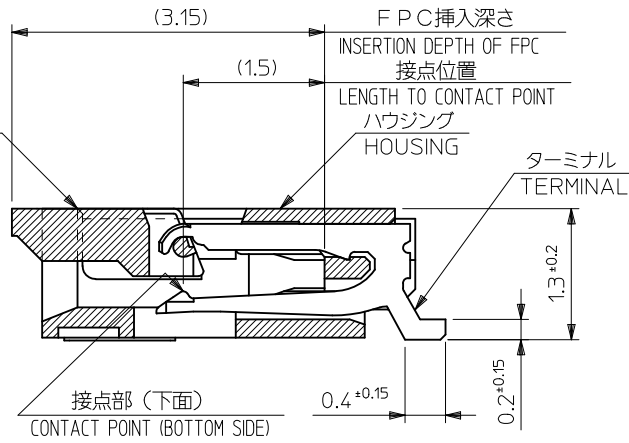
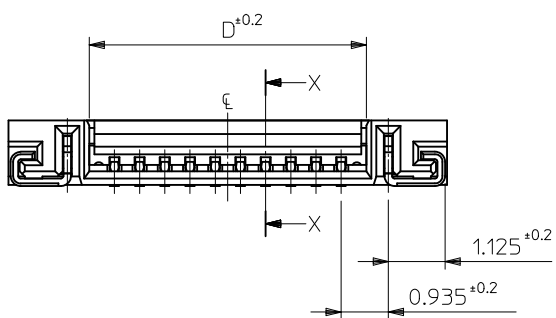
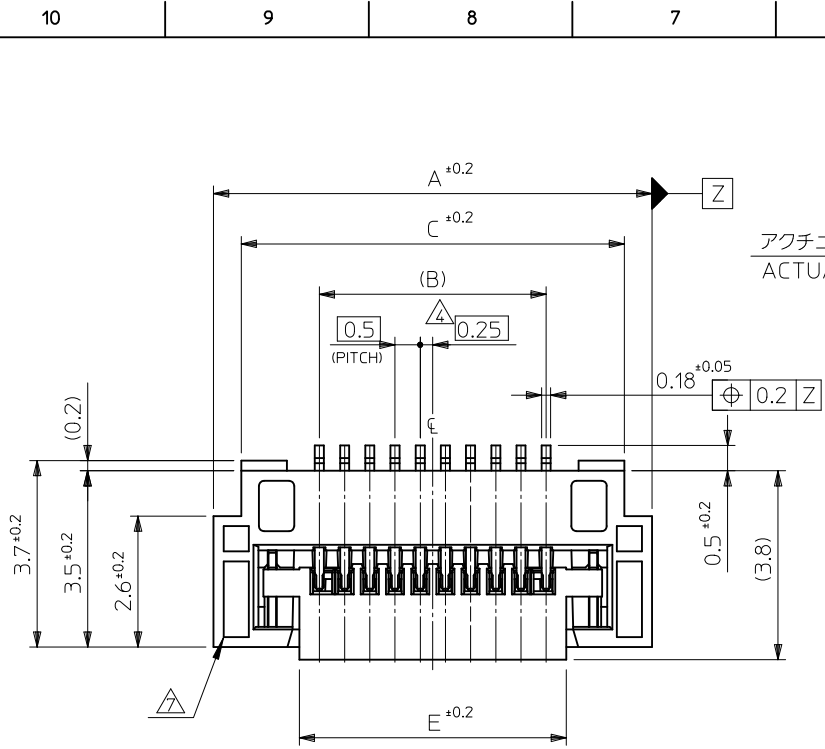


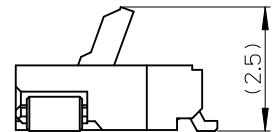


**THE DATASHEET OF**  
**512964093**

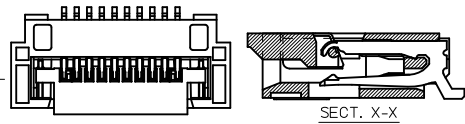




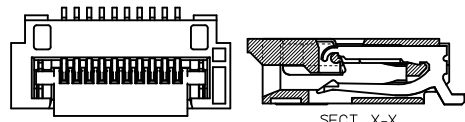
△ SECT. X-X



(アクチュエータが開いた状態)  
(WHEN ACTUATOR IS OPENED)



