

PLEASE CHECK WWW.MOLEX.COM FOR LATEST PART INFORMATION

**Part Number:** 0545481071  
**Status:** Active  
**Overview:** ffc\_fpc\_smt  
**Description:** 0.50mm (.020") Pitch FFC/FPC Connector, 1.20mm (.047") Height, Right Angle, SMT, ZIF, Bottom Contact Style, 10 Circuits, Lead-free, Gold Contact Plating

**Documents:**  
[3D Model](#)  
[Drawing \(PDF\)](#)  
[Product Specification PS-54548-039 \(PDF\)](#)  
[RoHS Certificate of Compliance \(PDF\)](#)

**General**

Product Family FFC/FPC Connectors  
Series 54548  
Overview ffc\_fpc\_smt  
Product Name N/A

**Physical**

Circuits (Loaded) 10  
Contact Position Bottom  
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  
Number of Rows 1  
Orientation Right Angle  
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  
Polarized to PCB Yes  
Stackable No  
Temperature Range - Operating -20°C to +85°C  
Termination Interface: Style Surface Mount  
Wire/Cable Type FFC/FPC

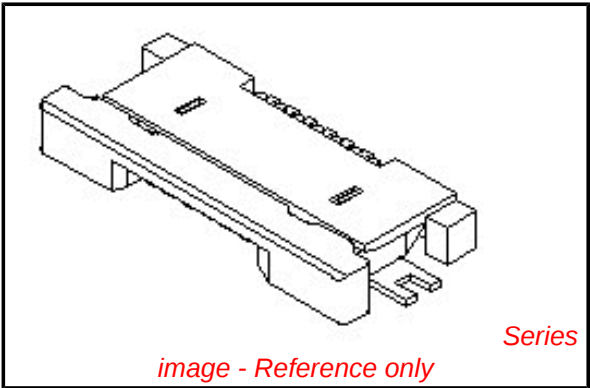
**Electrical**

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

**Material Info**

**Reference - Drawing Numbers**

Packaging Specification SPK-54548-001  
Product Specification PS-54548-039, RPS-54548-083, RPS-54548-085, RPS-54548-091, RPS-54548-097, RPS-54548-099  
Sales Drawing SD-54548-039, SD-54548-040



**EU RoHS**  
**ELV and RoHS**  
**Compliant**  
**REACH SVHC**  
Not Reviewed  
**Halogen-Free**  
**Status**  
**Not Reviewed**

**China RoHS**

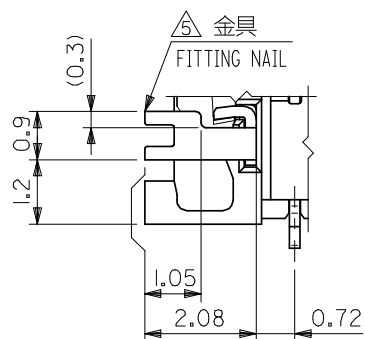
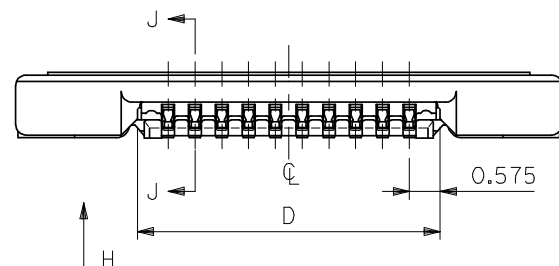
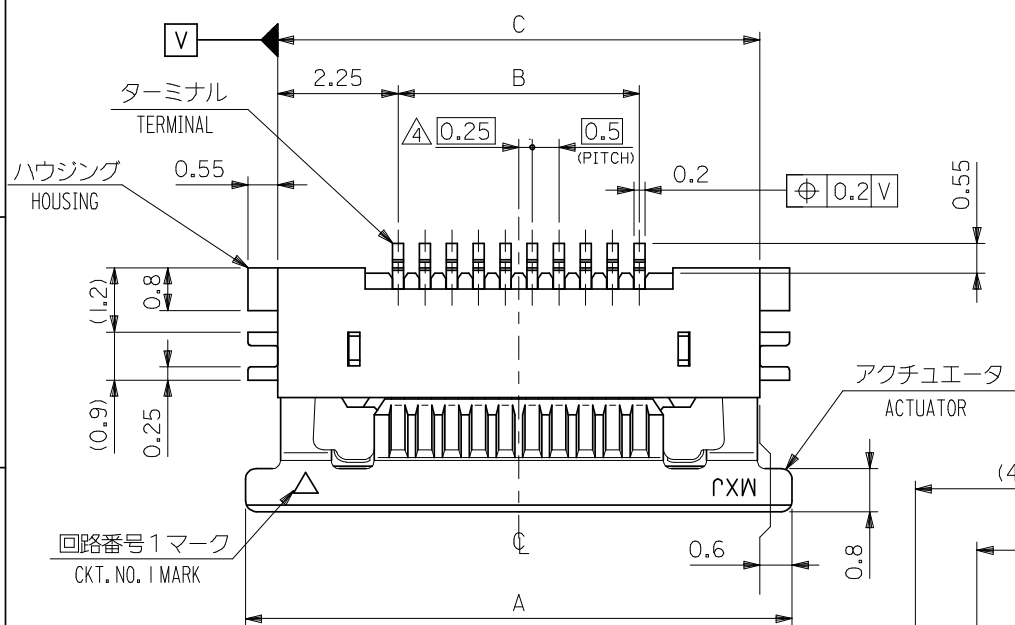


