

|                                                                                                                                           |                                           |                                    |                       |
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| TITLE<br><br>10064555 シリーズ FPC 用コネクタ (0.3mm ピッチ、SMT タイプ、上接点タイプ)<br>10064555series FPC connector (0.3mm pitch,SMT type,Upper contact type) |                                           |                                    |                       |

## 1. 適用範囲

### 1. SCOPE

本規格書は、“10064555 シリーズ FPC 用コネクタ (0.3mm ピッチ、SMT タイプ、上接点タイプ)”に関する、仕様及び性能について規定する。

This product specification covers the requirements for the 10054365series FPC connector.  
(0.3mm pitch, SMT type, Upper contact type)

## 2. 品名・型番及び図面番号

### 2. CONNECTOR SHAPE AND DIMENSIONS

| 品 名<br>Product name                                     |                                         | Product No.        | 図面番号<br>Drawing number |
|---------------------------------------------------------|-----------------------------------------|--------------------|------------------------|
| 10064555 シリーズ FPC 用コネクタ<br>10064555series FPC connector | プラスチックテープ梱包品<br>Emboss packed connector | 10064555-XX2X1XELF | 10064555               |
|                                                         | コネクタ<br>Connector only                  | 10064555-XX2X1LF   |                        |

## 3. 形状・材質及び表面処理

### 3. MATERIAL AND PLATING

形状詳細は各製品図面参照

Shape details are each referring to the drawings.

| 部品名<br>Parts name              | 材質<br>Material                | 表 面 処 理 等<br>Finish                                  | 備考<br>Note                                                       |
|--------------------------------|-------------------------------|------------------------------------------------------|------------------------------------------------------------------|
| ハウジング<br>Housing               | 熱可塑性樹脂<br>Thermoplastic resin | —                                                    | 黒 (UL94V-0)<br>Black (UL94V-0)                                   |
| アクチュエータ<br>Actuator            |                               | —                                                    | ベージュ (UL94V-0)<br>Beige (UL94V-0)                                |
| コンタクト<br>Contact               | 銅合金<br>Copper alloy           | ニッケル下地付金めっき<br>Gold plating over nickel base plating | —                                                                |
| 補強金具<br>fitting tab            | 銅合金<br>Copper alloy           | ニッケル下地付すずめっき<br>Tin plating over nickel base plating | —                                                                |
| エンボステープ<br>Emboss              | ポリエチレンテレフタレート<br>PET          | —                                                    | JIS C 0806 準拠<br>電子部品のテーピング<br>(表面実装部品)<br>JIS C 0806 Conformity |
| カバーテープ<br>Cover tape           | ポリエステル<br>Polyester           | —                                                    |                                                                  |
| 梱包用リール<br>Reel (for packaging) | ポリスチレン<br>Polystyrene         | —                                                    |                                                                  |

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#### 4. 推奨基板パターン及び適用導体(FPC)

#### 4. RECOMMENDED P.C.BOARD LAYOUT AND CONDUCTOR (FPC)

| 項 目<br>Parameter                                                        | 図面番号<br>Drawing number |
|-------------------------------------------------------------------------|------------------------|
| 推奨基板パターン及び適用導体(FPC)<br>Recommended P.C Board layout and Conductor (FPC) | 10064555               |

#### 5. 定格

#### 5. RATING

|                                       | 定 格 値<br>Rating Value                                                                             |
|---------------------------------------|---------------------------------------------------------------------------------------------------|
| 定格電圧<br>Voltage Rating                | 30V (AC/DC)                                                                                       |
| 定格電流<br>Current Rating                | 0.2A (AC/DC)                                                                                      |
| 使用温度範囲<br>Operating temperature range | -55°C ~ +85°C<br>(通電時の温度上昇分を含む。)<br>(Including temperature rises according to the current flows.) |

#### 6. 諸性能

#### 6. PERFORMANCE

特に指定した条件の無い限り、以下に示す環境条件(IEC Publication 68)で、7 項、表 2 の順序にて試験を行った時、表 1 に示す規格を全て満足すること。

常 温: 15~35°C

常 湿: 25~75%Rh.

