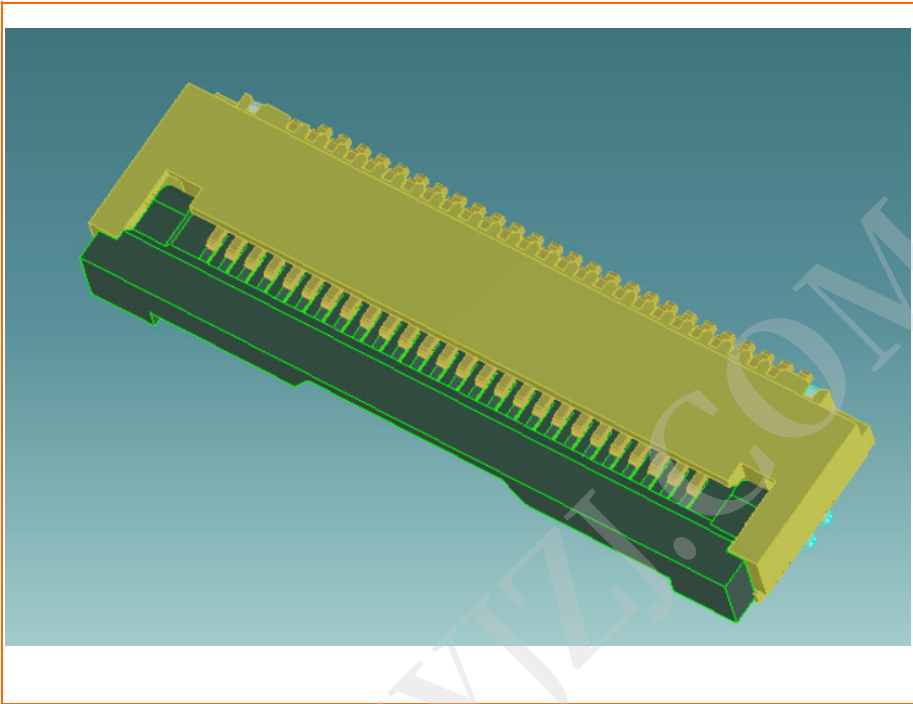


Product Specification



深圳市台华达科技有限公司
SHEN ZHENSHI THD ELECTRONIC CO., LTD.



Product.No

THD0520—xxCL—SN

Pitch=05mm,H=2.0 mm FPC Connector (Front-Flip Lower Contact)

B	Change Operating Temperature Range
Rev.	Description
Approved Signatures	
■Prepared By : Gary	■Date: 2024.09.11
■Checked By : Kevin	■Date: 2024.09.11
■Approved By : JIM	■Date: 2024.09.11

■ Scope

This specification covers the 0.5 mm Pitch FPC Connector **THD0520** series.

■ Ordering information

THD0520 - xx CL - SN

① ② ③ ④

①	Series name : THD0520	④	Plating : GF= 1μ"~3μ" Gold Flash G3= 3μ" Gold over Nickel G5= 5μ" Gold over Nickel SN= Tin(Lead Free) over Nickel
②	Number of contacts : 4 TO 70		
③	Contact type : CL:Lower contact CU:Upper contact		

■ Rating

Item	Standard
Voltage Rating(Max.)	50V AC
Current Rating(Max.)	0.5A DC
Operating Temperature Range	-25°C ~ +105°C (Including terminal temperature rise)

