

**PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION**

**Part Number:** [0512811694](#)  
**Status:** **Active**  
**Overview:**  
**Description:** 0.50mm (.020") Pitch FFC/FPC Connector, SMT, Right Angle, Non-ZIF, Dual Contact Style, 1.20mm (.047") Mated Height, 16 Circuits, Lead-free, Gold (Au) Plating

**General**

Product Family FFC/FPC Connectors  
 Series [51281](#)  
 Overview [ffc\\_fpc\\_smt](#)  
 Product Name N/A

**Physical**

Circuits (Loaded) 16  
 Color - Resin Natural  
 Contact Position Dual  
 Durability (mating cycles max) 20  
 Entry Angle 90° Angle  
 Mated Height (in) 0.047 In  
 Mated Height (mm) 1.20 mm  
 Material - Metal Phosphor Bronze  
 Material - Plating Mating Gold  
 Material - Plating Termination Tin  
 Material - Resin High Temperature Thermoplastic  
 Number of Rows 1  
 Orientation Right Angle  
 PC Tail Length (in) 0.020 In  
 PC Tail Length (mm) 0.50 mm  
 PCB Locator No  
 PCB Retention Yes  
 Packaging Type Embossed Tape on Reel  
 Pitch - Mating Interface (in) 0.020 In  
 Pitch - Mating Interface (mm) 0.50 mm  
 Plating min: Mating (µin) 4  
 Plating min: Mating (µm) 0.1  
 Plating min: Termination (µin) 40  
 Plating min: Termination (µm) 1  
 Polarized to PCB Yes  
 Stackable No  
 Surface Mount Compatible (SMC) N/A  
 Temperature Range - Operating -20°C to +85°C  
 Termination Interface: Style Surface Mount  
 Wire/Cable Type FFC/FPC

**Electrical**

Current - Maximum per Contact 0.5A  
 Voltage - Maximum 50V

**Material Info**

**Reference - Drawing Numbers**

Packaging Specification SPK-51281-001  
 Product Specification PS-51281-003, RPS-51281-016, RPS-51281-017, RPS-51281-018  
 Sales Drawing SD-51281-011, SD-51281-012

**EU RoHS**

**ELV and RoHS Compliant**

**REACH SVHC**

Not Reviewed

**Halogen-Free**

**Status**

**Not Reviewed**

**China RoHS**



**Need more information on product environmental compliance?**

Email [productcompliance@molex.com](mailto:productcompliance@molex.com)  
 For a multiple part number RoHS Certificate of Compliance, [click here](#)

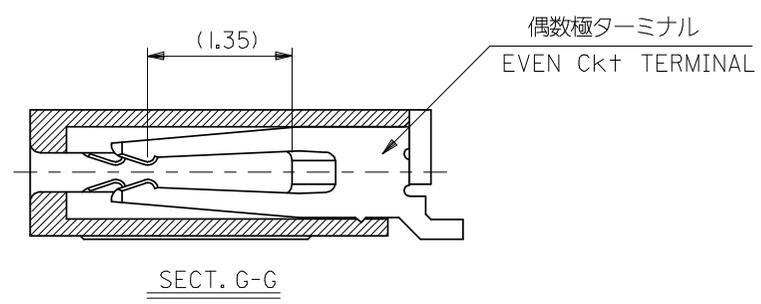
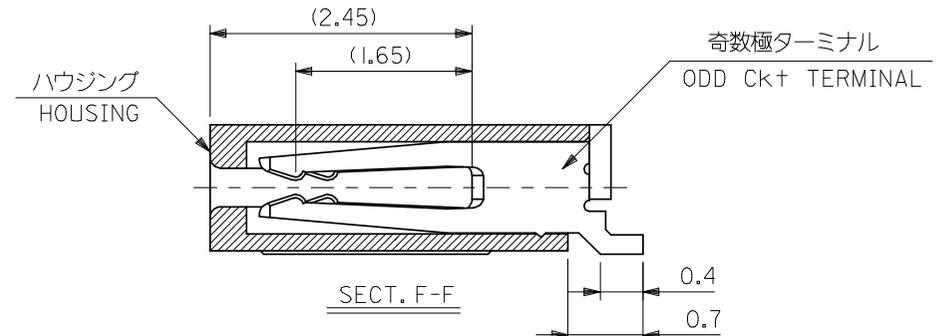
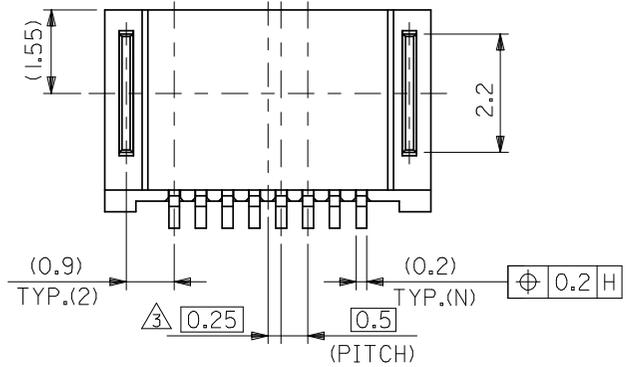
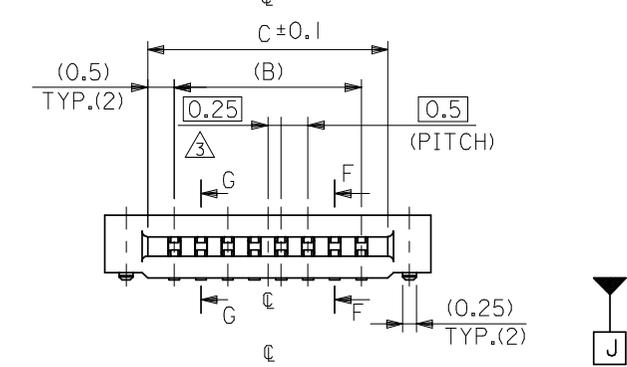
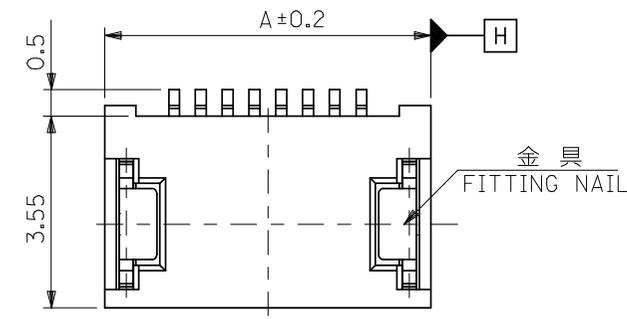
Please visit the [Contact Us](#) section for any non-product compliance questions.