**Need more information on product environmental compliance?**

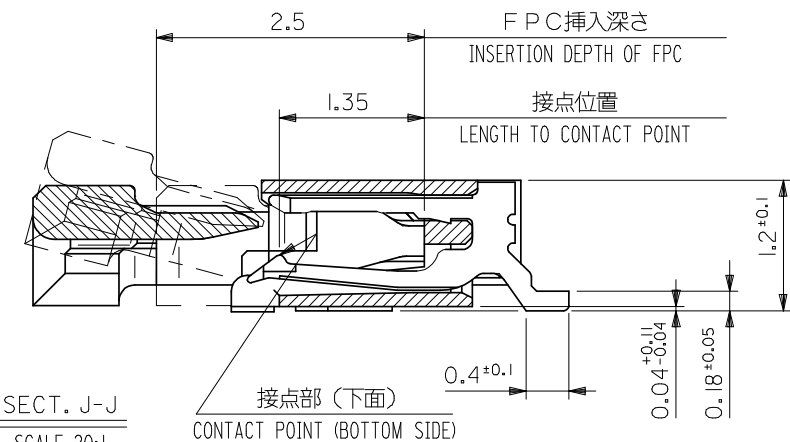
Email [productcompliance@molex.com](mailto:productcompliance@molex.com)  
For a multiple part number RoHS Certificate of Compliance, [click here](#)

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

**Search Parts in this Series**  
54548Series



VIEW H



SECT. J-J  
SCALE 20:1

|               |       |      |      |      |                                  |                      |           |
|---------------|-------|------|------|------|----------------------------------|----------------------|-----------|
| 0.28±0.03     | 13.65 | 17.0 | 12.5 | 18.2 | 54548-2671                       | 54548-2629           | 26        |
|               | 12.65 | 16.0 | 11.5 | 17.2 | 54548-2471                       | 54548-2429           | 24        |
| 0.3±0.03      | 12.15 | 15.5 | 11.0 | 16.7 | 54548-2371                       | 54548-2329           | 23        |
|               | 11.65 | 15.0 | 10.5 | 16.2 | 54548-2271                       | 54548-2229           | 22        |
|               | 11.15 | 14.5 | 10.0 | 15.7 | 54548-2171                       | 54548-2129           | 21        |
|               | 10.65 | 14.0 | 9.5  | 15.2 | 54548-2071                       | 54548-2029           | 20        |
|               | 10.15 | 13.5 | 9.0  | 14.7 | 54548-1971                       | 54548-1929           | 19        |
|               | 9.65  | 13.0 | 8.5  | 14.2 | 54548-1871                       | 54548-1829           | 18        |
|               | 9.15  | 12.5 | 8.0  | 13.7 | 54548-1771                       | 54548-1729           | 17        |
|               | 8.65  | 12.0 | 7.5  | 13.2 | 54548-1671                       | 54548-1629           | 16        |
|               | 8.15  | 11.5 | 7.0  | 12.7 | 54548-1571                       | 54548-1529           | 15        |
|               | 7.65  | 11.0 | 6.5  | 12.2 | 54548-1471                       | 54548-1429           | 14        |
|               | 7.15  | 10.5 | 6.0  | 11.7 | 54548-1371                       | 54548-1329           | 13        |
|               | 6.65  | 10.0 | 5.5  | 11.2 | 54548-1271                       | 54548-1229           | 12        |
|               | 6.15  | 9.5  | 5.0  | 10.7 | 54548-1171                       | 54548-1129           | 11        |
|               | 5.65  | 9.0  | 4.5  | 10.2 | 54548-1071                       | 54548-1029           | 10        |
|               | 5.15  | 8.5  | 4.0  | 9.7  | 54548-0971                       | 54548-0929           | 9         |
|               | 4.65  | 8.0  | 3.5  | 9.2  | 54548-0871                       | 54548-0829           | 8         |
|               | 4.15  | 7.5  | 3.0  | 8.7  | 54548-0771                       | 54548-0729           | 7         |
|               | 3.65  | 7.0  | 2.5  | 8.2  | 54548-0671                       | 54548-0629           | 6         |
|               | 3.15  | 6.5  | 2.0  | 7.7  | 54548-0571                       | 54548-0529           | 5         |
|               | 2.65  | 6.0  | 1.5  | 7.2  | 54548-0471                       | 54548-0429           | 4         |
| FPC THICKNESS | D     | C    | B    | A    | EMBOSSD TAPE<br>ORDER No. オーダー番号 | 製品番号<br>MATERIAL No. | 極数<br>Ck+ |

|                                                                                                                                  |  |                                                                          |                        |                           |                     |
|----------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------|------------------------|---------------------------|---------------------|
| DIMENSION STYLE<br>MM ONLY                                                                                                       |  | SCALE<br>10:1                                                            | DESIGN UNITS<br>METRIC | 54548-**29                | MODEL No.           |
| DRAWN BY DATE<br>HSHIMABUKURO '04/02/10                                                                                          |  | TITLE<br>0.5 FPC CONN ZIF HSG<br>ASSY FOR SMT RA BTM CONT<br>-LEAD FREE- |                        | THIRD ANGLE<br>PROJECTION |                     |
| CHECKED BY DATE<br>KTOJO '04/02/10                                                                                               |  | MOLEX INCORPORATED                                                       |                        |                           |                     |
| APPROVED BY DATE<br>MSASAO '04/02/10                                                                                             |  |                                                                          |                        |                           |                     |
| MATERIAL NO.<br>SEE TABLE                                                                                                        |  | DOCUMENT NO.<br>SD-54548-039                                             |                        |                           | SHEET NO.<br>1 OF 2 |
| THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |  |                                                                          |                        |                           |                     |

