire<br>Pull the terminal<br>le of force required  | 4.0 lbs min.<br>(17.8 N)                              | 4.1.1a      | 5 terminals                       |
| 3          | BASE<br>TERMIN<br>INSE   | LINE, CORRECT                                    | Insert a 70<br>, into the co<br>the value c<br>latch.              | sert a 70058 or 71851 terminal, crimped to 22 awg wire<br>nto the center cavity of a standard housing and record<br>e value of force required to seat the terminal to properly<br>tch |   |  | 3.0 lbs max.<br>(13.34 N)                             | 4.1.4       | 5 terminals                       |
| 4          | BAS<br>TERMIN<br>INSE  | ELINE, 90 DEG<br>VAL ORIENTATION<br>ERTION FORCE | Rotate a cr<br>and record<br>depth that                            | totate a crimped terminal 90 deg from normal orientation<br>not record the force required to insert the terminal to the<br>eoth that would allow latching if oriented properly        |   |  | Greater than<br>3.0 lbs<br>(13.34 N)                  |             | 5 terminals                       |
| 5          | BASI<br>TE   | ELINE, SYSTEM<br>EST, MATING<br>RETENTION        | Apply pull f<br>connector<br>header ass<br>connector               | force to all the<br>assembly wh<br>sembly. Reco<br>latch) and f   | ree leads on a f<br>ile mated to an<br>ord failure mode<br>force at failure.    | ully loaded<br>appropriate<br>s (terminals,                      | Connector latch<br>15 lbs (66.7 N)<br>for 60. seconds | 4.1.2       | 5 assemblies                      |
| 6          | TERMI<br>Wi<br>RETE  | INAL RETENTION<br>TH TERMINAL<br>NTION SUPPORT   | Insert a 70<br>, into the co<br>Pull the ter<br>of force rec       | 058 or 71851<br>enter cavity o<br>minal out of t<br>quired to extra   | I terminal , crim<br>of a TPA housin<br>the housing , ar<br>act the term.       | ped to 22 awg wire<br>g. Install the TPA.<br>Id record the value | 8.0 lbs min.<br>(35.6 N)                              | 4.1.1b      | 15 terminals 5<br>in each circuit |
| 7          | 7 POSSIBILITY TESTING<br>90 DEG TERMINAL, TRY<br>TO INSTALL TPA, NO<br>DAMAGE  |  | Using sam<br>TPA into th<br>housing. R<br>samples fro              | ples from iter<br>ne housing wi<br>lecord the res<br>om group 4 a   | m 4 above, atte<br>ithout damaging<br>sults and /or dan<br>bove)                | mpt to install the<br>g the TPA or<br>mage. (Use                 | Not able to put in TPA with out visible damage.       |             | 5 terminals                       |
| 8          | <sup>8</sup> POSSIBILITY TESTING,<br>PARTIALLY SEATED<br>TERMINAL, TPA,<br>RETENTION Partially ir<br>awg wire ,<br>prior to lat<br>terminal o<br>required. |  | sert a 70058<br>into the cente<br>ching the tern<br>ut of the hous | or 71851 termin<br>er cavity of a TF<br>ninal. Install the<br>ing , and recore  | nal , crimped to 22<br>PA housing just<br>TPA. Pull the<br>I the value of force | 8.0 lbs min.<br>(35.6 N)   |   | 5 terminals |                                   |
|            |  |  |  |   |   |  |   |             | 0.1555.1                          |
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|            |  | EC No: <b>UCP200</b> 3                           | 3-0045   |   | PRODUCT   |  |   | USITION     | 6 af 14                           |

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 BANAKIS

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5.0 TEST PLAN cont'd

| REVISION: | ECR/ECN INFORMATION:    | TITLE: PRODUCT S           | ITLE: PRODUCT SPECIFICATION FOR THE SL |          |                   |  |  |
|-----------|-------------------------|----------------------------|--|----------|-------------------|--|--|
|           | EC No:UCP2003-0045      | PRODUCT FAN                | IILY WITH TERMINAL                     | POSITION |                   |  |  |
| C         | DATE: 2012 / 02 / 19    |                            | ASSURANCE                              |          | 7 of 14           |  |  |
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#### 6.1 Recommended Packaging:

Parts shall be packaged according to the packaging documents that are referenced on the product drawings.