**Search Parts in this Series**

[51281Series](#)

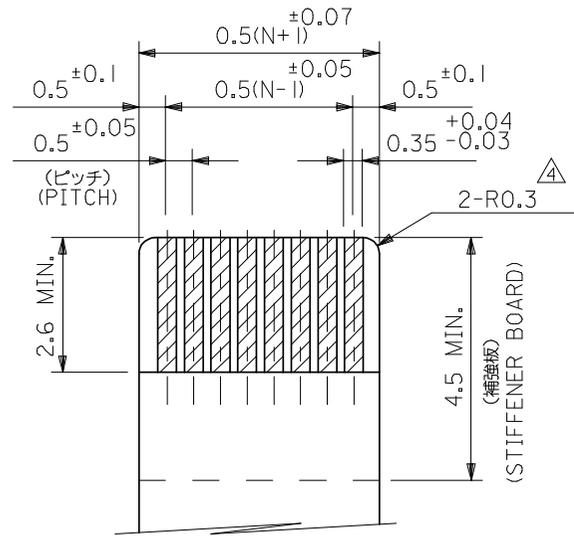
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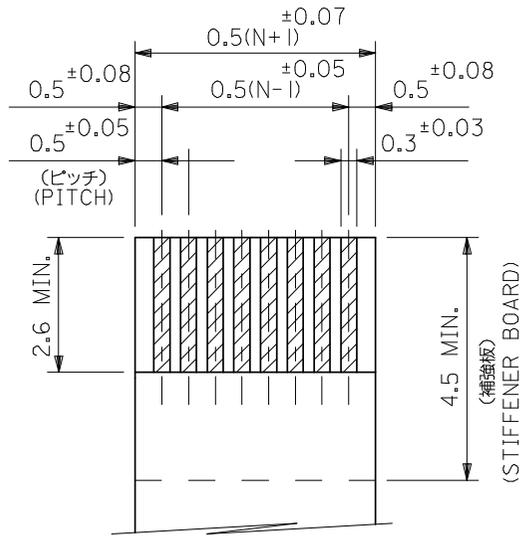