|         |                   |                                                 |                                        |             |                                                            |        |
|---------|-------------------|-------------------------------------------------|----------------------------------------|-------------|------------------------------------------------------------|--------|
| REVISED | EC NO: J2008-4048 | DRWN: MNABEI<br>CH'KD: THARYAMA<br>APPR: NUKITA | 2008/06/13<br>2008/06/16<br>2008/06/16 | DESCRIPTION | GENERAL TOLERANCES<br>(UNLESS SPECIFIED)                   |        |
|         |                   |                                                 |                                        |             | 10 UNDER                                                   | ± 0.2  |
|         |                   |                                                 |                                        |             | 10 OVER 30 UNDER                                           | ± 0.25 |
|         |                   |                                                 |                                        |             | 30 OVER                                                    | ± 0.3  |
|         |                   |                                                 |                                        |             | ANGULAR                                                    | ± 3 °  |
|         |                   |                                                 |                                        | REV         | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |        |

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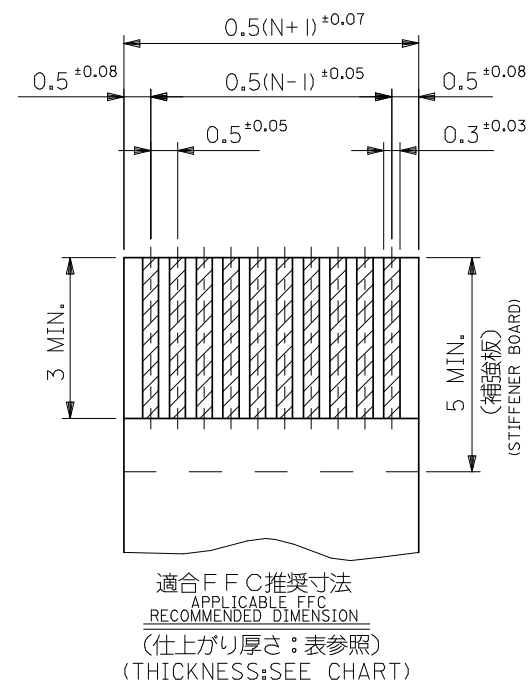
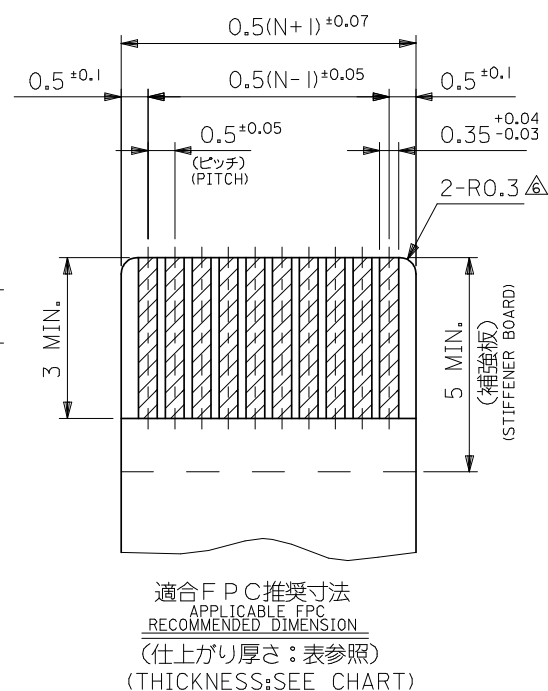
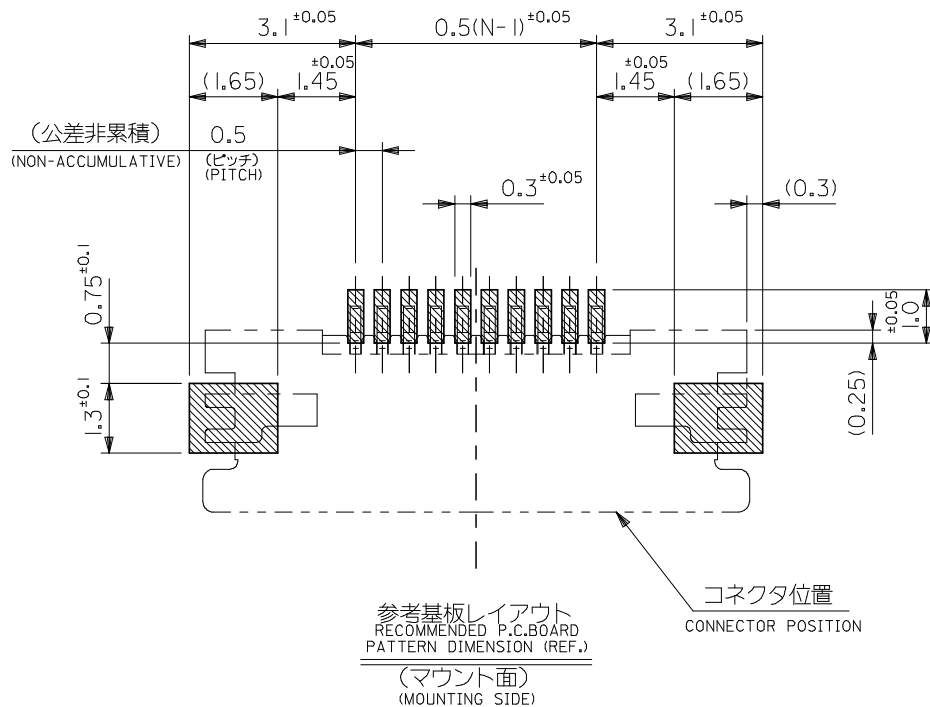
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## 注記 NOTES