■ Material

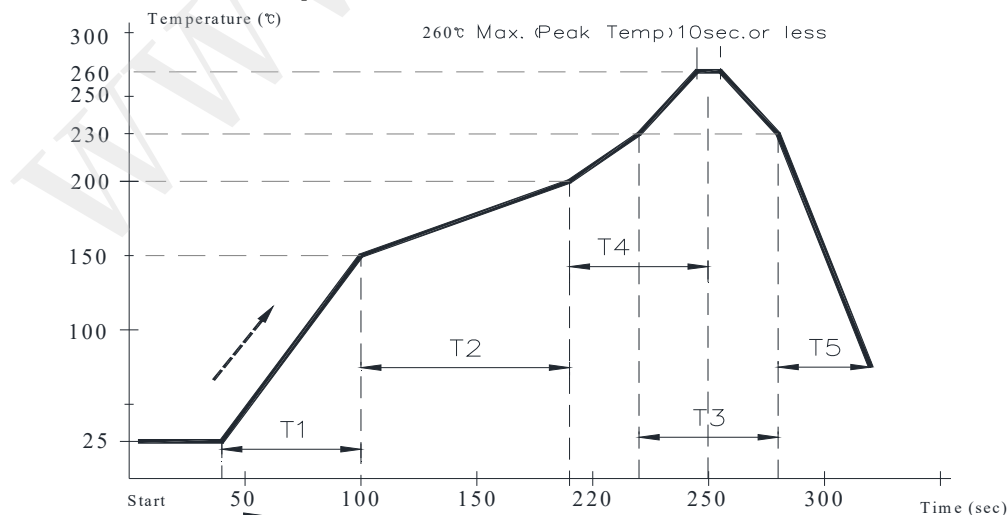
Housing	Actuator	Terminal	Solder pin	Plating
L.C.P (UL94V-0)	L.C.P (UL94V-0)	Copper alloy	Copper alloy	Tin Over Nickel
Color : White	Color : Black			

■ Performance

Item	Test Condition	Specification	
Contact Resistance	Mate applicable FPC and measure by dry circuit, 20mV Max, 1mA.	30 mΩ Max.	
Insulation Resistance	Mate applicable FPC and apply 500V DC between adjacent terminal or ground.	500 MΩ Min.	
Dielectric Strength	Mate applicable FPC, apply 250V AC(rms) for 1 minute between adjacent terminal or ground.	No Breakdown	
FPC Retention Force	Insert the actuator, pull the FPC at a rate of 25±3mm per minute.	Per pin x 0.15N Min.	
Terminal Retention Force	Apply axial pull out force at the rate of 25±3 mm/minute on the terminal assembled in the housing.	Per pin x 0.05Kgf {0.5N} Min.	
Vibration	Mate connectors and subject to the following vibration conditions, for period of 2 hours in each of 3 mutually perpendicular axes, passing DC 1mA during the test. Amplitude : 1.5mm P-P Frequency : 10~55~10 Hz in 1 minute. Duration : 2 hours in each of X,Y,Z axes.	Appearance	No Damage
		Contact Resistance	50 mΩ Max.
		Discontinuity	1 μsec Max.
Shock	Mate applicable FPC and subject to the following shock conditions. 3 times of shocks shall be applied for each 6 directions along 3 mutually perpendicular axes, passing DC 1 mA current during the test. Peak value : 490m/s ² {50G}	Appearance	No Damage
		Contact Resistance	50 mΩ Max.
		Discontinuity	1 μsec Max.
Salt Spray	Mate applicable FPC and expose to the following salt mist conditions. Upon completion of the exposure period, salt deposits shall be removed by a gentle wash or dip in running water, after which the specified measurements shall be performed. NaCl solution Concentration : 5 ± 1% Spray time Au:48 hours Sn: 12hours Ambient temperature : 35 ± 2°C	Appearance	No Damage
		Contact Resistance	50 mΩ Max.