|      |      |      |                                   |              |         |
|------|------|------|-----------------------------------|--------------|---------|
| 13.5 | 12.5 | 15.1 | 51281-2694                        | 51281-2640   | 26      |
| 12.5 | 11.5 | 14.1 | 51281-2494                        | 51281-2440   | 24      |
| 11.5 | 10.5 | 13.1 | 51281-2294                        | 51281-2240   | 22      |
| 10.5 | 9.5  | 12.1 | 51281-2094                        | 51281-2040   | 20      |
| 9.5  | 8.5  | 11.1 | 51281-1894                        | 51281-1840   | 18      |
| 8.5  | 7.5  | 10.1 | 51281-1694                        | 51281-1640   | 16      |
| 7.5  | 6.5  | 9.1  | 51281-1494                        | 51281-1440   | 14      |
| 6.5  | 5.5  | 8.1  | 51281-1294                        | 51281-1240   | 12      |
| 5.5  | 4.5  | 7.1  | 51281-1094                        | 51281-1040   | 10      |
| 5.0  | 4.0  | 6.6  | 51281-0994                        | 51281-0940   | 9       |
| 4.5  | 3.5  | 6.1  | 51281-0894                        | 51281-0840   | 8       |
| 3.5  | 2.5  | 5.1  | 51281-0694                        | 51281-0640   | 6       |
| 3.0  | 2.0  | 4.6  | 51281-0594                        | 51281-0540   | 5       |
| C    | B    | A    | EMBOSSED TAPE<br>ORDER No. オーダー番号 | MATERIAL NO. | CIRCUIT |

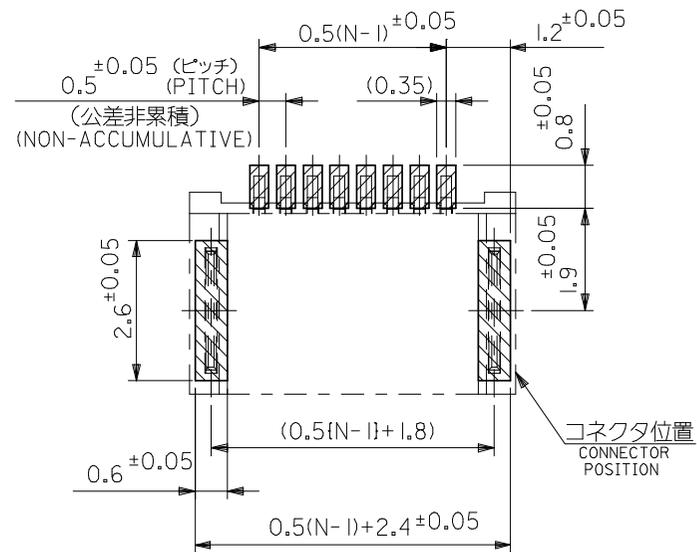
|   |                                       |       |  |                    |  |                              |                        |
|---|---------------------------------------|-------|--|--------------------|--|------------------------------|------------------------|
| <b>REVISED</b><br>EC NO: J2008-4308<br>DRWN: MWABEL 2008/06/27<br>CHKD: THARUYAMA 2008/06/30<br>APPR: NUKITA 2008/06/30 | GENERAL TOLERANCES (UNLESS SPECIFIED) |       | DIMENSION STYLE<br>MM ONLY                                 |                    | SCALE<br>---   | DESIGN UNITS<br>METRIC       | THIRD ANGLE PROJECTION |
|   | 10 UNDER                              | ±0.2  | DRAWN BY<br>KENSUZUKI                                      | DATE<br>2004/10/19 | TITLE<br>0.5 FPC CONN NON-ZIF<br>HSG ASSY (HGT=1.2MM)<br>-LEAD FREE-   |                              |                        |
|   | 10 OVER 30 UNDER                      | ±0.25 | CHECKED BY<br>NUKITA                                       | DATE<br>2004/10/19 | MOLEX INCORPORATED   |                              |                        |
|   | 30 OVER                               | ±0.3  | APPROVED BY<br>NUKITA                                      | DATE<br>2004/10/19 | MATERIAL NO.<br>SEE TABLE  | DOCUMENT NO.<br>SD-51281-011 | SHEET NO.<br>1 OF 2    |
|   | ANGULAR ±3 °                          |       | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |                    | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |                              |                        |



適合FPC推奨寸法  
APPLICABLE FPC  
RECOMMENDED DIMENSION  
(仕上がり厚さ: 0.3 ± 0.03)  
(THICKNESS: 0.3 ± 0.03)



適合FFC推奨寸法  
APPLICABLE FFC  
RECOMMENDED DIMENSION  
(仕上がり厚さ: 0.3 ± 0.03)  
(THICKNESS: 0.3 ± 0.03)



参考基板レイアウト図  
RECOMMENDED P.C. BOARD LAYOUT  
(マウント面)  
(MOUNTING SIDE)

注記 NOTES

1. 使用材料 MATERIAL

ハウジング : 液晶ポリマー ガラス充填 UL94V-0  
HOUSING : LIQUID CRYSTAL POLYMER (GLASS FILLED) UL94V-0  
ターミナル : リン青銅 (t=0.2), ニッケル下地  
CONTACT部: 金メッキ  
TAIL部: 錫メッキ  
TERMINAL : PHOSPHOR-BRONZE , CONTACT : GOLD  
TAIL : TIN  
OVER NICKEL PLATING

金具 : リン青銅 (t=0.25), ニッケル下地 純錫メッキ  
FITTING NAIL : PHOSPHOR-BRONZE , PURE-TIN OVER NICKEL PLATING.