### 7.0 QUALITY ASSURANCE PROVISIONS

7.1 Material Inspection:

Shall consist of certification supported by verifying data.

7.2 Acceptance Inspection:

Acceptance of ongoing production product shall be determined by inspection according to Molex approved quality plans and required PPM levels for critical characteristics.

#### 8.0 QUALIFICATION REQUIREMENTS

- 8.1 Calibration of Equipment and Inspection Facilities Shall be maintained per MIL-C-45662
- 8.2 Qualification Testing Shall be performed per:
  - 1. Samples for testing shall be representative of normal production lots.
  - 2. The minimum number of samples shall be as referenced in section 5.0 (Test Plan).

| REVISION: | ECR/ECN INFORMATION:        | TITLE: PRODUCT S                            | ITLE:         PRODUCT SPECIFICATION FOR THE SL |          |                   |  |
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| C         | EC No:UCP2003-0045          | PRODUCT FAMILY WITH TERMINAL P<br>ASSURANCE |  | POSITION | 10 of 14          |  |
| C         | <u>DATE:</u> 2013 / 02 / 18 |   | (T.P.A.)                                       |          |                   |  |
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#### 9.0 TEST SUMMARY

| I<br>T<br>E<br>M | TEST CATEGORY<br>AND<br>DESCRIPTION   | REQUIREMENT                                    | UNITS             | MEAN  | MINIMUM | MAXIMUM |
|------------------|---|--|-------------------|-------|---------|---------|
| 1                | BASELINE<br>CRIMP STRENGTH<br>TERMINAL ONLY                                 | 8.0 min.<br>(35.6 min.)                        | Lbs.<br>(Newtons) | 18.99 | 18.64   | 19.54   |
| 2                | BASELINE, SINGLE<br>TERMINAL RETENTION<br>STANDARD HOUSING.                 | 4.0 min.<br>(17.8 min.)                        | Lbs.<br>(Newtons) | 6.6   | 5.85    | 7.4     |
| 3                | BASELINE, CORRECT<br>TERMINALORIENTATION<br>INSERTION FORCE                 | 3.0 max.<br>(13.34 max.)                       | Lbs.<br>(Newtons) | 1.84  | 1.4     | 2.45    |
| 4                | BASELINE, 90 DEG<br>TERMINAL ORIENTATION<br>INSERTION FORCE                 | 3.0 min.<br>(13.34 min.)                       | Lbs.<br>(Newtons) | 7.45  | 6.35    | 9.83    |
| 5                | BASELINE, SYSTEM<br>TEST, MATING<br>RETENTION                               | 15.0 min.<br>(66.7 min.)                       | Lbs.<br>(Newtons) | 19.49 | 18.86   | 20.68   |
| 6                | TERMINAL RETENTION<br>WITH TERMINAL<br>RETENTION SUPPORT                    | 8.0 min.<br>(35.6 min.)                        | Lbs.<br>(Newtons) | 12.16 | 9.43    | 16.35   |
| 7                | POSSIBILITY TESTING<br>90 DEG TERMINAL, TRY<br>TO INSTALL TPA ,NO<br>DAMAGE | Not able to put in TPA without visible damage. |                   |       | CAN NO  | т       |
| 8                | POSSIBILITY TESTING,<br>PARTIALLY SEATED<br>TERMINAL, TPA,<br>RETENTION     | 8.0 min.<br>(35.6 min.)                        | Lbs.<br>(Newtons) | 13.88 | 12.68   | 16.3    |
|                  |   |  |                   |       |         |         |