### I. 使用材料 MATERIAL

ハウジング : LCP, UL94V-0  
HOUSING

アクチュエータ : PPS, UL94V-0  
ACTUATOR

ターミナル : リン青銅 (t=0.2)  
TERMINAL PHOSPOR BRONZE

メッキ : 接点部: 金メッキ  
PLATING CONTACT PORTION : GOLD PLATING

テール部: 鍍メッキ  
SOLDERING PORTION : TIN OVER PLATING

下地: ニッケルメッキ  
UNDER PLATING: NICKEL PLATING

金具 : リン青銅、鍍メッキ (t=0.2)  
FITTING NAIL PHOSPOR BRONZE, TIN PLATING

下地: ニッケルメッキ  
UNDER PLATING: NICKEL PLATING

△ パターンはくり止め用金具  
FITTING NAIL FOR PREVENTION OF PEELING  
OF P.C.B. PATTERN.

△ R0.3はFPC導体部にかからないこと  
R0.3 MUST NOT BE OVERLAPPED TO PATTERN OF FPC.

7. 本製品は54548-\*\*-21の鉛フリー(部分金メッキ)品である。  
THIS PRODUCT IS LEAD FREE OF 54548-\*\*-21 (SELECTIVE GOLD).

8. N: 極数 N: CIRCUIT.

2. エンボステープ梱包時は、アクチュエータがロックした状態とする。  
IN THE PACKAGE, ACTUATOR OF PART NO.54548-\*\*-29 SHOULD BE LOCKED.

△ 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 Z  
に対し上方向 0 MAX.、下方向 0.15 MAX.とし  
相互のバツキ量は0.1 MAX.とする。  
MISALIGNMENT OF SOLDER TAILS AND FITTING NAILS FROM Z  
UPPER DIRECTION: 0 MAX., LOWER DIRECTION: 0.15 MAX.  
OFFSET BETWEEN UPPER AND LOWER 0.1 MAX.

△ 偶数極に適用。  
APPLY FOR EVEN CIRCUIT.

### FPC/FFC について:

打ち抜き方向は導体側から補強板側を推奨します。  
導体部については軟銅箔35 $\mu$ mまたは50 $\mu$ mを推奨します。

### ABOUT FPC/FFC

RECOMMENDED PUNCHER DIRECTION : FROM CONDUCTOR SIDE TO STIFFENER FILM SIDE.  
RECOMMENDED CONDUCTOR SPEC :  
THICKNESS OF SOFT COPPER FOIL : 35 MICROMETER OR 50 MICROMETER.

### FPC について:

補強フィルム材質はポリイミドを推奨します。ベースフィルムは25 $\mu$ mを推奨します。  
接着剤は熱硬化接着剤を推奨します。  
尚、接着剤の接点部への付着は導通不良の原因になりますので、染み出しが無い様、お願い致します。

### ABOUT FPC

RECOMMENDED MATERIAL/THICKNESS.  
STIFFENER FILM : POLYIMIDE  
BASE FILM THICKNESS : 25 $\mu$ m  
BONDING AGENT : THERMOSETTING BONDING AGENT  
PLEASE PUT APPROPRIATE AMOUNT OF ADHESIVE ON THE CONTACT  
AREA BECAUSE THE EXTRA ADHESIVE MAY CAUSE THE DEFECT IN  
ELECTRICAL CONTINUITY.

