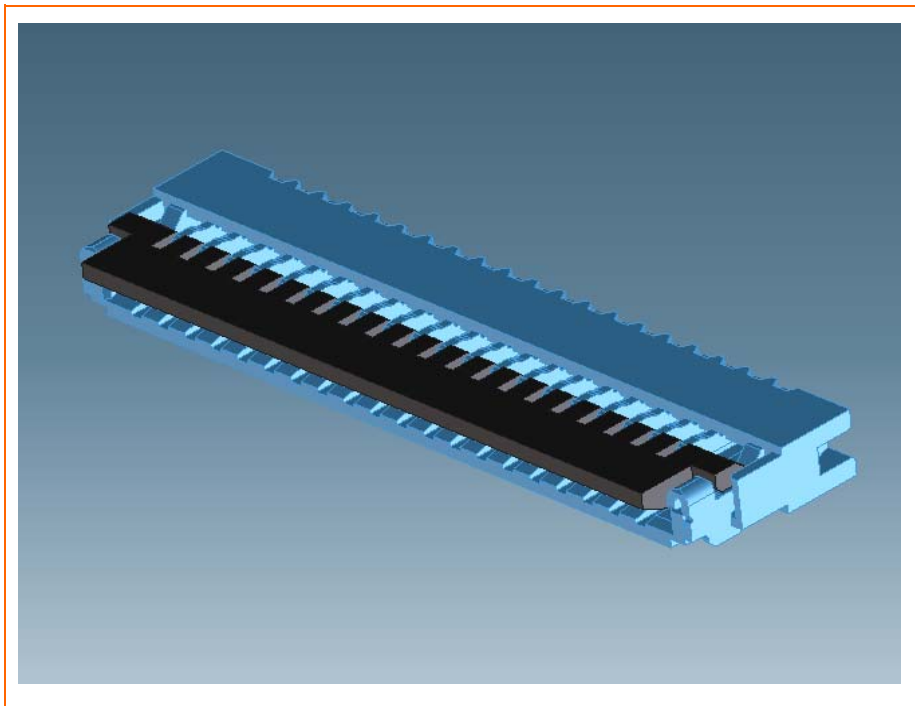


**Product Specification**

深圳市臺華達科技有限公司

SHENZHENSHI THD Electronics Co., Ltd.



Product.No

**THD0510-xxCL-GF**

**Pitch=0.50mm,H=1.0 mm FPC Connector (Front-Flip Lower Contact)**

|                            |                   |
|----------------------------|-------------------|
| A                          | Release           |
| Rev.                       | Description       |
| <b>Approved Signatures</b> |                   |
| ■Prepared By : JIM         | ■Date: 2012.05.24 |
| ■Checked By : JIM          | ■Date: 2012.05.24 |
| ■Approved By : 黄德进         | ■Date: 2012.05.24 |

## ■ Scope

This specification covers the 0.5 mm Pitch FPC Connector THD0510 series.

## ■ Ordering information

THD0510 - xx CL - GF

①                      ②                      ③                      ④

|   |   |   |   |
|---|---|---|---|
| ① | Series name : THD0510                               | ④ | Plating :<br>GF= 1μ"~3μ" Gold Flash<br>G3= 3μ" Gold over Nickel<br>G5= 5μ" Gold over Nickel<br>SN= Tin(Lead Free) over Nickel |
| ② | Number of contacts : 4 TO 60                        |   |   |
| ③ | Contact type : CL:Lower contact<br>CU:Upper contact |   |   |

## ■ Rating

| Item                        | Standard  |
|-----------------------------|---|
| Voltage Rating(Max.)        | 50V AC  |
| Current Rating(Max.)        | 0.5A DC   |
| Operating Temperature Range | -55°C ~ +85°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 | 1μ"~3μ"<br>Gold over Nickel |
| Color : White   | Color : Black   |              |              |                             |

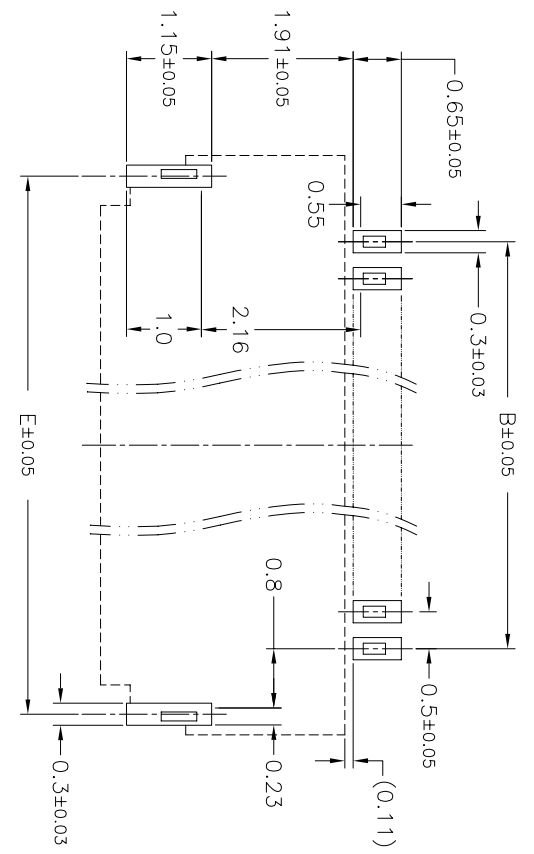
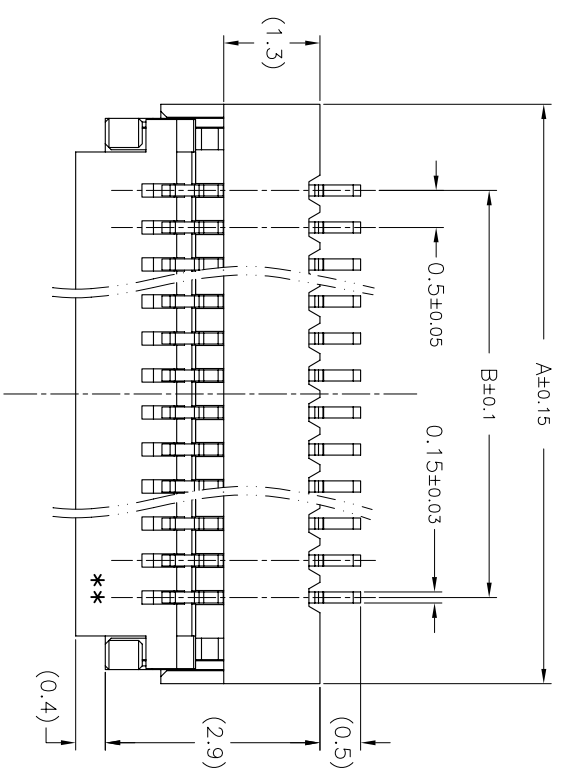
## ■ Performance