#### 9.0 TEST SUMMARY cont'd

| REVISION:<br>C                   | ECR/ECN INFORMATION:<br>EC No:UCP2003-0045<br>DATE: 2013 / 02 / 18 |  | <u>SHEET No.</u><br><b>11</b> of <b>14</b> |               |                               |
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| DOCUMENT NUMBER:<br>PS-73838-005 |  | CREATED / REVISED BY:<br>REISDORF/JANTELEZIO | <u>CHECKED BY:</u><br>JANTELEZIO           | APPRON<br>BAN | <u>/ED BY:</u><br><b>AKIS</b> |
|                                  |  |  |  |               | ANT. DOZ2020 DO               |

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|                         | 700                                      | 58 - MECHANICAL                                | SEQUENCE       | 5.2   |         |         |
|-------------------------|--|--|----------------|-------|---------|---------|
| TEST<br>CONDITION       | TREATMENT                                | REQUIREMENT                                    | SAMPLE<br>SIZE | MEAN  | MINIMUM | MAXIMUM |
| Initial                 | Contact Resistance<br>Values             | 30 milliohms max                               | 72             | 13.68 | 12.63   | 16.87   |
| Delta-R (vs<br>Initial) | Post Mate/Unmate<br>Cycling              | 10 milliohms<br>max.<br>change from<br>initial | 36             | -0.25 | -2.18   | 0.88    |
|                         | Post Mechanical<br>Shock - Uncycled      | 10 milliohms<br>max.<br>change from<br>initial | 36             | 1.22  | 0.41    | 4.09    |
|                         | Post Mechanical<br>Vibration - Uncycled  | 10 milliohms<br>max.<br>change from<br>initial | 36             | 0.35  | -0.09   | 2.11    |
|                         | Post Mechanical<br>Shock - 25 Cycles     | 10 milliohms<br>max.<br>change from<br>initial | 36             | -0.08 | -2.29   | 0.4     |
|                         | Post Mechanical<br>Vibration - 25 Cycles | 10 milliohms<br>max.<br>change from<br>initial | 36             | -0.61 | -2.37   | -0.09   |

|                         | 718                                      | 351 - MECHANICAL                               | SEQUENCE | 5.2   |         |         |
|-------------------------|--|--|----------|-------|---------|---------|
|                         | TREATMENT                                | REQUIREMENT                                    | SAMPLE   | MEAN  | MINIMUM | MAXIMUM |
| Initial                 | Contact Resistance<br>Values             | 30 milliohms max                               | 72       | 12.35 | 11.45   | 15.5    |
| Delta-R (vs<br>Initial) | Post Mate/Unmate<br>Cycling              | 10 milliohms<br>max.<br>change from<br>initial | 36       | 0.2   | -0.44   | 2.53    |
|                         | Post Mechanical<br>Shock - Uncycled      | 10 milliohms<br>max.<br>change from<br>initial | 36       | 0.89  | 0.26    | 5.2     |
|                         | Post Mechanical<br>Vibration - Uncycled  | 10 milliohms<br>max.<br>change from<br>initial | 36       | 0.43  | 0.04    | 2.99    |
|                         | Post Mechanical<br>Shock - 25 Cycles     | 10 milliohms<br>max.<br>change from<br>initial | 36       | -0.02 | -1.5    | 0.24    |
|                         | Post Mechanical<br>Vibration - 25 Cycles | 10 milliohms<br>max.<br>change from<br>initial | 36       | -0.33 | -1.63   | 0.04    |

### 9.0 TEST SUMMARY cont'd

| REVISION:        | ECR/ECN INFORMATION:        | TITLE: PRODUCT S                       | SHEET No.                             |        |                  |  |  |  |
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| <b>^</b>         | <u>EC No:</u> UCP2003-0045  | PRODUCT FAN                            | PRODUCT FAMILY WITH TERMINAL POSITION |        |                  |  |  |  |
|                  | <u>DATE:</u> 2013 / 02 / 18 |  |                                       |        |                  |  |  |  |
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| PS-73838-005     |                             | REISDORF/JANTELEZIO JANTELEZIO BANAKIS |                                       | AKIS   |                  |  |  |  |
| FILENAME: PS73   |                             |  |                                       |        | AME: PS73838.DOC |  |  |  |