常気圧: 86~106kpa

Unless otherwise specified, when tested the ambient conditions in accordance with IEC Publication 68 as described below and evaluated with the sequence listed in Table 1, the connector shall meet the requirements.

Temperature: 15~35°C

Relative humidity: 25~85%RH.

Atmospheric pressure: 86~106kpa

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表 1. 諸 性 能  
Table1. Performance of various

|                                     | 項目<br>Para.                                    | 規格<br>Requirements                                                                                                                                                                                                                   | 試験方法<br>Condition |
|-------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 電氣的性能<br>Electrical Requirements    | 接触抵抗<br>Contact resistance                     | 初期: 100mΩ 以下<br>試験後: Δ100mΩ 以下<br>Initial: 100mΩ Max.<br>Final: Δ100mΩ Max.                                                                                                                                                          | 6.1.1             |
|                                     | 絶縁抵抗<br>Insulation resistance                  | 初期値: 50MΩ 以上 (DC100V 使用時)<br>試験後: 50MΩ 以上 (DC100V 使用時)<br>Initial: 50MΩ Min.<br>Final: 50MΩ Min.                                                                                                                                     | 6.1.2             |
|                                     | 耐電圧<br>Dielectric Withstanding Voltage         | 外観の異常、短絡、絶縁破壊のないこと。<br>(漏れ電流 1mA 以下)<br>No evidence of arc-over or insulation breakdown.<br>(Current leakage: 1mA Max.)                                                                                                              | 6.1.3             |
| 機械的性能<br>Mechanical Requirements    | 耐久性<br>Durability                              | 割れ、膨れ等の機能を損なう欠陥の無いこと。<br>試験後の接触抵抗: 100mΩ 以下<br>No evidence of cracking, swelling or other damage.<br>C.R: Final: Δ100mΩ Max.                                                                                                         | 6.1.4             |
|                                     | 振動<br>Vibration                                | 試験中に部品のゆりみ、破損、1μs 以上の瞬断が無いこと。<br>試験後の接触抵抗: 100mΩ 以下<br>No evidence of physical or mechanical damage, or disassociation of parts, and no electrical discontinuity greater than 1μsec, shall occur.<br>C.R : Final:Δ100mΩ Max.         | 6.1.5             |
| 耐環境特性<br>Environmental Requirements | 高温高湿放置<br>(定常状態)<br>Humidity<br>(steady state) | 試験後の接触抵抗: 100mΩ 以下<br>試験後の絶縁抵抗: 50MΩ 以上<br>試験後の耐電圧: 外観の異常、短絡、絶縁破壊の無いこと。<br>C.R: Final: Δ100mΩ Max.<br>Insulation resistance final: 50MΩ Min.<br>Dielectric Withstanding Voltage:<br>No evidence of arc-over or insulation breakdown. | 6.1.6             |
|                                     | 熱衝撃<br>Thermal shock                           | 試験後の接触抵抗: 100mΩ 以下<br>C.R: Final: Δ100mΩ Max.                                                                                                                                                                                        | 6.1.7             |
|                                     | はんだ耐熱性<br>Solder heat resistance               | 外観上、機能を損なう欠陥の無いこと。<br>There shall be no defect witch spoils a function.                                                                                                                                                              | 6.1.8             |
|                                     | はんだ付け性<br>Solderability                        | はんだぬれ面積 95%以上。<br>Actual soldered area must be more than 95% of the dipped area intended to be soldered.                                                                                                                             | 6.1.9             |

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## 6.1 試験方法

### 6.1 Test method

#### 6.1.1 接触抵抗

接触抵抗は、図 1 に示すようにコネクタへ適用導体を挿入した状態で、試験電流 100mA 以下、試験電圧 20mV 以下の回路条件にて測定する。(IEC 512-2、Test 2a 準拠)  
尚、測定値にはコンタクトと適用導体の導体抵抗の一部を含む。

##### 6.1.1 Contact resistance

Measuring under the following conditions : (IEC 512-2, Test 2a conformity)  
The measuring data is included the conductor resistance of terminal and FPC.  
Method of connection: See Fig 1.