-30 種以上-  
30 Ckt. OR MORE

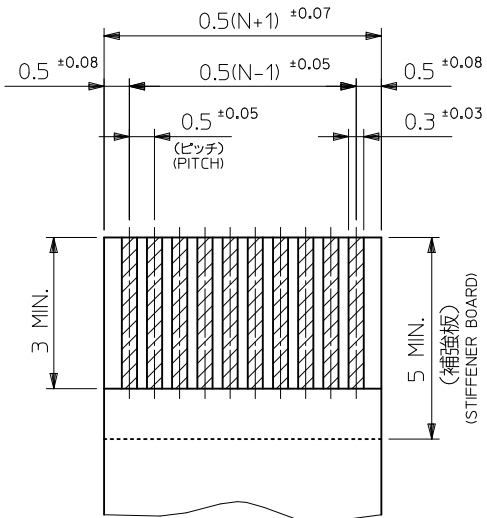
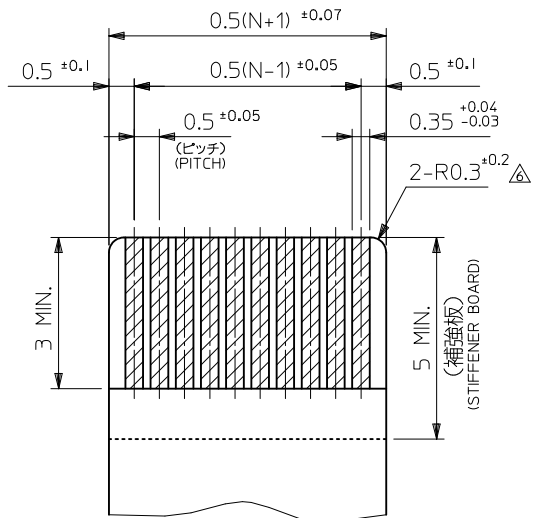
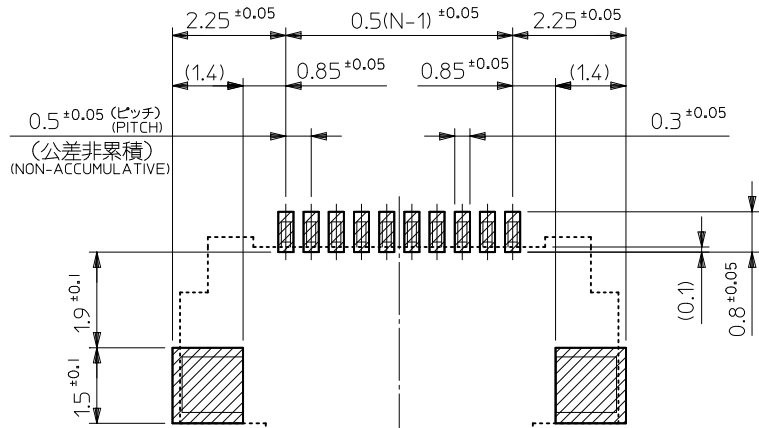


-29 種以下-  
29 Ckt. OR LESS

△ 外観形状  
APPEARANCE FORM

30.3	30.5	32.6	29.5	33.7	51296-6093	51296-6041	60
25.3	25.5	27.6	24.5	28.7	51296-5093	4 -5041	50
22.8	23.0	25.1	22.0	26.2	51296-4593	4 -4541	45
20.3	20.5	22.6	19.5	23.7	51296-4093	-4041	40
17.3	17.5	19.6	16.5	20.7	51296-3493	-3441	34
9.3	9.5	11.6	8.5	12.7	51296-1893	-1841	18
7.3	7.5	9.6	6.5	10.7	51296-1493	7 -1441	14
6.3	6.5	8.6	5.5	9.7	51296-1293	-1241	12
4.3	4.5	6.6	3.5	7.7	51296-0893	51296-0841	8
E	D	C	B	A	EMBOSSED TAPE	製品番号	極数
					ORDER No. オーダー番号	MATERIAL No.	Ckt