△ ソルダータール半田付け面のズレ量、及び金具半田付け面のズレ量は、基準面 J に対し、  
上方向 0.1 MAXIMUM 下方向 0.15 MAXIMUM とする。  
又、相互のバラツキ量は 0.1 MAXIMUM とする。  
MISALIGNMENT OF SOLDER TAILS AND FITTING NAILS FROM J  
UPPER DIRECTION : 0.1 MAXIMUM , LOWER DIRECTION : 0.15 MAXIMUM.  
OFFSET BETWEEN SOLDER TAILS AND FITTING NAILS : 0.1 MAXIMUM.

△ 偶数極に適用。

TO BE APPLIED ONLY WHEN ALL CIRCUIT ARE EVEN.

△ R0.3は、FPCの導体部にかからないこと。

R0.3 MUST NOT BE ENLAPPED TO PATTERN OF FPC.

5. FPC/FFCについて:

打抜き方向は導体側から補強板側を推奨いたします。  
導体部については軟銅箔35μmまたは50μm  
メッキ厚 0.1μm 金メッキ (電気メッキ)  
を推奨いたします。

RECOMMENDED PUNCHER DIRECTION :  
FROM CONDUCTOR SIDE TO STIFFENER BOARD SIDE.

RECOMMENDED CONDUCTOR SPEC :  
THICKNESS OF SOFT COPPER FOIL : 35 μm or 50 μm  
GOLD PLATING : 0.1 μm (ELECTRICAL PLATING)

6. 本製品は51281-\*\*-20の鉛フリー品である。  
THIS PRODUCT IS LEAD FREE OF 51281-\*\*-20.

7. ソルダータールの平坦度は、0.1 MAXIMUM とする。  
SOLDER TAIL COPLANARITY IS 0.1 MAXIMUM.

|  |   |  |       |                             |                    |  |                              |                           |
|--|---|--|-------|-----------------------------|--------------------|--|------------------------------|---------------------------|
| REVISED<br>EC NO: J2008-4308<br>DRWN: WABEI<br>CHKD: THARUYAMA<br>APPR: NUKITA | DESCRIPTION<br>2008/06/27<br>2008/06/30 | GENERAL TOLERANCES (UNLESS SPECIFIED)  |       | DIMENSION STYLE<br>MM ONLY  |                    | SCALE<br>---   | 51281-**-40                  | MODEL NO.                 |
|  |   | 10 UNDER   | ±0.2  | DRAWN BY<br>KENSUZUKI       | DATE<br>2004/10/19 | TITLE<br>0.5 FPC CONN NON-ZIF<br>HSG ASSY (HGT=1.2MM)<br>-LEAD FREE- | DESIGN UNITS<br>METRIC       | THIRD ANGLE<br>PROJECTION |
|  |   | 10 OVER 30 UNDER   | ±0.25 | CHECKED BY<br>NUKITA        | DATE<br>2004/10/19 | MOLEX<br>MOLEX INCORPORATED  | DOCUMENT NO.<br>SD-51281-011 | SHEET NO.<br>2 OF 2       |
|  |   | 30 OVER  | ±0.3  | APPROVED BY<br>NUKITA       | DATE<br>2004/10/19 |  |                              |                           |
| ANGULAR ±3°  |   | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS   |       | MATERIAL NO.<br>SEE SHEET 1 |                    |  |                              |                           |
| SIZE<br>A3   |   | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |       |                             |                    |  |                              |                           |