| 70058 - MATING FORCE SEQUENCE 5.3 |                 |         |          |               |               |               |  |  |
|-----------------------------------|-----------------|---------|----------|---------------|---------------|---------------|--|--|
|                                   | TREATMENT       | PLATING | UNITS    | MEAN          | MINIMUM       | MAXIMUM       |  |  |
|                                   | Initial         | Tin     | LB / (N) | 0.73 / (3.24) | 0.62 / (2.74) | 0.82 / (3.63) |  |  |
| Force                             |                 |         |          |               |               |               |  |  |
|                                   |                 | Gold    | LB / (N) | 0.39 / (1.75) | 0.28 / (1.25) | 0.59 / (2.62) |  |  |
|                                   | After 25 Cycles | Tin     | LB / (N) | 0.75 / (3.32) | 0.64 / (2.83) | 0.89 / (3.94) |  |  |
|                                   | After 50 Cycles | Gold    | LB / (N) | 0.44 / (1.96) | 0.27 / (1.19) | 0.55 / (2.44) |  |  |
| Withdrawal<br>Force               | Initial         | Tin     | LB / (N) | 0.97 / 4.31)  | 0.79 / (3.52) | 1.05 / (4.65) |  |  |
|                                   |                 | Gold    | LB / (N) | 0.29 / (1.28) | 0.20 / (0.89) | 0.44 / (1.97) |  |  |
|                                   | After 25 Cycles | Tin     | LB / (N) | 0.77 / (3.43) | 0.68 / (3.04) | 0.90 / (4.02) |  |  |
|                                   | After 50 Cycles | Gold    | LB / (N) | 0.38 / (1.69) | 0.29 / (1.29) | 0.56 / (2.50) |  |  |

| 71851 - MATING FORCE SEQUENCE 5.3 |                 |         |          |                |                |                |  |  |
|-----------------------------------|-----------------|---------|----------|----------------|----------------|----------------|--|--|
| TEST                              | TREATMENT       | PLATING | UNITS    | MEAN           | MINIMUM        | MAXIMUM        |  |  |
| CONDITIO                          |                 |         |          |                |                |                |  |  |
| N                                 |                 |         |          |                |                |                |  |  |
|                                   | Initial         | Tin     | LB / (N) | 2.39 / (10.62) | 2.24 / (9.96)  | 2.53 / (11.25) |  |  |
| Insertion                         |                 |         |          |                |                |                |  |  |
| Force                             |                 |         |          |                |                |                |  |  |
|                                   |                 | Gold    | LB / (N) | 0.99 / (4.39)  | 0.91 / (4.05)  | 1.05 / (4.67)  |  |  |
|                                   | After 25 Cycles | Tin     | LB / (N) | 2.18 / (9.71)  | 1.60 / (7.12)  | 2.82 / (12.54) |  |  |
|                                   | After 50 Cycles | Gold    | LB / (N) | 1.01 / (4.48)  | 0.86 / (3.83)  | 1.17 / (5.20)  |  |  |
|                                   | Initial         | Tin     | LB / (N) | 2.68 / (11.92) | 2.28 / (10.14) | 3.18 / (14.15) |  |  |
| Withdrawal                        |                 |         |          |                |                |                |  |  |
| Force                             |                 |         |          |                |                |                |  |  |
|                                   |                 | Gold    | LB / (N) | 0.69 / (3.07)  | 0.62 / (2.76)  | 0.77 / (3.43)  |  |  |
|                                   | After 25 Cycles | Tin     | LB / (N) | 2.70 / (12.02) | 1.79 / (7.96)  | 4.23 / (18.82) |  |  |
|                                   | After 50 Cycles | Gold    | LB / (N) | 1.07 / (4.76)  | 0.84 / (3.74)  | 1.25 / (5.56)  |  |  |