REVISED EC NO: J2011-0996 DRWN: K.MURAKAMI 2010/11/01 CHKD: APPR: K.MORIKAWA 2011/02/15	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE ---	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
	10 UNDER	± ---	DRAWN BY K. MURAKAMI	DATE 2004/02/06	TITLE 0.5 FPC CONN EASY ON HGT=1.3MM ASSY -LEAD FREE-		
	10 OVER 30 UNDER	± ---	CHECKED BY S. AIHARA	DATE 2004/02/06	MOLEX INCORPORATED		
	30 OVER	± ---	APPROVED BY M. SASAO	DATE 2004/02/06	DOCUMENT NO. SD-51296-007	SHEET NO. 1 OF 2	
	ANGULAR ± --- °	MATERIAL NO. SEE TABLE		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			
	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS						



参考基板レイアウト  
P.C. BOARD PATTERN  
DIMENSION (REF.)  
(マウント面)  
(MOUNTING SIDE)  
コネクタ位置  
CONNECTOR POSITION

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 (ベージュ)  
 HOUSING LIQUID CRYSTAL POLYMER GLASS FILLED, UL94V-0 (BEIGE)  
 アクチュエータ : ポリアミド 9T ガラス充填, UL94V-0 (黒)  
 ACTUATOR POLYAMIDE 9T GLASS FILLED, UL94V-0 (BLACK)  
 ターミナル : リン青銅 (t=0.18)  
 TERMINAL PHOSPOR BRONZE  
 金具 : リン青銅 (t=0.15)  
 FITTING NAIL PHOSPOR BRONZE
2. メッキ仕様 PLATING  
 ターミナル TERMINAL  
 錫ビスマスメッキ 1.0マイクロメートル以上  
 ニッケル下地 1.0マイクロメートル以上  
 TIN-BISMUTH (Sn-Bi) 1.0 MICROMETER MINIMUM  
 OVER NICKEL PLATING 1.0 MICROMETER MINIMUM
- 金具 FITTING NAIL  
 錫メッキ 1.0マイクロメートル以上  
 ニッケル下地 1.0マイクロメートル以上  
 TIN (Sn) 1.0 MICROMETER MINIMUM  
 OVER NICKEL (Ni) PLATING 1.0 MICROMETER MINIMUM

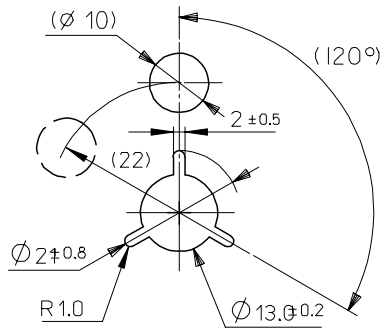
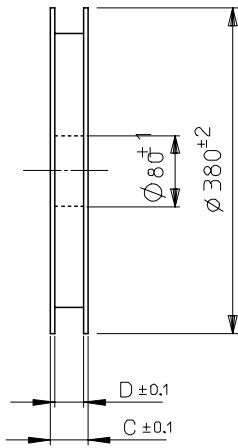
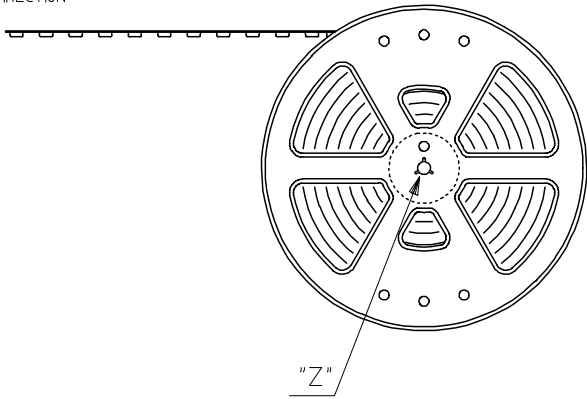
3. エンボステープ梱包時は、アクチュエータが閉じた状態とする。  
 IN THE PACKAGE, ACTUATOR OF PART NO.51296-\*\*\*41 SHOULD BE CLOSED.
- △ 偶数極に適用。  
 APPLY FOR EVEN CIRCUIT.
- △ パターンはくり止め用金具  
 FITTING NAIL FOR PREVENTION OF PEELING OF PCB PATTERN.
- △ R0.3は、FPC導体部にかからないこと。  
 R0.3 MUST NOT BE OVERLAPPED TO PATTERN OF FPC.
- △ 極数によりハウジング形状が異なるので注意のこと。  
 THE HOUSING SHAPE IS DIFFERENT ACCORDING TO THE CIRCUIT.
- 8 本製品は51296-\*\*\*31の鉛フリー製品である。  
 THIS PRODUCT IS LEAD FREE OF 51296-\*\*\*31.