F

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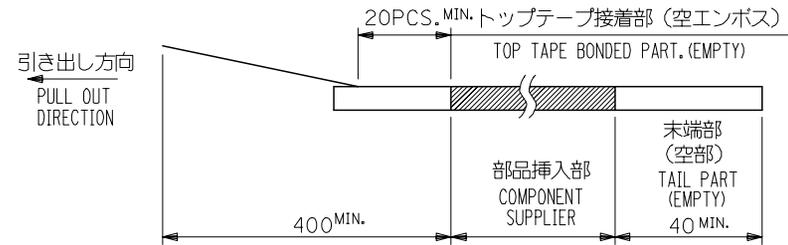
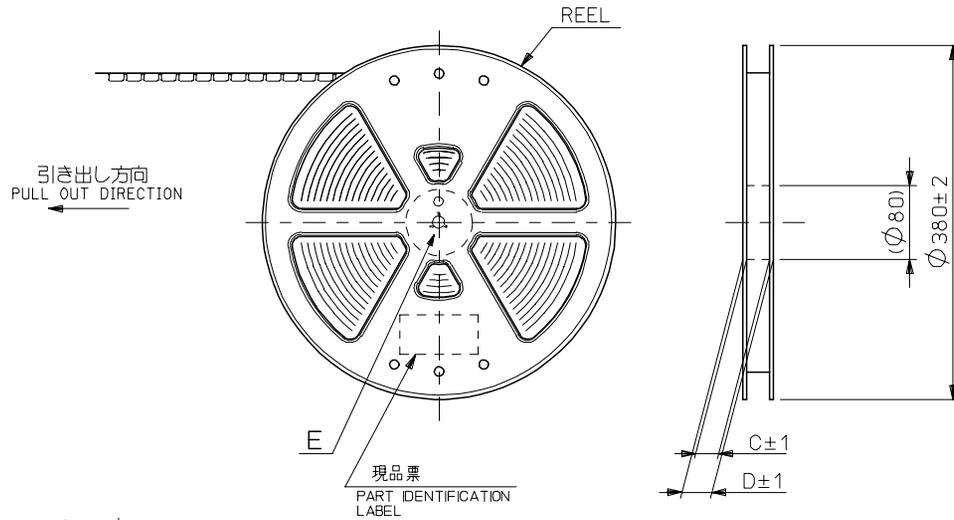
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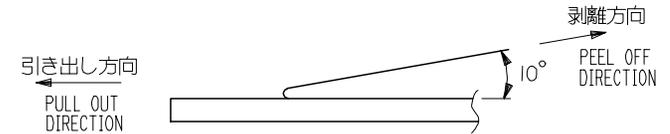
NOTES

- 製品詳細寸法については図面 SD-51281-011 を参照下さい。  
RE DETAILED DIMENSION, SEE SD-51281-011
- 梱包数量：3000個/リール  
NUMBER OF CONNECTORS : 3000PCS/REEL
- リードテープ長さ LEAD TAPE LENGTH

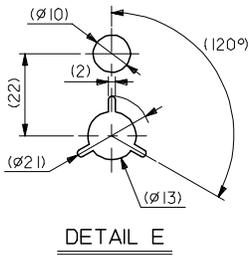


- トップテープの剥離強度：0.1N~1.3N {10gf~130gf} (剥離方向は下図参照)

尚、本規格値は出荷時に適用。(但し、輸送時に剥離が発生しないこと。)  
PEELING OFF FORCE OF TOP TAPE : 0.1N~1.3N {10gf~130gf}  
(PEELING DIRECTION AS SHOWN IN FOLLOWING FIG.)  
THIS REQUIREMENT SHOULD BE APPLIED AT SHIPMENT.  
PEEL OFF SHOULD NOT BE ALLOWED , DURING TRANSPORTATION.



- 材料 (MATERIAL)  
キャリアテープ (CARRIER TAPE) : ポリプロピレン (POLYPROPYLENE)  
トップテープ (TOPTAPE) : PET , PE , PEF  
リール (REEL) : ポリスチレン (PS) <リサイクル材含む>  
POLYSTYREN (PS) <RECYCLE MATERIAL CONTAINED>
- C, D 寸法は SHEET 2 ~ 3 を参照下さい。  
SEE SHEET 2 ~ 3 (DIMENSION C, D).



DETAIL E

|  |             |   |       |                            |                    |   |                        |                           |
|--|-------------|---|-------|----------------------------|--------------------|---|------------------------|---------------------------|
| REVISED<br>EC NO: J2006-0559<br>DRWN: NABEI 2005/08/22<br>CHKD: TOYODA 2005/08/23<br>APPR: NUKITA 2005/08/26 | DESCRIPTION | GENERAL TOLERANCES (UNLESS SPECIFIED)   |       | DIMENSION STYLE<br>MM ONLY |                    | SCALE<br>---  | 51281-xx94             | MODEL NO.                 |
|  |             | 10 UNDER  | ±0.2  | DRAWN BY<br>KENSUZUKI      | DATE<br>2004/10/19 | TITLE   | DESIGN UNITS<br>METRIC | THIRD ANGLE<br>PROJECTION |
|  |             | 10 OVER 30 UNDER  | ±0.25 | CHECKED BY<br>NUKITA       | DATE<br>2004/10/19 | 0.5 FPC CONN NON-ZIF<br>(HGT=1.2MM) EMBSTP PKG<br>-LEAD FREE- | MOLEX                  | SHEET NO.<br>1 OF 4       |
|  |             | 30 OVER   | ±0.3  | APPROVED BY<br>NUKITA      | DATE<br>2004/10/19 |   |                        |                           |
| ANGULAR ±3 °   |             | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS  |       | MATERIAL NO.<br>SEE CHART  |                    | DOCUMENT NO.<br>SD-51281-012                                  |                        |                           |
| SIZE<br>A3   |             | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |       |                            |                    |   |                        |                           |