- (a) Test current : 100 mA Max
- (b) Open circuit voltage : 20 mV Max

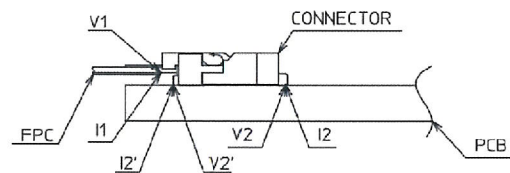


図 1. 接触抵抗測定方法

Fig.1 Contact resistance measuring method

#### 6.1.2 絶縁抵抗

コネクタ単体(基板未実装状態)にて、隣接するコンタクト相互間に DC 100V を 1 分間印加した後に測定する。(IEC 512-2、Test 3a 準拠)

##### 6.1.2 Insulation resistance

Measured accordance with IEC 512-2, Test 3a.  
The following details shall apply:

- (a) Test Voltage : 100 V DC for 1 minute
- (b) Special Preparation : The connector shall not be mounted on PCB.
- (c) Points of Measurement: Between adjacent terminal

#### 6.1.3 耐電圧

コネクタ単体(基板未実装状態)にて、隣接するコンタクト相互間に AC 90V を 1 分間印加した後に測定する。(IEC 512-2、Test 4a 準拠)

##### 6.1.3 Dielectric Withstanding Voltage

Unmated connector is tested is accordance with IEC 512-2, Test 4a.  
The following details shall apply:

- (a) Test Voltage : 90V AC for 1 minute
- (b) Special Preparation : The connector shall not be mounted on PCB.
- (c) Points of Measurement: Between adjacent terminal

|                                                                                                                                       |                                                     |                                       |                   |
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#### 6.1.4 耐久性

コネクタと適用導体の組み合わせにおいて、規定の操作方法による挿抜を 10 回繰り返す。

#### 6.1.4 Durability

When the connector and the application conductor are mated, it repeats 10 cycles of a regulated operation method.

#### 6.1.5 振動

コネクタに適用導体を挿入した状態で専用の振動試験治具に取り付け、X,Y,Z 方向に各 10 サイクル (計 30 サイクル)、周波数範囲 10~500Hz、振幅又は加速度:0.75 mm 又は 100 m/sec<sup>2</sup> (10 G) 掃引速度:1 オクターブ / min の掃引振動を加える。(IEC Pub 68-2-6 準拠)

#### 6.1.5 Vibration

The test shall be in accordance with IEC Pub 68-2-6.

The following details shall apply :

- (a) Frequency: 10 to 500Hz, sweep vibration
- (b) Amplitude or acceleration amplitude: 0.75mm or 100m/sec<sup>2</sup> (10G)
- (c) Sweep rate: 1octave / min.
- (d) Duration: 10cycles for each axis X, Y, Z. (Total 30cycles)

#### 6.1.6 高温高湿放置(定常状態)

コネクタに適用導体を挿入した状態で、温度 40±2℃、相対湿度 90~95% の雰囲気中に 48 時間放置する。尚、測定は規定時間後、標準状態(温度:25±10℃、湿度:50±25%RH)に取り出し、2±1 時間放置してから行う。(IEC Pub 68-2-3 準拠)

#### 6.1.6 Humidity

After the mated connector is exposed to a high humidity ambience in accordance with IEC Pub 68-2-3. The test samples should be measured after regulation time, after take it out in normal condition (25±10℃, 50±25%RH) and leaving you unattended for 2 ± 1 hours.