| 70058 - ENVIRONMENTAL SEQUENCE 5.4 |                  |                     |        |       |         |         |  |  |
|------------------------------------|------------------|---------------------|--------|-------|---------|---------|--|--|
| TEST                               | TREATMENT        | REQUIREMENT         | SAMPLE | MEAN  | MINIMUM | MAXIMUM |  |  |
| CONDITION                          |                  |                     | SIZE   |       |         |         |  |  |
| Contact                            | Initial          | 30 milliohms max.   | 112    | 14.44 | 13.36   | 16.54   |  |  |
| Resistance                         |                  |                     |        |       |         |         |  |  |
|                                    | Following        | 10 milliohms max.   | 56     | -0.02 | -0.4    | 0.93    |  |  |
|                                    | Durability       | change from initial |        |       |         |         |  |  |
|                                    | Following        | 10 milliohms max.   | 111    | -0.12 | -1.48   | 1.12    |  |  |
|                                    | Thermal Shock    | change from initial |        |       |         |         |  |  |
|                                    | Following        | 10 milliohms max.   | 110    | 0.04  | -1.37   | 1.35    |  |  |
|                                    | Thermal Aging    | change from initial |        |       |         |         |  |  |
|                                    | Following Cyclic | 10 milliohms max.   | 110    | -0.08 | -1.44   | 1.25    |  |  |
|                                    | Humidity         | change from initial |        |       |         |         |  |  |

| REVISION:        | ECR/ECN INFORMATION:        | TITLE: PRODUCT S                       | <b>SPECIFICATION FOR T</b>            | THE SL | SHEET No.         |  |  |
|------------------|-----------------------------|--|---------------------------------------|--------|-------------------|--|--|
| C                | <u>EC No:</u> UCP2003-0045  | PRODUCT FAN                            | PRODUCT FAMILY WITH TERMINAL POSITION |        |                   |  |  |
| 0                | <u>DATE:</u> 2013 / 02 / 18 |  |                                       |        |                   |  |  |
| DOCUMENT NUMBER: |                             | CREATED / REVISED BY:                  | CHECKED BY:                           | APPRO\ | /ED BY:           |  |  |
| PS-73838-005     |                             | REISDORF/JANTELEZIO JANTELEZIO BANAKIS |                                       |        | AKIS              |  |  |
|                  |                             |  |                                       | FILE   | IAME: PS73838.DOC |  |  |



### 9.0 TEST SUMMARY cont'd

| 71851 - ENVIRONMENTAL SEQUENCE 5.4 |                                 |  |                |       |         |         |  |  |
|------------------------------------|---------------------------------|--|----------------|-------|---------|---------|--|--|
| TEST<br>CONDITION                  | TREATMENT                       | REQUIREMENT                              | SAMPLE<br>SIZE | MEAN  | MINIMUM | MAXIMUM |  |  |
| Initial                            | Contact<br>Resistance<br>Values | 30 milliohms max.                        | 120            | 15.36 | 14.92   | 15.75   |  |  |
| Delta-R<br>(vs Initial)            | Post<br>Durability              | 10 milliohms max.<br>change from initial | 120            | 0.33  | 0.32    | 0.42    |  |  |
|                                    | Post Thermal<br>Shock           | 10 milliohms max. change from<br>initial | 120            | -0.26 | -0.32   | -0.45   |  |  |
|                                    | Post Thermal<br>Aging           | 10 milliohms max. change from<br>initial | 120            | 0.21  | 0.09    | 0.62    |  |  |
|                                    | Post Cyclic<br>Humidity         | 10 milliohms max. change from<br>initial | 120            | -0.13 | -0.22   | -0.33   |  |  |

| REVISION:        | ECR/ECN INFORMATION:        | TITLE: PRODUCT S                       | SHEET No.              |        |                   |
|------------------|-----------------------------|--|------------------------|--------|-------------------|
| С                | <u>EC No:</u> UCP2003-0045  | PRODUCT FAN                            | <b>14</b> of <b>14</b> |        |                   |
| U                | <u>DATE:</u> 2013 / 02 / 18 |  |                        |        |                   |
| DOCUMENT NUMBER: |                             | CREATED / REVISED BY:                  | CHECKED BY:            | APPRO\ | /ED BY:           |
| PS-73838-005     |                             | REISDORF/JANTELEZIO JANTELEZIO BANAKIS |                        |        | AKIS              |
|                  |                             |  |                        | FILEI  | IAME: PS73838.DOC |