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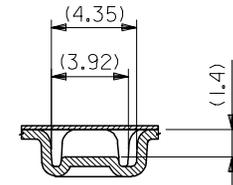
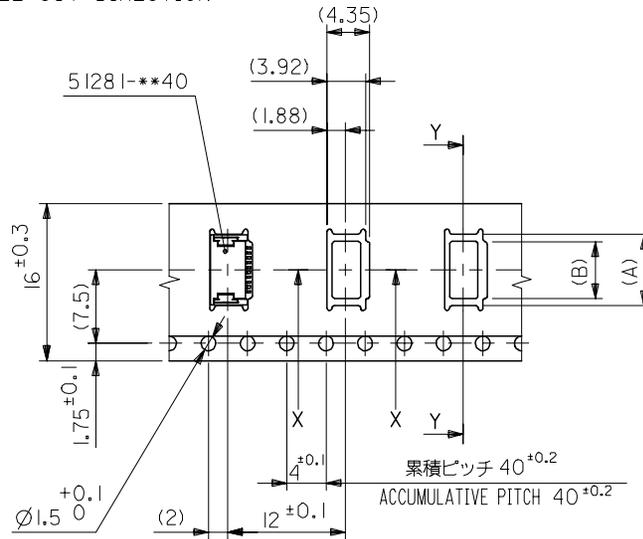
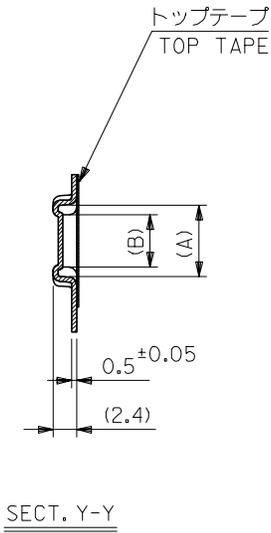
D

C

B

A

引き出し方向  
PULL OUT DIRECTION



16mm幅キャリアテープ  
16mm WIDTH CARRIER TAPE

|                                |      |      |     |     |                      |           |
|--------------------------------|------|------|-----|-----|----------------------|-----------|
| 16                             | 21.4 | 17.4 | 4.3 | 6.3 | 51281-0894           | 8         |
|                                |      |      | 3.3 | 5.3 | 51281-0694           | 6         |
|                                |      |      | 2.8 | 4.8 | 51281-0594           | 5         |
| キャリアテープ幅<br>CARRIER TAPE WIDTH | D    | C    | (B) | (A) | 製品番号<br>MATERIAL No. | 極数<br>Ck+ |
| 51281-***94                    |      |      |     |     | MODEL NO.            |           |

|  |   |  |  |                       |                    |                           |  |                              |
|--|---|--|--|-----------------------|--------------------|---------------------------|--|------------------------------|
| REVISED<br>EC NO: J2006-0559<br>DRWN: NABEI 2005/08/22<br>CHKD: TOYODA 2005/08/23<br>APPR: NUKITA 2005/08/26 | DESCRIPTION<br>GENERAL TOLERANCES<br>(UNLESS SPECIFIED) | DIMENSION STYLE<br>MM ONLY                                 |  | SCALE                 | DESIGN UNITS       | THIRD ANGLE<br>PROJECTION |  |                              |
|  |   | 10 UNDER ± 0.2<br>10 OVER 30 UNDER ± 0.25<br>30 OVER ± 0.3 |  | ---                   | METRIC             |                           |  |                              |
|  |   | ANGULAR ± 3 °  |  | DRAWN BY<br>KENSUZUK  | DATE<br>2004/10/19 |                           | TITLE<br>0.5 FPC CONN NON-ZIF<br>(HGT=1.2MM) EMBSTP PKG<br>-LEAD FREE- |                              |
|  |   | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |  | CHECKED BY<br>NUKITA  | DATE<br>2004/10/19 |                           | MOLEX INCORPORATED   |                              |
|  |   |  |  | APPROVED BY<br>NUKITA | DATE<br>2004/10/19 |                           | MATERIAL NO.<br>SEE CHART  | DOCUMENT NO.<br>SD-51281-012 |

10 9 8 7 6 5 4 3 2 1

F

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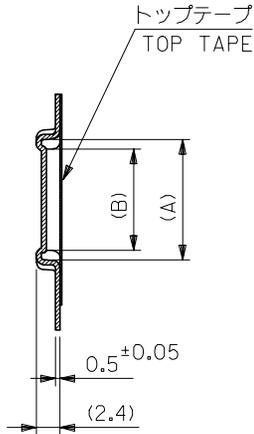
D