|         |  |                   |  |            |  |             |  |            |  |                 |  |            |  |             |  |             |  |                                                            |  |                            |  |                          |  |                        |  |                                                                          |  |           |  |                                                                                                                                  |  |  |  |
|---------|--|-------------------|--|------------|--|-------------|--|------------|--|-----------------|--|------------|--|-------------|--|-------------|--|------------------------------------------------------------|--|----------------------------|--|--------------------------|--|------------------------|--|--------------------------------------------------------------------------|--|-----------|--|----------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| REVISED |  | EC NO: J2008-4048 |  | 2008/06/13 |  | DRWN:MMABEI |  | 2008/06/16 |  | CHK'D:THARUYAMA |  | 2008/06/16 |  | APPR:NUKITA |  | DESCRIPTION |  | GENERAL TOLERANCES<br>(UNLESS SPECIFIED)                   |  | DIMENSION STYLE<br>MM ONLY |  | SCALE<br>---             |  | DESIGN UNITS<br>METRIC |  | 54548-**-29                                                              |  | MODEL NO. |  | THIRD ANGLE<br>PROJECTION                                                                                                        |  |  |  |
|         |  |                   |  |            |  |             |  |            |  |                 |  |            |  |             |  |             |  | 10 UNDER                                                   |  | ± 0.2                      |  | DRAWN BY<br>HSHIMABUKURO |  | DATE<br>'04/02/10      |  | TITLE<br>0.5 FPC CONN ZIF HSG<br>ASSY FOR SMT RA BTM CONT<br>-LEAD FREE- |  |           |  |                                                                                                                                  |  |  |  |
|         |  |                   |  |            |  |             |  |            |  |                 |  |            |  |             |  |             |  | 10 OVER 30 UNDER                                           |  | ± 0.25                     |  | CHECKED BY<br>KT0JO      |  | DATE<br>'04/02/10      |  |                                                                          |  |           |  |                                                                                                                                  |  |  |  |
|         |  |                   |  |            |  |             |  |            |  |                 |  |            |  |             |  |             |  | 30 OVER                                                    |  | ± 0.3                      |  | APPROVED BY<br>MSASAO    |  | DATE<br>'04/02/10      |  |                                                                          |  | molex     |  | MOLEX INCORPORATED                                                                                                               |  |  |  |
|         |  |                   |  |            |  |             |  |            |  |                 |  |            |  |             |  |             |  | ANGULAR                                                    |  | ± 3 °                      |  | MATERIAL NO.             |  | DOCUMENT NO.           |  | SD-54548-039                                                             |  |           |  | SHEET NO.<br>2 OF 2                                                                                                              |  |  |  |
|         |  |                   |  |            |  |             |  |            |  |                 |  |            |  |             |  |             |  | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |  |                            |  | 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 |  |  |  |

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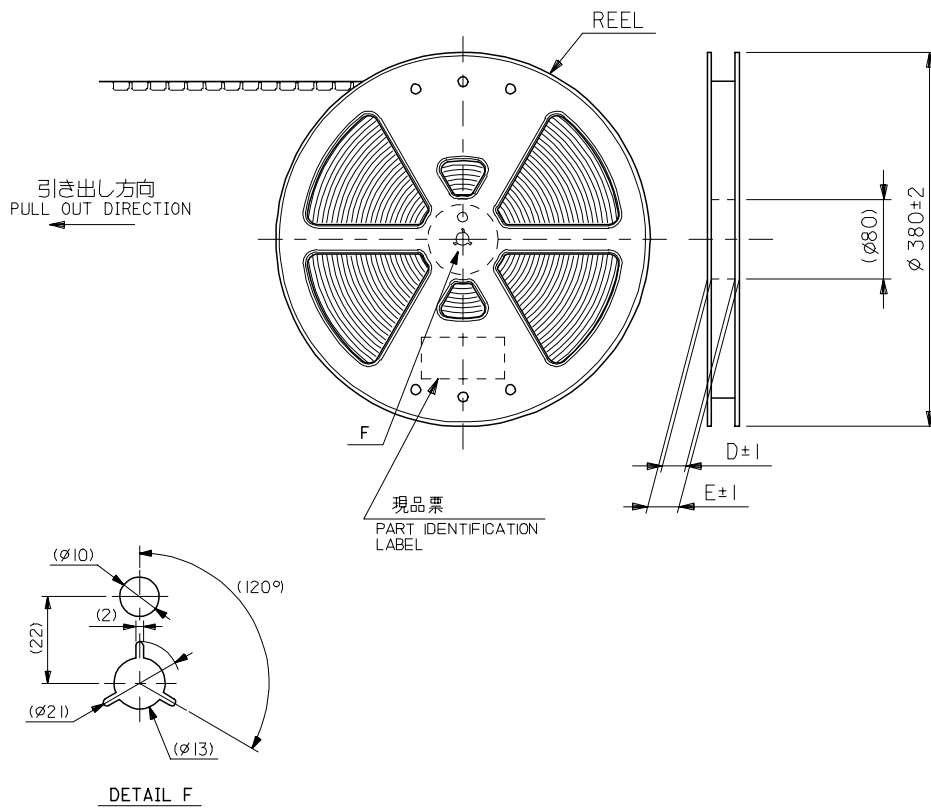
E

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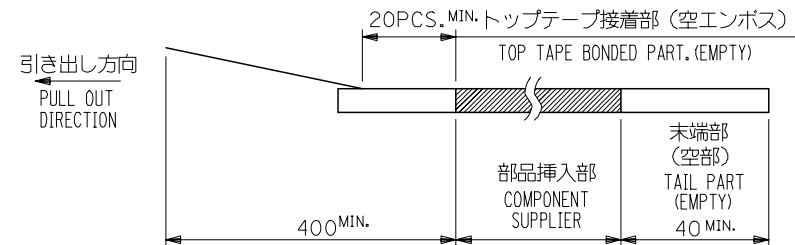
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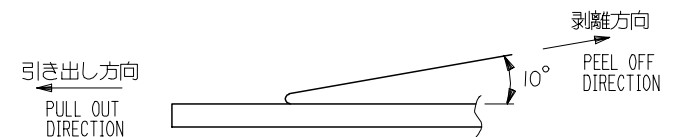


### NOTES

- 製品詳細寸法については図面 SD-54548-039 を参照下さい。  
RE DETAILED DIMENSION, SEE SD-54548-039
- 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