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35マイクロメートルまたは50マイクロメートルを推奨致します。  
 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。  
 接着剤は熱硬化接着剤を推奨します。  
 ABOUT FPC  
 RECOMMENDED MATERIAL :  
 STIFFENER FILM : POLYIMIDE  
 BONDING AGENT : THERMOSETTING BONDING AGENT

REVISED EC NO: J2011-0996 DRAWN: K.MURAKAMI 2010/11/01 CHKD: APPR: K.MORIKAWA 2011/02/15	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY	SCALE ---	DESIGN UNITS METRIC	MODEL No. 51296-***41
	10 UNDER	± ---	DRAWN BY DATE K. MURAKAMI 2004/02/06	TITLE 0.5 FPC CONN EASY ON HGT=1.3MM ASSY -LEAD FREE-		
	10 OVER 30 UNDER	± ---	CHECKED BY DATE S. AIHARA 2004/02/06	MATERIAL NO. DOCUMENT NO. SD-51296-007		
	30 OVER	± ---	APPROVED BY DATE M. SASAO 2004/02/06	SHEET NO. 2 OF 2		
ANGULAR ± --- °		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		MATERIAL NO. DOCUMENT NO. SD-51296-007		
SIZE A3		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION				

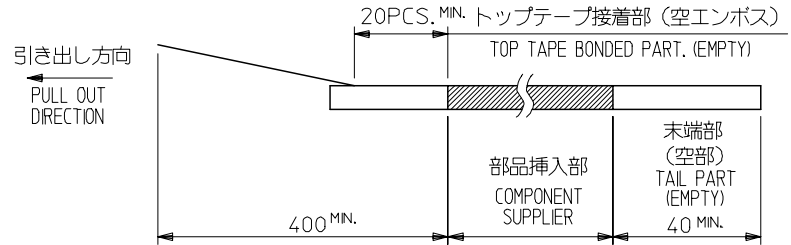
引き出し方向  
PULL OUT DIRECTION



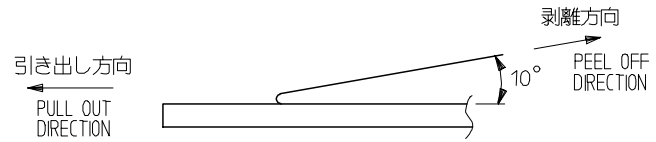
DETAIL "Z"

NOTES

- 製品詳細寸法については図面 SD-51296-007 を参照下さい。  
RE DETAILED DIMENSION, SEE SD-51296-007
- 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、51296-\*\*92 の鉛フリー製品である。  
THIS PRODUCT IS LEAD FREE OF 51296-\*\*92.

REVISED EC NO: J2005-1696 DRWN:KONURAKA 2004/12/08 CHKD: 2004/12/08 APPR:HIRAITA 2004/12/14	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE ---	51296-**93 DESIGN UNITS METRIC	MODEL NO. THIRD ANGLE PROJECTION
	10 UNDER	± ---	DRAWN BY K.MURAKAMI	DATE 2004/02/06	TITLE 0.5 FPC CONN EASY ON HGT=1.3MM EMBSTP PKG -LEAD FREE-		
	10 OVER 30 UNDER	± ---	CHECKED BY S.AIHARA	DATE 2004/02/06	MOLEX INCORPORATED		
	30 OVER	± ---	APPROVED BY M.SASAO	DATE 2004/02/06	DOCUMENT NO. SD-51296-008		
ANGULAR	± --- °	MATERIAL NO. SEE CHART		SHEET NO. 1 OF 3			
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SIZE A3		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			