C

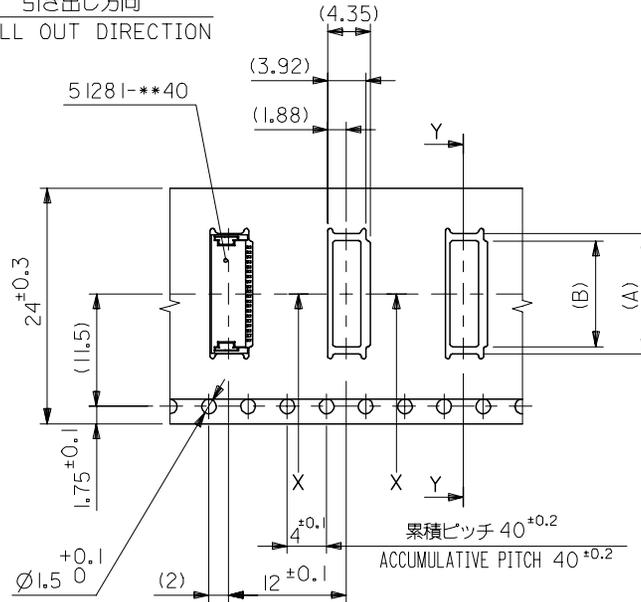
B

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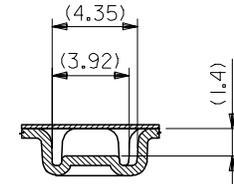
引き出し方向  
PULL OUT DIRECTION



SECT. Y-Y



24mm幅キャリアテープ  
24mm WIDTH CARRIER TAPE



SECT. X-X

|                                |      |      |             |      |            |     |                      |           |
|--------------------------------|------|------|-------------|------|------------|-----|----------------------|-----------|
| 24                             | 29.4 | 25.4 | 12.3        | 14.3 | 51281-2494 | 24  |                      |           |
|                                |      |      | 11.3        | 13.3 | 51281-2294 | 22  |                      |           |
|                                |      |      | 10.3        | 12.3 | 51281-2094 | 20  |                      |           |
|                                |      |      | 9.3         | 11.3 | 51281-1894 | 18  |                      |           |
|                                |      |      | 8.3         | 10.3 | 51281-1694 | 16  |                      |           |
|                                |      |      | 7.3         | 9.3  | 51281-1494 | 14  |                      |           |
|                                |      |      | 6.3         | 8.3  | 51281-1294 | 12  |                      |           |
|                                |      |      | 5.3         | 7.3  | 51281-1094 | 10  |                      |           |
|                                |      |      | 4.8         | 6.8  | 51281-0994 | 9   |                      |           |
| キャリアテープ幅<br>CARRIER TAPE WIDTH |      |      | D           | C    | (B)        | (A) | 製品番号<br>MATERIAL No. | 極数<br>Ck+ |
|                                |      |      | 51281-**-94 |      | MODEL No.  |     |                      |           |

|   |   |  |       |  |  |                        |                           |
|---|---|--|-------|--|--|------------------------|---------------------------|
| REVISED<br>EC NO: J2006-0559<br>DRWN: NABEI 2005/08/22<br>CHKDK: TOYODA 2005/08/23<br>APPR: NUKITA 2005/08/26 | DESCRIPTION<br>GENERAL TOLERANCES<br>(UNLESS SPECIFIED) | 10 UNDER   | ±0.2  | DIMENSION STYLE<br>MM ONLY   | SCALE<br>---   | DESIGN UNITS<br>METRIC | THIRD ANGLE<br>PROJECTION |
|   |   | 10 OVER 30 UNDER   | ±0.25 |  |  |                        |                           |
|   |   | 30 OVER  | ±0.3  | DRAWN BY DATE<br>KENSUZUKI 2004/10/19<br>CHECKED BY DATE<br>NUKITA 2004/10/19<br>APPROVED BY DATE<br>NUKITA 2004/10/19 | TITLE<br>0.5 FPC CONN NON-ZIF<br>(HGT=1.2MM) EMBSTP PKG<br>-LEAD FREE- |                        |                           |
|   |   | ANGULAR  | ±3 °  |  |  |                        |                           |
|   |   | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |       | MATERIAL NO.<br>SEE CHART  | DOCUMENT NO.<br>SD-51281-012   | SHEET NO.<br>3 OF 4    |                           |