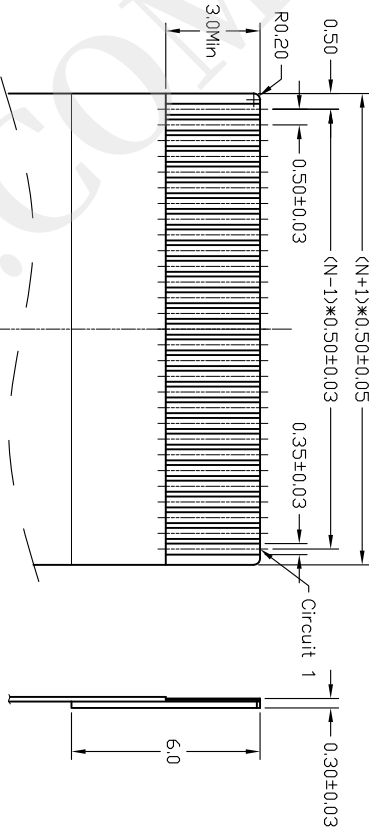
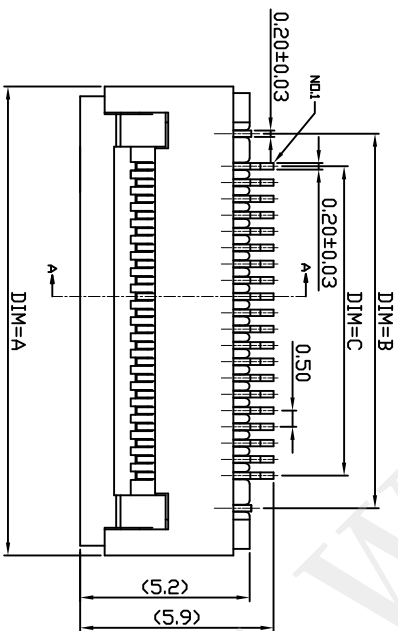
Item	Test Condition	Specification	
Heat Resistance	Mate applicable FPC and expose to $85\pm 2^{\circ}\text{C}$ for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.	Appearance	No Damage
		Contact Resistance	50 mΩ Max.
Cold Resistance	Mate applicable FPC and expose to $-40\pm 2^{\circ}\text{C}$ for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.	Appearance	No Damage
		Contact Resistance	50 mΩ Max.
Humidity	Mate applicable FPC and expose to $60 \pm 2^{\circ}\text{C}$, relative humidity 90 to 95% for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.	Appearance	No Damage
		Contact Resistance	50 mΩ Max.
		Dielectric Strength	No Breakdown
		Insulation Resistance	50 MΩ Min.
Temperature Rise	Mate applicable FPC and measure the temperature rise of contact when the maximum AC rated current is passed.	Temperature rise	30°C Max.
Temperature Cycling	Mate applicable FPC and subject to the following conditions for 5 cycles. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed. 1 cycle a) $-55\pm 3^{\circ}\text{C}$ 30minutes b) $+85\pm 3^{\circ}\text{C}$ 30minutes (Transit time shall be with in 3 minutes)	Appearance	No Damage
		Contact Resistance	50 mΩ Max.
Solderability	Tip of solder tails and fitting nails into the molten solder (held at $245\pm 5^{\circ}\text{C}$) up to 0.1mm from the bottom of the housing for 3 ± 0.5 seconds.	Solder Wetting	95% of immersed area must show no voids, pin holes.
Resistance to Soldering	When reflowing refer to Infrared reflow condition <i>Soldering iron method</i> 0.2mm from terminal tip and fitting nail tip. Soldering time : 5 seconds Max. Solder temperature : $370\sim 400^{\circ}\text{C}$	Appearance	No Damage

■ Recommended Temperature Profile

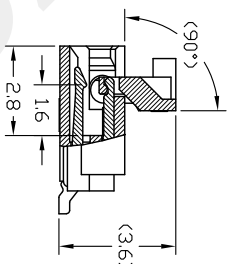
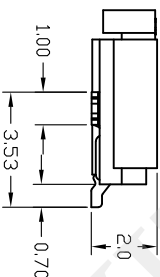
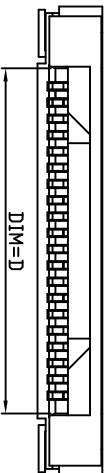


