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SPECIFICATION

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| PRODUCTSPECIFICATION | M1270 (1.27MM) SERIES |
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## PRODUCT SPECIFICATION M1270 (1.27MM) SERIES

## 1. Scope:

This product specification contains the test results that general performances of M1270 connector were examined.

## 2. Part name&amp;part number:

| Part name        | Part number                       |
|------------------|-----------------------------------|
| Female connector | M1270M-XXX-XX-F/M1270H-XXX-XX-F   |
| Male connector   | M1270-XXX-XX-BA / M1270-XXX-XX-AA |

## 3. Construction、dimensions、material&amp;surface finish:

Construction and dimensions shall be in accordance with the referenced drawings.

Material and surface finish shall be as specified below.

| Part name        | Material  | Contact      | Surface finish |
|------------------|-----------|--------------|----------------|
| Female connector | LCP/PA9T  | Copper alloy | UL94V-0        |
| Male connector   | PA46/PA9T | Copper alloy | UL94V-0        |

## 4. Characteristics:

Current rating per contact: max, 9.0A at 20°C (2 pin version)

Voltage rating: 250V AC/DC

Temperature range: -40°C ~ +150°C

Storage temperature range: 10°C ~ 30°C

Storage humidity range: <75 %

## 5. Condition:

|                                                                                                                                          |                                    |                       |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------|
| Structure parameters:                                                                                                                    |                                    |                       |
| Conductor                                                                                                                                | Material                           | Copper                |
|                                                                                                                                          | Structure (strand/diameter) mm     | 7*0.27(0,-0.04)mm     |
|                                                                                                                                          | Wire size (mm <sup>2</sup> or AWG) | 1*0.35mm <sup>2</sup> |
| Insulation                                                                                                                               | Material                           | XLPE                  |
|                                                                                                                                          | Insulation OD                      | 1.2~1.3mm             |
| Note: 1. The insulation OD should be less than 1.3mm for easy assembly;<br>2. Please contact our sales staff for the other requirements, |                                    |                       |

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## 6. Features:

Pitch: 1.27mm

No.Of pins: 2-20 Pin (single-row) possible

Plate size: 0.5mm

Pin dimensions: 0.5\*0.4mm

Termination technology: Male connectors SMT

Female connectors IDC(Insulation Displacement Connector)

Cables: IDC discrete wire 0.35mm<sup>2</sup>

Connectors: Single-row SMT male connectors, vertical or right angle

Single-row IDC female connectors with 90° or 180° cable outlet

Coding/color: Black (Blue, Green, Red possible)

Automotive Standard: developed based on the VW75174 and USCAR-2 automotive test specifications.

## 7. Mechanical test

## 7.1. Male connector to female connector unmating force.

| No.of position | Unmating force |
|----------------|----------------|
| 2-3 Pin        | >40N           |
| 4-6 Pin        | >50N           |
| 6-20 Pin       | >60N           |

## 7.2. Retention force

Retention force of the housing locking greater than 50N.

## 8. Electrical test

## 8.1. Contact resistance

8.1.1. Requirement: Initial: 20mΩ(max.); After environmental test: 20mΩ(max.)

8.1.2. Condition: Test current: 10mA(DC); Open voltage: 20mV(max.)

8.1.3. Test result: See items 9.1~9.4

## 8.2. Insulation resistance

8.2.1. Requirement: Initial: 100MΩ(min.)

After humidity test: 100MΩ(min.)

After thermal shock test: 100MΩ(min.)

8.2.2. Test method: DC 500V shall be applied between outer surface of housing and terminal and between adjacent terminals to measure insulation resistance(USCAR-2).

8.2.3. Test result: See items 9.1&9.3

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## 9. Environment test:

## 9.1. Humidity

9.1.1. Requirement: Contact resistance shall be 20milliohms (max.) after the test. Insulation resistance shall be 100megohms (min.) after the test.

9.1.2. Test method: Mated connector shall be placed in a humidity chamber of the following conditions. After the test, contact resistance and insulation resistance shall be measured(USCAR-2).

Temperature: -40°C ~ +150°C

Humidity: 0% ~ 95% (RH)

Period: 320 hours continuously

## 9.1.3. Test results:

| Test item          | Initial(mΩ) |      |      | After test(mΩ) |      |      |
|--------------------|-------------|------|------|----------------|------|------|
|                    | Max.        | Min. | Ave. | Max            | Min  | Ave  |
| Contact resistance | 3.50        | 2.20 | 3.12 | 3.43           | 2.16 | 3.05 |

| Test item             | Housing-Terminal(MΩ) |            | Terminal-Terminal(MΩ) |            |
|-----------------------|----------------------|------------|-----------------------|------------|
|                       | Initial              | After test | Initial               | After test |
| Insulation resistance | 100min.              | 100min.    | 100min.               | 100min.    |

## 9.2. Salt spray

9.2.1. Requirement: Contact resistance shall be 20milliohms(max.) after the test.

9.2.2. Test method: Mated connector shall be subjected to salt spray test of the following conditions. After the test, specimen shall be washed with running water and dried naturally before the measurement of contact resistance(VW75174-LV214).

Temperature: 35±2°C

Concentration: 5%

Period: 7 Days

## 9.2.3. Test result:

| Test item          | Initial(mΩ) |      |      | After test (mΩ) |      |      |
|--------------------|-------------|------|------|-----------------|------|------|
|                    | Max.        | Min. | Ave. | Max.            | Min. | Ave. |
| Contact resistance | 3.89        | 2.67 | 3.35 | 3.39            | 2.51 | 3.11 |

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## 9.3. Thermal shock

9.3.1. Requirement: Contact resistance shall be 20milliohms (max.) after the test.

Insulation resistance shall be 100megohms (min.) after the test.