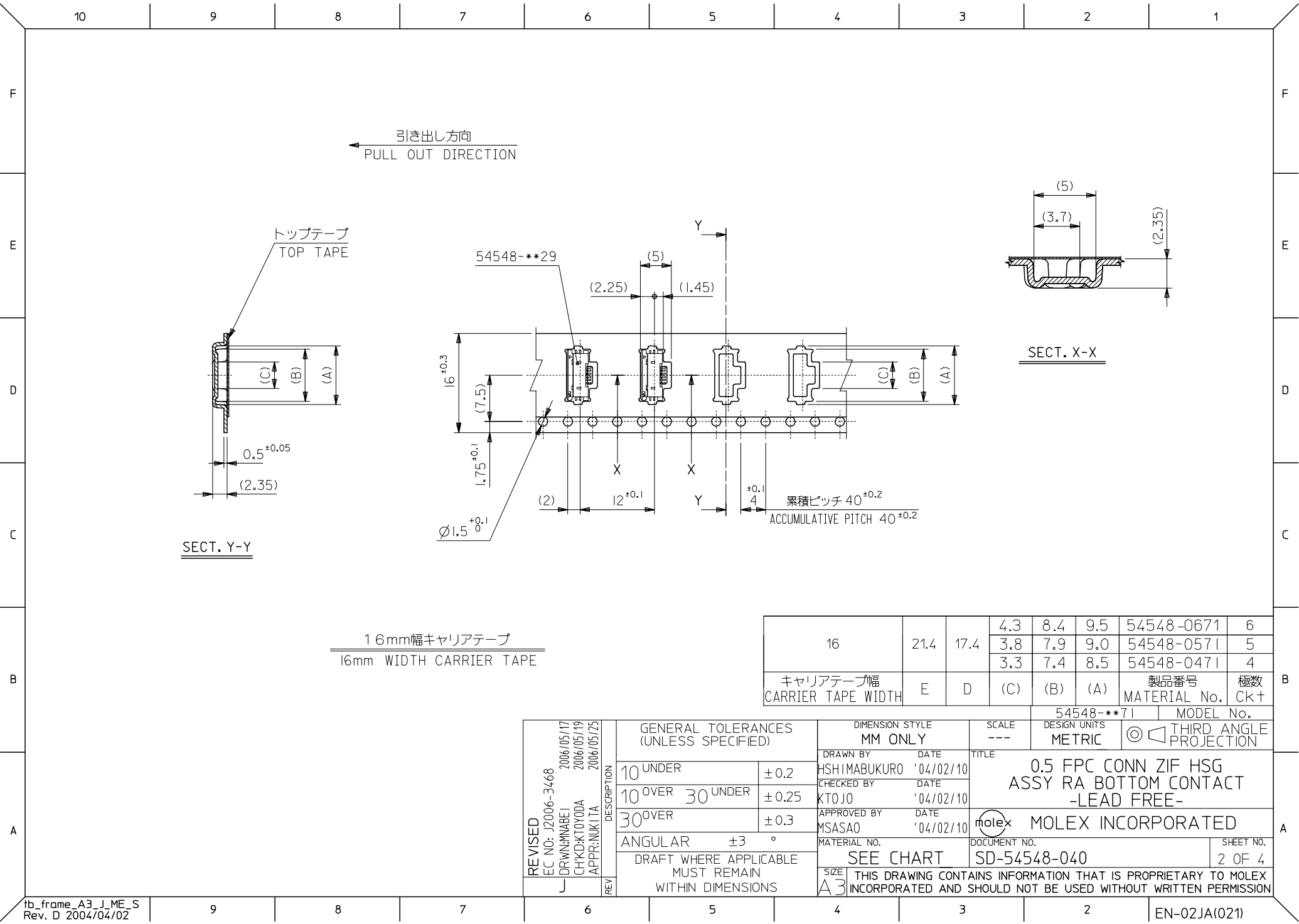


- トップテープの剥離強度：0.1N ～ 1.3N(10gf ～ 130gf)  
(剥離方向は下図参照)  
尚、本規格値は出荷時に適用。(但し、輸送時に剥離が発生しないこと。)  
PEELING OFF FORCE OF TOP TAPE：0.1N ～ 1.3N(10gf ～ 130gf)  
(PEELING DIRECTION AS SHOWN IN FOLLOWING FIG.)  
THIS REQUIREMENT SHOULD BE APPLIED AT SHIPMENT.  
PEEL OFF SHOULD NOT BE ALLOWED, DURING TRANSPORTATION.



- 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) <リサイクル材を含む>  
POLYSTYRENE(PS) <RECYCLE MATERIAL CONTAINED>
- 本製品は 54548-\*\*91 の鉛フリー(部分金メッキ)品である。  
THIS PRODUCT IS LEAD FREE OF 54548-\*\*91 (SELECTIVE GOLD).