T1	Temperature Ramp Up Rate	2°C~5°C/Sec
T2	Preheat:150°C~200°C	60~90Sec
T3	Time Over 230°C	30~50Sec
T4	Preheat:200°C~260°C	30Sec
T5	Ramp Down Rate During Cooling	4°C~7°C/Sec
	Peak Temperature	260°CMax

PITCH 0.5mm FPC CONNECTOR SMT TYPE



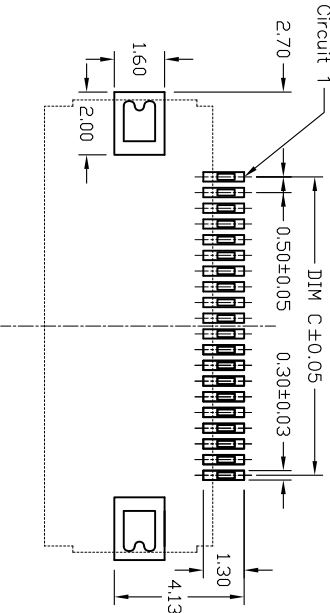
RECOMMENDED FPC/FPC DIMENSION



SECTION A-A
SCALE 1:1

Note:

1. Material:
 - 1.1 Housing: thermoplastic high temp, UL94V-0; Color: natural.
 - 1.2 Latch: thermoplastic high temp, UL94V-0; Color: black.
 - 1.3 Terminal: copper alloy.
 - 1.4 Fitting Nail: copper alloy.
2. Finish:
 - 2.1 Terminal: Underplating: Au/matt Tin overall.
 - 2.2 Fitting Nail: Underplating: matt Tin overall.
3. Product must comply HF RoHS specification.
4. CHARACTERISTIC
 - Operating voltage: 50V AC, DC
 - Current rating: 0.5A AC, DC
 - Operating temperature: -25°C~+105°C



RECOMMENDED PCB PATTERN LAYOUT

0.5 PITCH 2.0H FPC CONN. | GF-GOLD FLASH
SMT OVER NICKEL

ND,DF CONTACTS:(04Pin~70Pin)