10 9 8 7 6 5 4 3 2 1

F

E

D

C

B

A

F

E

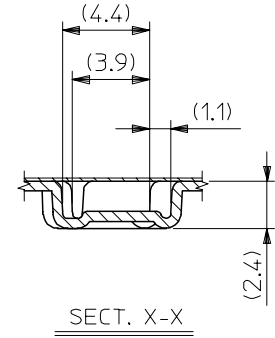
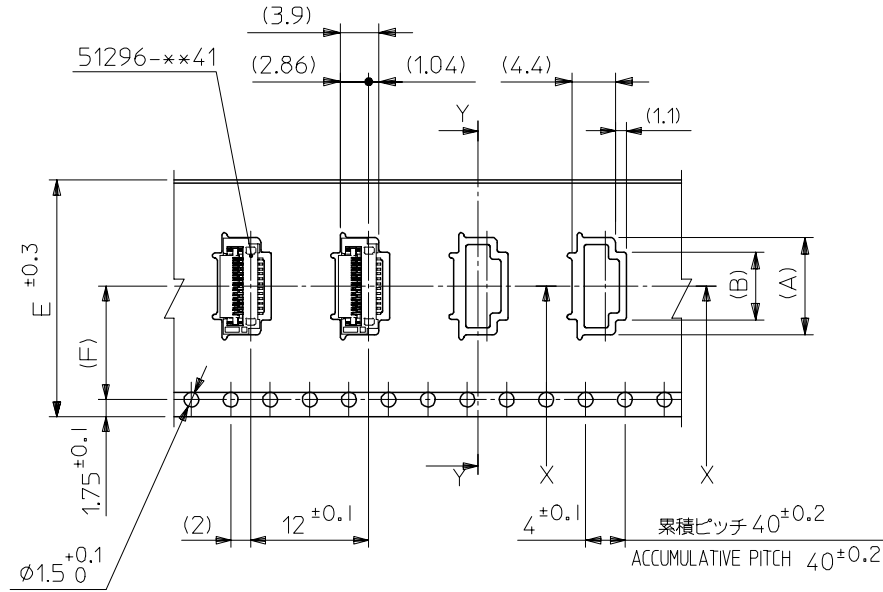
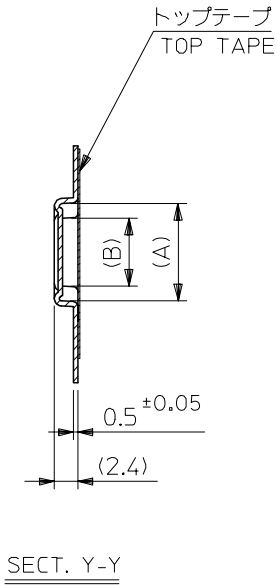
D

C

B

A

引き出し方向  
PULL OUT DIRECTION



11.5	24	25.4	29.4	9.89	12.9	51296-1893	18
				7.89	10.9	51296-1493	14
				6.89	9.9	51296-1293	12
7.5	16	17.4	21.4	4.89	7.9	51296-0893	8
(F)	E	D	C	(B)	(A)	製品番号 MATERIAL No	極数 Ckt

REVISED EC NO: J2005-1696 DRAWN: KOMURAKA 2004/12/08 CHKD: 2004/12/08 APPR: HIRATA 2004/12/14	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE	SCALE	DESIGN UNITS	MODEL NO.
	10 UNDER ± ---		MM ONLY	---	METRIC	51296-**-93
	10 OVER	30 UNDER ± ---	DRAWN BY	DATE	TITLE	THIRD ANGLE PROJECTION
	30 OVER ± ---	ANGULAR ± --- °	K.MURAKAMI	2004/02/06	0.5 FPC CONN EASY ON HGT=1.3MM EMBSTP PKG -LEAD FREE-	
	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS	APPROVED BY	DATE	MOLEX INCORPORATED		
		MATERIAL NO.	DATE	DOCUMENT NO.	SHEET NO.	
			2004/02/06	SD-51296-008	2 OF 3	
		SIZE	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION			
		A3				