|                                                                                                               |                                                                                                                                  |                                          |           |                            |                   |                                                                        |                        |                                        |  |  |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------|----------------------------|-------------------|------------------------------------------------------------------------|------------------------|----------------------------------------|--|--|
| REVISED<br>EC NO: J2006-3468<br>DRAWN(MABE) 2006/05/17<br>CHKD(KTOYODA) 2006/05/19<br>APPR(NUKITA) 2006/05/25 | DESCRIPTION                                                                                                                      | GENERAL TOLERANCES<br>(UNLESS SPECIFIED) |           | DIMENSION STYLE<br>MM ONLY |                   | SCALE<br>---                                                           | DESIGN UNITS<br>METRIC | MODEL NO.<br>THIRD ANGLE<br>PROJECTION |  |  |
|                                                                                                               |                                                                                                                                  | 10 UNDER                                 | ±0.2      | DRAWN BY<br>HSHIMABUKURO   | DATE<br>'04/02/10 | TITLE<br>0.5 FPC CONN ZIF HSG<br>ASSY RA BOTTOM CONTACT<br>-LEAD FREE- |                        |                                        |  |  |
|                                                                                                               |                                                                                                                                  | 10 OVER 30 UNDER                         | ±0.25     | CHECKED BY<br>KTOJO        | DATE<br>'04/02/10 |                                                                        |                        |                                        |  |  |
|                                                                                                               |                                                                                                                                  | 30 OVER                                  | ±0.3      | APPROVED BY<br>MSASAO      | DATE<br>'04/02/10 | MOLEX MOLEX INCORPORATED                                               |                        |                                        |  |  |
|                                                                                                               |                                                                                                                                  | ANGULAR ±3 °                             |           | MATERIAL NO.               |                   | DOCUMENT NO.                                                           |                        | SHEET NO.                              |  |  |
|                                                                                                               | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS                                                                       |                                          | SEE CHART |                            | SD-54548-040      |                                                                        | 1 OF 4                 |                                        |  |  |
| REV                                                                                                           | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |                                          |           |                            |                   |                                                                        |                        |                                        |  |  |

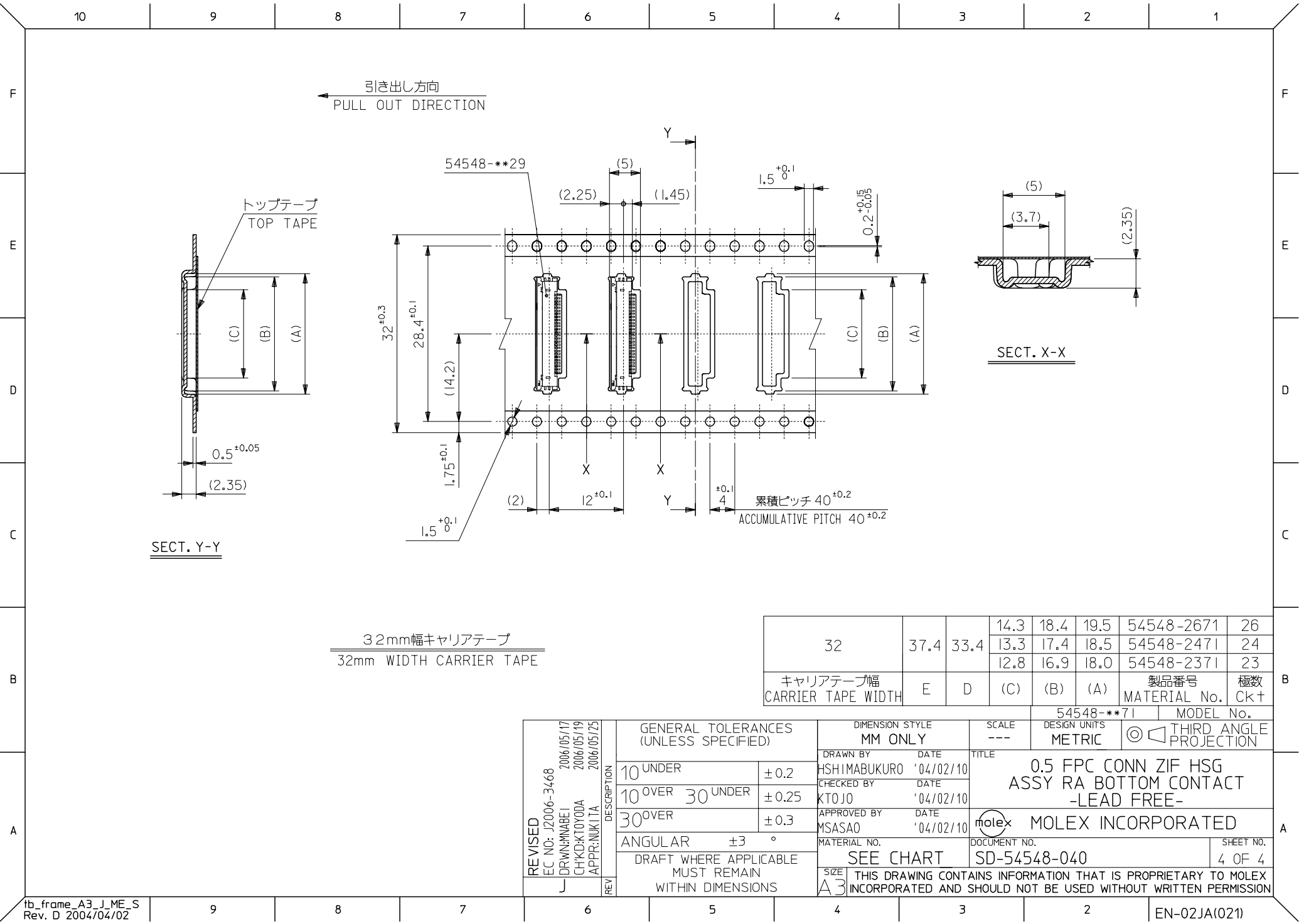


16mm幅キャリアテープ  
16mm WIDTH CARRIER TAPE

|                                |      |      |     |     |     |                      |           |
|--------------------------------|------|------|-----|-----|-----|----------------------|-----------|
| 16                             | 21.4 | 17.4 | 4.3 | 8.4 | 9.5 | 54548-0671           | 6         |
|                                |      |      | 3.8 | 7.9 | 9.0 | 54548-0571           | 5         |
|                                |      |      | 3.3 | 7.4 | 8.5 | 54548-0471           | 4         |
| キャリアテープ幅<br>CARRIER TAPE WIDTH | E    | D    | (C) | (B) | (A) | 製品番号<br>MATERIAL No. | 極数<br>Ck+ |