The following details shall apply:

- (a) Ambient Temperature: 40 ± 2℃
- (b) Relative Humidity : 90 to 95 %RH
- (c) Duration : 48 hours

|                                                                                                                                         |                                                     |                                       |                  |
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#### 6.1.7 熱衝撃

コネクタに適用導体を挿入した状態で、-55±3℃／30 分、常温／3 分、+85±2℃／30 分の環境サイクルに 5 サイクル暴露する。尚、測定は規定時間後、標準状態(温度:25±10℃、湿度:50±25%RH)に取り出し、2±1 時間放置してから行う。(IEC Pub 68-2-14 準拠)

#### 6.1.7 Thermal Shock

After the mated connector is exposed to alternate cycles of extreme high and low temperature in accordance with IEC Pub 68-2-14.

The test samples should be measured after regulation time, after take it out in normal condition (25±10℃, 50±25%RH) and leaving you unattended for 2 ± 1 hours.

The following details shall apply.

(a) Temperature range : -55±3℃ for 30 minutes followed by +85±2℃ for 30 minutes.

(b) Number of cycle : 5cycles

#### 6.1.9 はんだ耐熱性

リフロー炉を以下の条件に設定し、基板へはんだ付けを 2 回行う。

予備加熱 : 150～180℃／60～120 秒

はんだ付け: 240℃以上／20～40 秒

ピーク温度: 260℃以下

クリームはんだ: 千住金属製 M705-221 (鉛フリーはんだ)

#### 6.1.9 Solder Heat Resistance

Solder by setting reflow bath on the following condition.

Reflow soldering is carried out twice.

Test condition: (a) Pre-Heat Temperature : 150 to 180℃

(b) Pre-Heat Duration : 60 to 120sec.

(c) Soldering Temperature : 240℃ min.

(d) Soldering Duration : 20 to 40sec.

(e) Peak temperature: 260℃ max.

(f) Solder paste : Senju metal industry M705-221 (Lead free)

#### 6.1.10 はんだぬれ性

コネクタターミナル部を下記条件ではんだ付けする。

はんだ浴温度 : 245±5℃

浸漬時間 : 3±0.5 秒

#### 6.1.10 Solderability

The connector is soldered by the following condition

Test condition: (a) Soldering bath temp: 245±5℃

(b) Dipping time : 3±0.5sec.

|                                                                                                                                       |                                                     |                            |                  |
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## 7. 試験順序

### 7. Test sequence

試験の順序は、表 2 に示す。

Test sequence is shown in Table 2.

表 2. 試験順序  
Table 2. Test sequence

| 試験項目<br>Test item |                                            | 試験グループ Test group |        |        |        |        |   |   | 試験方法<br>Test Method |
|-------------------|--------------------------------------------|-------------------|--------|--------|--------|--------|---|---|---------------------|
|                   |                                            | 1                 | 2      | 3      | 4      | 5      | 6 | 7 |                     |
| 1                 | 接触抵抗<br>Contact resistance                 | ①<br>③            | ①<br>③ | ①<br>③ |        | ①<br>③ |   |   | 6.1.1               |
| 2                 | 絶縁抵抗<br>Insulation resistance              |                   |        |        | ①<br>④ |        |   |   | 6.1.2               |
| 3                 | 耐電圧<br>Dielectric with standing voltage    |                   |        |        | ②<br>⑤ |        |   |   | 6.1.3               |
| 4                 | 耐久性<br>Durability                          | ②                 |        |        |        |        |   |   | 6.1.4               |
| 5                 | 振動<br>Vibration                            |                   | ②      |        |        |        |   |   | 6.1.5               |
| 6                 | 高温高湿<br>Humidity                           |                   |        | ②      | ③      |        |   |   | 6.1.6               |
| 7                 | 熱衝撃<br>Thermal shock                       |                   |        |        |        | ②      |   |   | 6.1.7               |
| 8                 | はんだ耐熱性 (* 2)<br>Solder heat resistance(*2) |                   |        |        |        |        | ① |   | 6.1.8               |
| 9                 | はんだ付け性<br>Solderability                    |                   |        |        |        |        |   | ① | 6.1.9               |

## 8. 注記事項

### 8. Notice

\* 1. 本製品をご使用の際には、該当の Application specification を必ず一読して下さい。

\*1. Please be sure to look through application specification of relevance in the case of use of this product.