9

8

7

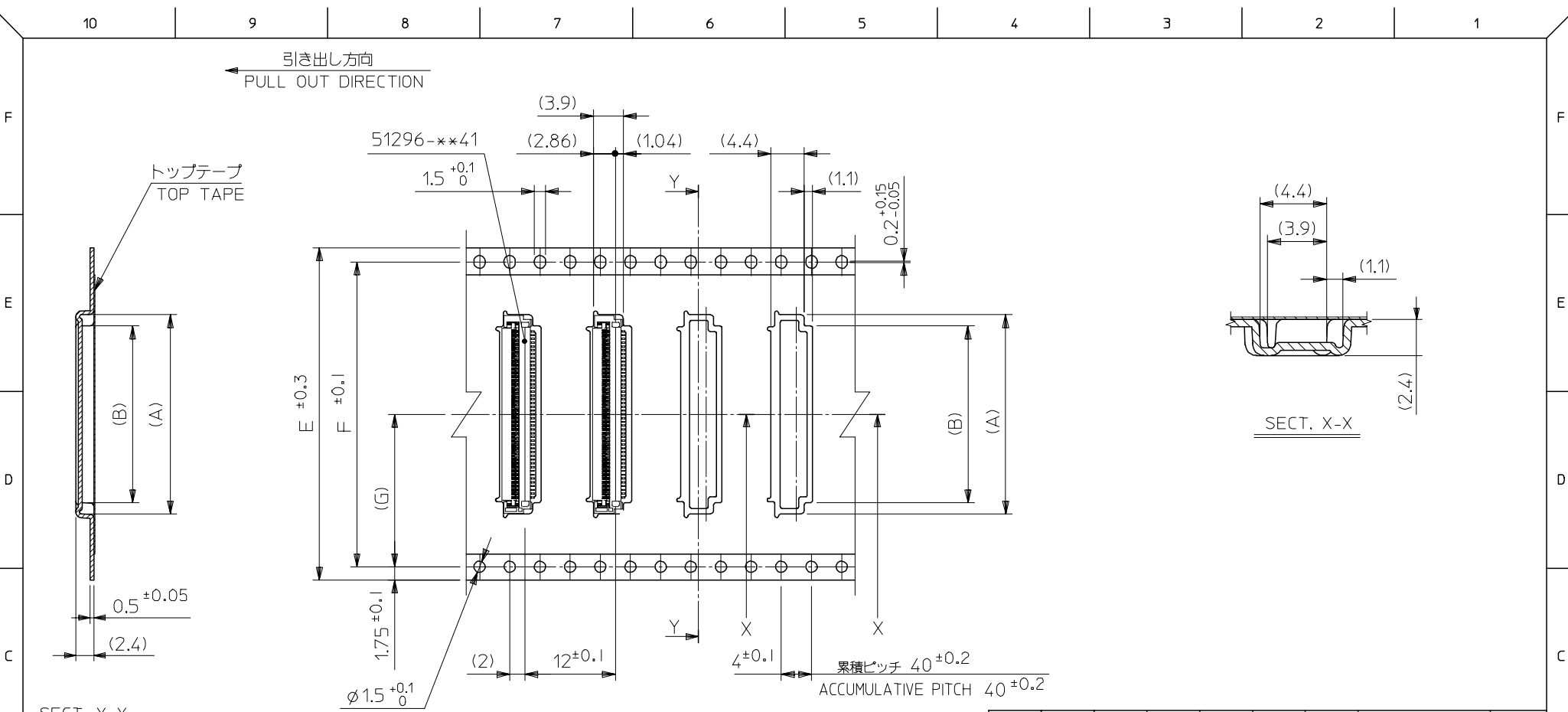
6

5

4

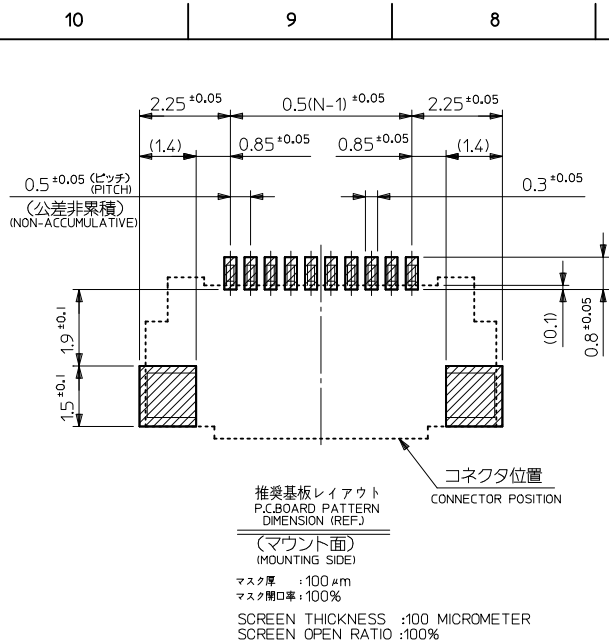
3

2

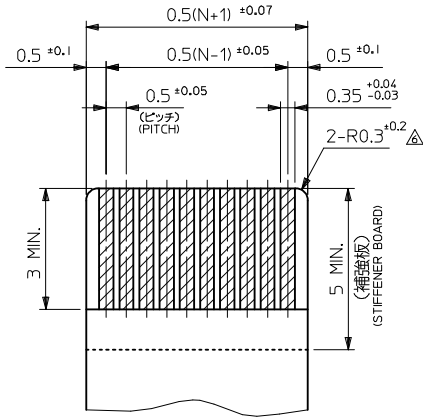


26.2	52.4	56	57.4	61.4	30.89	33.9	51296-6093	60
					25.89	28.9	51296-5093	50
20.2	40.4	44	45.4	49.4	23.39	26.4	51296-4593	45
					20.89	23.9	51296-4093	40
14.2	28.4	32	33.4	37.4	17.89	20.9	51296-3493	34
(G)	F	E	D	C	(B)	(A)	製品番号 MATERIAL No	極数 Ckt

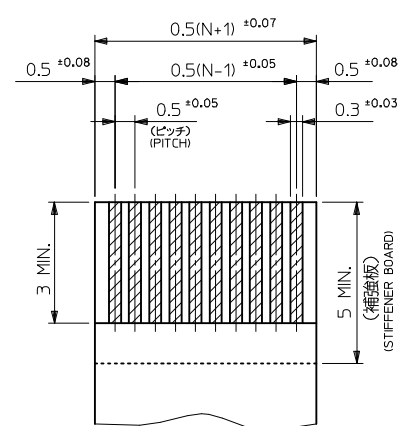
REVISED EC NO: J2005-1696 DRAWN: KOMURAKA 2004/12/08 CHKD: 2004/12/08 APPR: HIRATA 2004/12/14	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY	SCALE ---	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