9.3.2. Test method: Mated connector shall be subjected to thermal shock test of the following conditions. After the test , contact resistance and insulation resistance shall be measured(USCAR-2)..

1 cycle consists of:

-40°C for 30 minutes

+150°C for 30 minutes

Times of cycles: 100 cycles

## 9.3.3. Test results:

| Test item          | Initial(mΩ) |      |      | After test(mΩ) |      |      |
|--------------------|-------------|------|------|----------------|------|------|
|                    | Max.        | Min. | Ave. | Max            | Min  | Ave  |
| Contact resistance | 3.35        | 2.16 | 3.07 | 3.31           | 2.02 | 3.03 |

| Test item             | Housing-Terminal(MΩ) |            | Terminal-Terminal(MΩ) |            |
|-----------------------|----------------------|------------|-----------------------|------------|
|                       | Initial              | After test | Initial               | After test |
| Insulation resistance | 100min.              | 100min.    | 100min.               | 100min.    |

## 9.4. Vibration

9.4.1. Requirements: Contact resistance shall be 20milliohms (max.) after the test. There shall be no current discontinuity longer than 1 microsecond during the test.

9.4.2. Test method: Mated connector shall be mounted on a PCB and subjected to a vibration test of the following conditions. During the test , current continuity shall be checked. After the test , contact resistance shall be measured(USCAR-2).

Direction: 1.Axis of up and down

2. Axis of right and left

3.Axis of front and back

## 9.4.3. Test result:

| Test item          | Initial(mΩ) |      |      | After test(mΩ) |      |      |
|--------------------|-------------|------|------|----------------|------|------|
|                    | Max.        | Min. | Ave. | Max.           | Min  | Ave. |
| Contact resistance | 3.43        | 2.26 | 2.97 | 3.23           | 2.15 | 2.89 |

Current discontinuity: There shall be no current discontinuity longer than 1 microsecond during the test.

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## 9.5. Solderability

9.5.1. Requirements: Minimum 95% solder-dipping section shall be covered by solder smooth solder.

9.5.2. Test method: Fluxed soldering section of shrouded header shall be dipped in solder of the following conditions.

Solder temperature :  $245 \pm 5^{\circ}\text{C}$ 

Immersion period : 3-5 seconds

9.5.3. Test result: Good.

## 9.6. Resistance to soldering heat

9.6.1. By soldering iron (Attention: The process is suitable for both high and low temperature plastic materials)

(1) Requirements: There shall be no deformation nor damage which may affect the performance.

(2) Test method: The specimen shall be soldered by soldering iron of the following conditions.

No abnormal force such as lateral load shall be applied to the specimen during the test.

Soldering iron temperature:  $360 \pm 10^{\circ}\text{C}$ 

Immersion period: 1-3 seconds

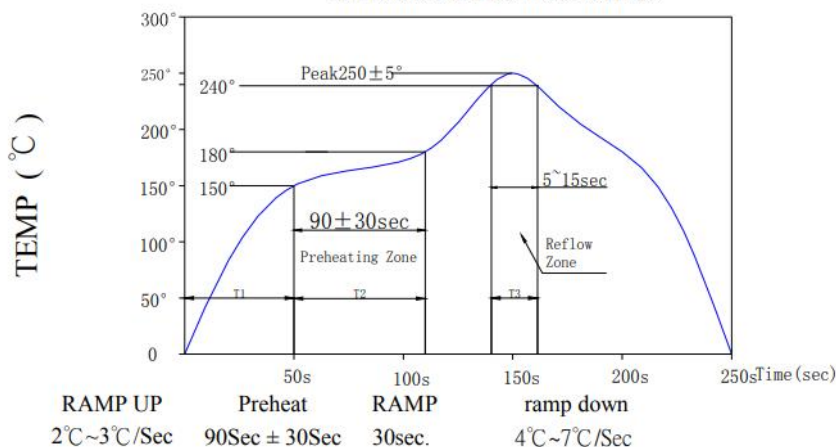
(3) Test result: Good.

9.6.2. By reflow soldering (Attention: The process is only suitable for high temperature plastic materials)

(1) Requirements: Solder-dipping section shall be covered by solder entirely.

(2) Test method:

INFRARED REFLOW CONDITION



|     |                                |             |
|-----|--------------------------------|-------------|
| T1: | Temperature ramp up rate:      | 2°C~3°C/sec |
| T2: | Preheat: 150°C~160°C           | 60~120sec   |
| T3: | Time Over 240°C:               | 5 ~ 15sec   |
|     | Ramp down rate during cooling: | 4°C~7°C/sec |
|     | Peak temperature:              | 250°CMax    |

(3) Test result: Good.

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**Notice:**

1. The values specified in this specification are only for reference. The products and their specifications are subject to change without notice. Contact our sales for further information before considering or ordering any of our products.  
For purchase, a product specification must be agreed upon.
2. Users are requested to provide protection circuits and redundancy circuits to ensure safety of the equipment, and sufficiently review the suitability of BRIGHT-E's products to the equipment.
3. The products presented in this series are designed for the uses recommended below.  
We strongly suggest you contact our sales staff when considering use of any of the products in any other way than the recommended applications or for a specific use that requires an extremely high reliability.
  - (1) Applications that require consultation:
    - (i) Please contact us if you are considering use involving a quality assurance program that you specify or that is peculiar to the industry, such as:  
Automotive electrical components, train control, telecommunications devices (mainline), traffic light control, electric power, combustion control, fire prevention or security systems, disaster prevention equipment, etc.
    - (ii) We may separately give you our support with a quality assurance program that you specify, when you think of a use such as:  
Aviation or space equipment, submarine repeaters, nuclear power control systems, medical equipment for life support, etc.