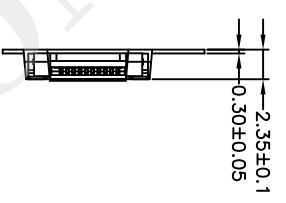
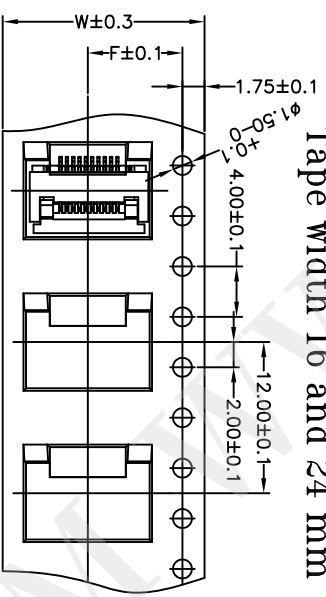
PIN数	DIM=A	DIM=B	DIM=C	DIM=D	PIN数	DIM=A	DIM=B	DIM=C	DIM=D
70P	39.40	36.50	34.50	35.60	32P	20.40	17.50	15.50	16.60
69P	38.90	36.00	34.00	35.10	31P	19.90	17.00	15.00	16.10
68P	38.40	35.50	33.50	34.60	30P	19.40	16.50	14.50	15.60
67P	37.90	35.00	33.00	34.10	29P	18.90	16.00	14.00	15.10
66P	37.40	34.50	32.50	33.60	28P	18.40	15.50	13.50	14.60
65P	36.90	34.00	32.00	33.10	27P	17.90	15.00	13.00	14.10
64P	36.40	33.50	31.50	32.60	26P	17.40	14.50	12.50	13.60
63P	35.90	33.00	31.00	32.10	25P	16.90	14.00	12.00	13.10
62P	35.40	32.50	30.50	31.60	24P	16.40	13.50	11.50	12.60
61P	34.90	32.00	30.00	31.10	23P	15.90	13.00	11.00	12.10
60P	34.40	31.50	29.50	30.60	22P	15.40	12.50	10.50	11.60
59P	33.90	31.00	29.00	30.10	21P	14.90	12.00	10.00	11.10
58P	33.40	30.50	28.50	29.60	20P	14.40	11.50	9.50	10.60
57P	32.90	30.00	28.00	29.10	19P	13.90	11.00	9.00	10.10
56P	32.40	29.50	27.50	28.60	18P	13.40	10.50	8.50	9.60
55P	31.90	29.00	27.00	28.10	17P	12.90	10.00	8.00	9.10
54P	31.40	28.50	26.50	27.60	16P	12.40	9.50	7.50	8.60
53P	30.90	28.00	26.00	27.10	15P	11.90	9.00	7.00	8.10
52P	30.40	27.50	25.50	26.60	14P	11.40	8.50	6.50	7.60
51P	29.90	27.00	25.00	26.10	13P	10.90	8.00	6.00	7.10
50P	29.40	26.50	24.50	25.60	12P	10.40	7.50	5.50	6.60
49P	28.90	26.00	24.00	25.10	11P	9.90	7.00	5.00	6.10
48P	28.40	25.50	23.50	24.60	10P	9.40	6.50	4.50	5.60
47P	27.90	25.00	23.00	24.10	9P	8.90	6.00	4.00	5.10
46P	27.40	24.50	22.50	23.60	8P	8.40	5.50	3.50	4.60
45P	26.90	24.00	22.00	23.10	7P	7.90	5.00	3.00	4.10
44P	26.40	23.50	21.50	22.60	6P	7.40	4.50	2.50	3.60
43P	25.90	23.00	21.00	22.10	5P	6.90	4.00	2.00	3.10
42P	25.40	22.50	20.50	21.60	4P	6.40	3.50	1.50	2.60
41P	24.90	22.00	20.00	21.10					
40P	24.40	21.50	19.50	20.60					
39P	23.90	21.00	19.00	20.10					
38P	23.40	20.50	18.50	19.60					
37P	22.90	20.00	18.00	19.10					
36P	22.40	19.50	17.50	18.60					
35P	21.90	19.00	17.00	18.10					
34P	21.40	18.50	16.50	17.60					
33P	20.90	18.00	16.00	17.10					

SHEN ZHENSHI THD ELECTRONIC CO., LTD.

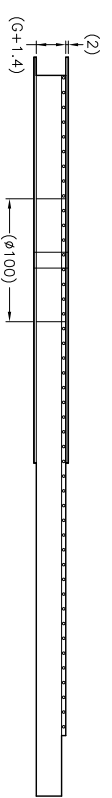
THD0520-XXCL-SN

GENERAL TOLERANCE	DRAWN:	CHECKED:	DATE:	UNIT:	SCALE:	SIZE:	REV:
UNLESS OTHERWISE SPECIFIED	Kavin	胡文	2024.09.11	mm	1:1	A4	X2
±0.30	XX	XX	XX	mm	1:1	A4	X2
±0.20	XX	XX	XX	mm	1:1	A4	X2
±0.10	XX	XX	XX	mm	1:1	A4	X2
±0.05	XX	XX	XX	mm	1:1	A4	X2