	10 UNDER	± ---	DRAWN BY K.MURAKAMI	DATE 2004/02/06	TITLE 0.5 FPC CONN EASY ON HGT=1.3MM EMBSTP PKG -LEAD FREE-	
	10 OVER 30 UNDER	± ---	CHECKED BY S.AIHARA	DATE 2004/02/06	MOLEX INCORPORATED	
	30 OVER	± ---	APPROVED BY M.SASAO	DATE 2004/02/06		
ANGULAR ± --- °		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		MATERIAL NO. SEE CHART		DOCUMENT NO. SD-51296-008
SIZE A3		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION				



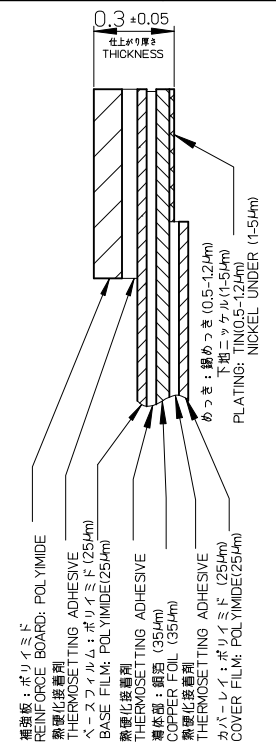
推奨基板レイアウト  
P.C. BOARD PATTERN  
DIMENSION (REF.)  
(マウント面)  
(IMOUNTING SIDE)  
マスク厚 : 100 μm  
マスク開口率 : 100%  
SCREEN THICKNESS : 100 MICROMETER  
SCREEN OPEN RATIO : 100%



適合FPC推奨寸法  
APPLICABLE FPC  
RECOMMENDED DIMENSION  
(仕上がり厚さ: 0.3 ±0.05)  
(THICKNESS: 0.3 ±0.05)