|                                                                                   |                    |                                                            |            |                            |                                                                                                                                  |                                                                        |                        |                           |  |  |
|-----------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|---------------------------|--|--|
| REVISED<br>EC NO: J2006-3468<br>DRWN: NABEI<br>CHKD: KTOYODA<br>APPR: NUKITA<br>J | DESCRIPTION<br>REV | GENERAL TOLERANCES<br>(UNLESS SPECIFIED)                   |            | DIMENSION STYLE<br>MM ONLY |                                                                                                                                  | SCALE<br>---                                                           | DESIGN UNITS<br>METRIC | THIRD ANGLE<br>PROJECTION |  |  |
|                                                                                   |                    | 10 UNDER                                                   | ± 0.2      | DRAWN BY<br>HSHIMABUKURO   | DATE<br>'04/02/10                                                                                                                | TITLE<br>0.5 FPC CONN ZIF HSG<br>ASSY RA BOTTOM CONTACT<br>-LEAD FREE- |                        |                           |  |  |
|                                                                                   |                    | 10 OVER 30 UNDER                                           | ± 0.25     | CHECKED BY<br>KTOJO        | DATE<br>'04/02/10                                                                                                                |                                                                        |                        |                           |  |  |
|                                                                                   |                    | 30 OVER                                                    | ± 0.3      | APPROVED BY<br>MSASAO      | DATE<br>'04/02/10                                                                                                                | MOLEX MOLEX INCORPORATED                                               |                        |                           |  |  |
|                                                                                   |                    | ANGULAR ±3 °                                               |            | MATERIAL NO.               |                                                                                                                                  | DOCUMENT NO.                                                           |                        | SHEET NO.                 |  |  |
|                                                                                   |                    | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |            | SEE CHART                  |                                                                                                                                  | SD-54548-040                                                           |                        | 2 OF 4                    |  |  |
|                                                                                   |                    |                                                            | SIZE<br>A3 |                            | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |                                                                        |                        |                           |  |  |





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

|                                |      |      |      |      |      |                      |           |
|--------------------------------|------|------|------|------|------|----------------------|-----------|
| 32                             | 37.4 | 33.4 | 14.3 | 18.4 | 19.5 | 54548-2671           | 26        |
|                                |      |      | 13.3 | 17.4 | 18.5 | 54548-2471           | 24        |
|                                |      |      | 12.8 | 16.9 | 18.0 | 54548-2371           | 23        |
| キャリアテープ幅<br>CARRIER TAPE WIDTH | E    | D    | (C)  | (B)  | (A)  | 製品番号<br>MATERIAL No. | 極数<br>Ck+ |

|                                                                                 |                    |                                                                                                                                  |       |                            |                   |                                                                        |                        |                           |  |  |
|---------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------|-------------------|------------------------------------------------------------------------|------------------------|---------------------------|--|--|
| REVISED<br>EC NO: J2006-3468<br>DRWN:MMABEI<br>CHKD:KTOYODA<br>APPR:NUKITA<br>J | DESCRIPTION<br>REV | GENERAL TOLERANCES<br>(UNLESS SPECIFIED)                                                                                         |       | DIMENSION STYLE<br>MM ONLY |                   | SCALE<br>---                                                           | DESIGN UNITS<br>METRIC | THIRD ANGLE<br>PROJECTION |  |  |
|                                                                                 |                    | 10 UNDER                                                                                                                         | ±0.2  | DRAWN BY<br>HSHIMABUKURO   | DATE<br>'04/02/10 | TITLE<br>0.5 FPC CONN ZIF HSG<br>ASSY RA BOTTOM CONTACT<br>-LEAD FREE- |                        |                           |  |  |
|                                                                                 |                    | 10 OVER 30 UNDER                                                                                                                 | ±0.25 | CHECKED BY<br>KTOJO        | DATE<br>'04/02/10 |                                                                        |                        |                           |  |  |
|                                                                                 |                    | 30 OVER                                                                                                                          | ±0.3  | APPROVED BY<br>MSASAO      | DATE<br>'04/02/10 | MOLEX MOLEX INCORPORATED                                               |                        |                           |  |  |
|                                                                                 |                    | ANGULAR ±3 °                                                                                                                     |       | MATERIAL NO.               |                   | DOCUMENT NO.                                                           |                        | SHEET NO.                 |  |  |
|                                                                                 |                    | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS                                                                       |       | SEE CHART                  |                   | SD-54548-040                                                           |                        | 4 OF 4                    |  |  |
|                                                                                 |                    | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |       |                            |                   |                                                                        |                        |                           |  |  |