\* 2. モールドに若干ふくれが発生する場合がありますが、製品性能上問題ありません。

\*2. Although a swelling may occur a little on the surface of a mold, there is no problem on a function.

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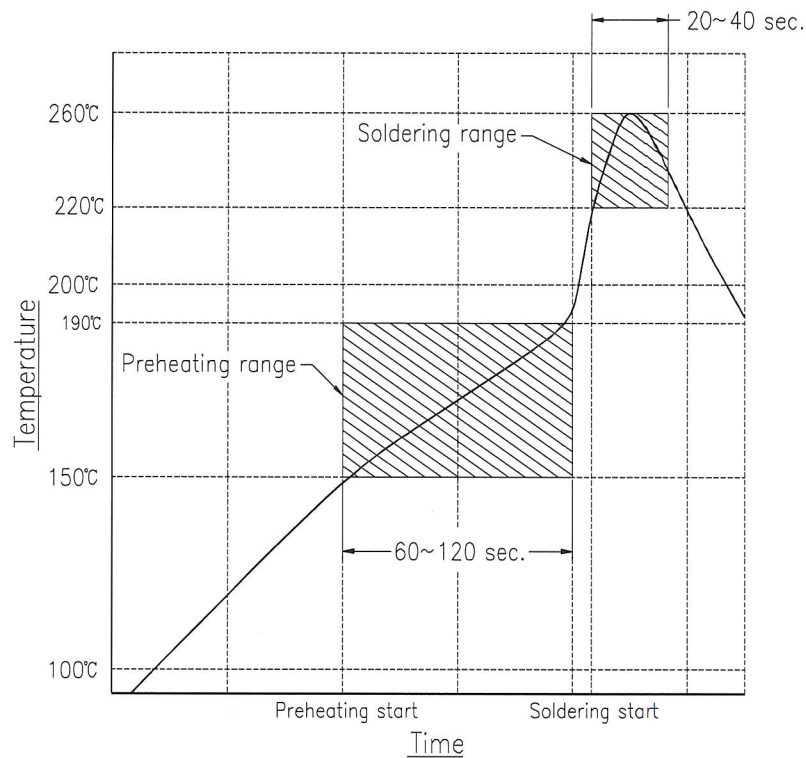


図 2.推奨リフロー温度プロファイル  
Fig.2 Recommendation reflow temperature profile

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|  | TYPE<br><b>製品規格</b><br><b>PRODUCT SPECIFICATION</b>                                                                                   | NUMBER<br><b>GS-12-367</b> |                   |
|                                                                                   | TITLE<br>10064555 シリーズ FPC 用コネクタ (0.3mm ピッチ、SMT タイプ、上接点タイプ)<br>10064555series FPC connector (0.3mm pitch,SMT type,Upper contact type) | PAGE<br>9 of 9             | REVISION<br>B     |
|                                                                                   |                                                                                                                                       | AUTHORIZED BY<br>Y.Kameda  | DATE<br>9/ 21/'07 |
| CLASSIFICATION<br><b>UNRESTRICTED</b>                                             |                                                                                                                                       |                            |                   |

# **REVISION RECORD**

| REV | PAGE | REVISION | ECR#     | DATE     |
|-----|------|----------|----------|----------|
| A   | ALL  | RELEASED | J06-0237 | 6/ 7/'06 |
| B   | ALL  | REVISED  | J07-0472 | 9/21'07  |
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