適合FFC推奨寸法  
APPLICABLE FFC  
RECOMMENDED DIMENSION  
(仕上がり厚さ: 0.3 ±0.05)  
(THICKNESS: 0.3 ±0.05)



FPC構成推奨仕様  
STRUCTURE OF FPC

注記 NOTES

1. 使用材料 MATERIAL

- ハウジング : 液晶ポリマー(LCP), ベージュ, ガラス充填, UL94V-0  
HOUSING : LIQUID CRYSTAL POLYMER, BEIGE, GLASS FILLED, UL94V-0
- アクチュエータ : ポリアミド(PPS), 黒, ガラス充填, UL94V-0  
ACTUATOR : POLYAMIDE, BLACK, GLASS FILLED, UL94V-0
- ターミナル : リン青銅 (t=0.18)  
TERMINAL : PHOSPOR BRONZE
- 金具 : リン青銅 (t=0.15)  
FITTING NAIL : PHOSPOR BRONZE

2. メッキ仕様 PLATING

- ターミナル TERMINAL
  - 鍍銀ビスマスマッキ (1.0 μm以上)
  - TIN SILVER BISMUTH PLATING (1.0 MICROMETER MINIMUM)
  - 下地: ニッケルめっき(1.0 μm以上)
  - UNDER PLATING: NICKEL PLATING (1.0 MICROMETER MINIMUM)
- 金具 FITTING NAIL
  - 鍍メッキ (1.0 μm以上)
  - TIN PLATING (1.0 MICROMETER MINIMUM)
  - 下地: ニッケルめっき(1.0 μm以上)
  - UNDER PLATING: NICKEL PLATING (1.0 MICROMETER MINIMUM)

3. エンボステップ梱包時は、アクチュエータが閉じた状態とする。  
IN THE PACKAGE, ACTUATOR SHOULD BE CLOSED.

偶数極に適用。  
APPLY FOR EVEN CIRCUIT.

パターンはくり止め用金具  
FITTING NAIL FOR PREVENTION OF PEELING OF PCB 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.

極数によりハウジング形状が異なるので注意のこと。  
THE HOUSING SHAPE IS DIFFERENT ACCORDING TO THE CIRCUIT.

8. テール及び金具の平坦度は、0.1ミリメートル以下とする。  
TAIL AND FITTING NAIL COPLANARITY TO BE 0.1 MILLIMETERS.

9. ELV及びRoHS適合品  
ELV AND RoHS COMPLIANT

FPCについて:

- 抜き方向は、導体側から補強板側を推奨致します。
- 補強フィルム材質は、ポリイミドを推奨致します。
- 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 PUNCHER DIRECTION:  
FROM CONDUCTOR SIDE TO STIFFENER SIDE
- RECOMMENDED MATERIAL : STIFFENER FILM POLYIMIDE
- BONDING AGENT : THERMOSETTING AGENT
- PLEASE PUT APPROPRIATE AMOUNT OF ADHESIVE ON ADHEREND  
BECAUSE THERE IS A POSSIBILITY THAT THE EXTRA ADHESIVE  
CAUSES THE DEFECT IN ELECTRICAL CONTINUITY.

FFC/FPCについて:

- 打抜き方向は導体側から補強板側を推奨致します。
- 導体部については軟銅箔35 μmまたは50 μmを推奨致します。

ABOUT FFC/FPC:

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

SEE SHEET 1 OF 2 EC NO: J2014-0096 DRAWN: AISHI 2013/07/18 CHKD: TAKAHASHI 2013/07/18 APPR: YNOGAWA 2013/08/19	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE ---	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION	
	10 UNDER	± ---	DRAWN BY AISHI	DATE 2012/09/19	TITLE 0.5MM FPC CONN F/F E/O HOUSING ASSY			
	10 OVER 30 UNDER	± ---	CHECKED BY TAKAHASHI	DATE 2012/09/19				
	30 OVER	± ---	APPROVED BY KMORIKAWA	DATE 2013/03/15				
ANGULAR	± --- °	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SIZE A3	DOCUMENT NO. SD-51296-017		SHEET NO. 2 OF 2	
THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION								

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View 512964093 on WIN SOURCE](#)

 [Molex, LLC Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management