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10 9 8 7 6 5 4 3 2 1

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E

D

D

C

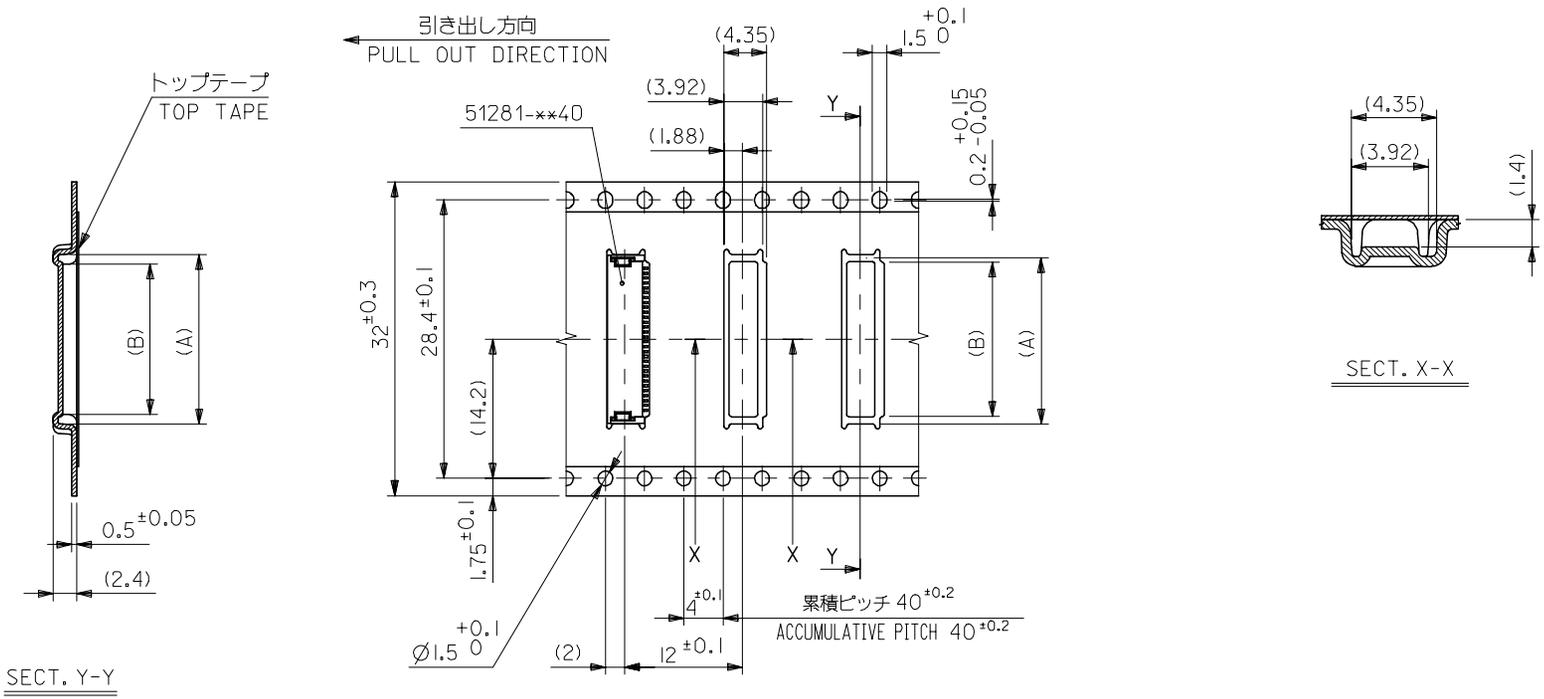
C

B

B

A

A



32mm幅キャリアテープ  
32mm WIDTH CARRIER TAPE

|                                |      |      |      |      |                      |           |
|--------------------------------|------|------|------|------|----------------------|-----------|
| 32                             | 37.4 | 33.4 | 13.3 | 15.3 | 51281-2694           | 26        |
| キャリアテープ幅<br>CARRIER TAPE WIDTH | D    | C    | (B)  | (A)  | 製品番号<br>MATERIAL No. | 極数<br>CK+ |

|   |                                       |  |                            |                    |   |                        |                        |
|---|---------------------------------------|--|----------------------------|--------------------|---|------------------------|------------------------|
| REVISED<br>EC NO: J2006-0559<br>DRWN: NABEI 2005/08/22<br>CHKDK: TOYODA 2005/08/23<br>APPR: NUKITA 2005/08/26 | GENERAL TOLERANCES (UNLESS SPECIFIED) |  | DIMENSION STYLE<br>MM ONLY |                    | SCALE<br>---  | DESIGN UNITS<br>METRIC | THIRD ANGLE PROJECTION |
|   | 10 UNDER                              | ±0.2   | DRAWN BY<br>KENSUZUKI      | DATE<br>2004/10/19 | TITLE<br>0.5 FPC CONN NON-ZIF<br>(HGT=1.2MM) EMBSTP PKG<br>-LEAD FREE-              |                        |                        |
|   | 10 OVER 30 UNDER                      | ±0.25  | CHECKED BY<br>NUKITA       | DATE<br>2004/10/19 |   |                        |                        |
|   | 30 OVER                               | ±0.3   | APPROVED BY<br>NUKITA      | DATE<br>2004/10/19 | MOLEX INCORPORATED<br>MATERIAL NO. _____ DOCUMENT NO. SD-51281-012 SHEET NO. 4 OF 4 |                        |                        |
| ANGULAR   | ±3 °                                  | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |                            | SIZE<br>A3         |   |                        |                        |

9

8

7

6

5

4

3

2

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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