Tape width 16 and 24 mm

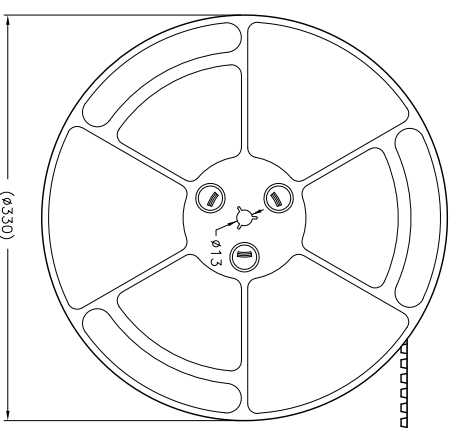
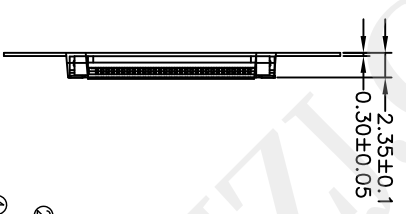
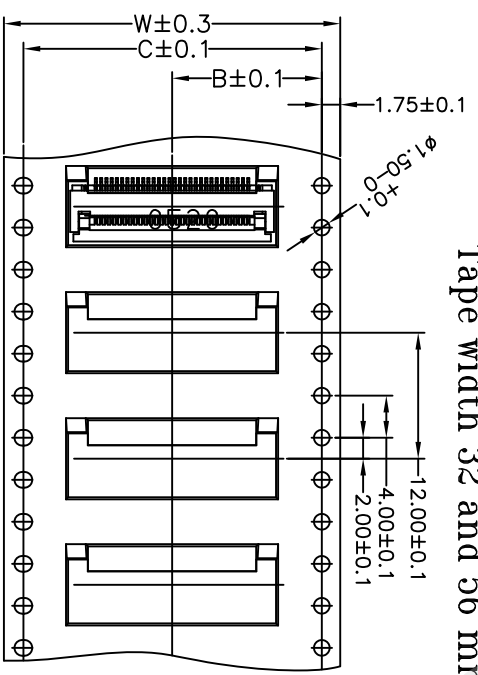


REEL Dim



前后空20PCS

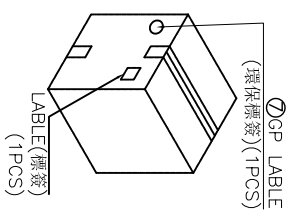
Tape width 32 and 56 mm



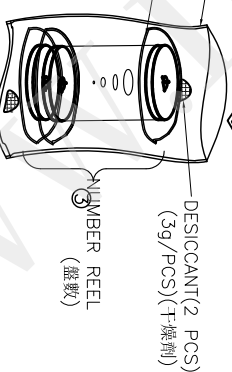
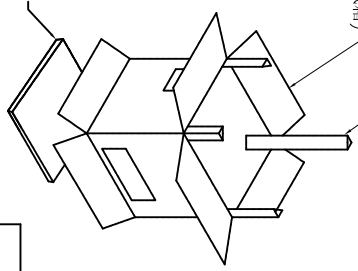
Notes:

- 1.Component load per 13" reel:2000 Pcs
- 2.Material : Black Conductive Polystyrene Alloy.
- 3.Thickness : 0.3±0.05mm
- 4.All dimensions meet EIA-481-C requirements.

⑧ MEAS:3.5*3.4*3.4 CM



⑨ CARTON(1PCS)(紙板)



No. of	DIM.				REEL	SUM(PCS)
Contacts	A	B	C		(CARTON)	
THD0520 4pin 10pin	16	7.5	—	—	12	24000
THD0520 12pin 24pin	24	11.5	—	—	10	20000
THD0520 25pin 35pin	32	14.2	28.4	—	8	16000
THD0520 36pin 36pin	44	20.2	40.4	—	6	12000
THD0520 55pin 60pin	56	26.25	52.5	—	5	10000

臺華達
THD ELECTRONIC CO., LTD.
SHEN ZHENSHI THD ELECTRONIC CO., LTD.

GENERAL TOLERANCE
UNLESS OTHERWISE SPECIFIED
DRAWN: Kavin
CHECKED: 胡文
2024.09.11
2024.09.11
TITLE: THD0520-XXCL-SN

APPROVED: 2024.09.11
SHEET: 1/1
UNIT: mm
SCALE: 1:1
SIZE: A4
REV: X1
0.5 PITCH 2.0H FPC PACKING

REV.	REVISIONS	CHK	DATE