| Item                     | Test Condition  | Specification                 |             |
|--------------------------|---|-------------------------------|-------------|
| Contact Resistance       | Mate applicable FPC and measure by dry circuit, 20mV Max, 1mA.  | 100 mΩ Max.                   |             |
| Insulation Resistance    | Mate applicable FPC and apply 500V DC between adjacent terminal or ground.  | 50 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 x0.03Kgf (0.3N) 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 0.06Kgf {0.6N} 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.<br><br>Amplitude : 1.5mm P-P<br>Frequency : 10~55~10 Hz in 1 minute.<br>Duration : 2 hours in each of X,Y,Z axes.  | Appearance                    | No Damage   |
|                          |   | Contact Resistance            | 100 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.<br><br>Peak value : 490m/s <sup>2</sup> {50G}   | Appearance                    | No Damage   |
|                          |   | Contact Resistance            | 100 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.<br><br>NaCl solution<br>Concentration : 5 ± 1%<br>Spray time : 48 ± 4 hours<br>Ambient temperature : 35 ± 2°C | Appearance                    | No Damage   |
|                          |   | Contact Resistance            | 100 mΩ Max. |

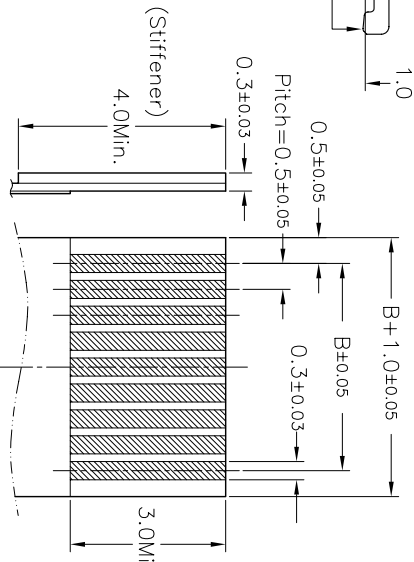
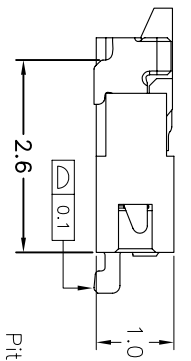
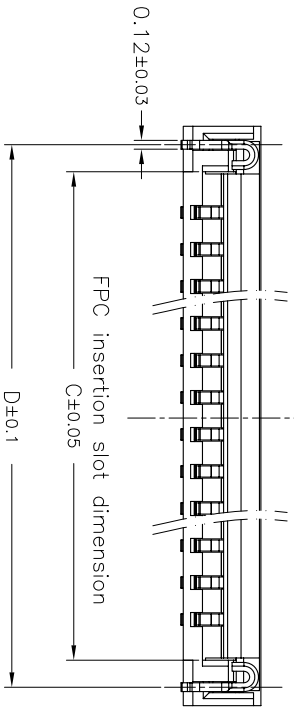
| Item                    | Test Condition  | Specification         |   |
|-------------------------|---|-----------------------|---|
| Heat Resistance         | Mate applicable FPC and expose to 85±2°C for 96 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.  | Appearance            | No Damage   |
|                         |   | Contact Resistance    | 100 mΩ Max.   |
| Cold Resistance         | Mate applicable FPC and expose to -40±2°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    | 100 mΩ Max.   |
| Humidity                | Mate applicable FPC and expose to 60 ± 2°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    | 100 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.<br>1 cycle<br>a) -55±3°C      30minutes<br>b) +85±3°C      30minutes<br>(Transit time shall be with in 3 minutes) | Appearance            | No Damage   |
|                         |   | Contact Resistance    | 100 mΩ Max.   |
| Solderability           | Tip of solder tails and fitting nails into the molten solder (held at 245±5°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 <u>Soldering iron method</u><br>0.2mm from terminal tip and fitting nail tip.<br>Soldering time : 5 seconds Max.<br>Solder temperature : 370~400°C  | Appearance            | No Damage   |

### ■ Recommended Temperature Profile



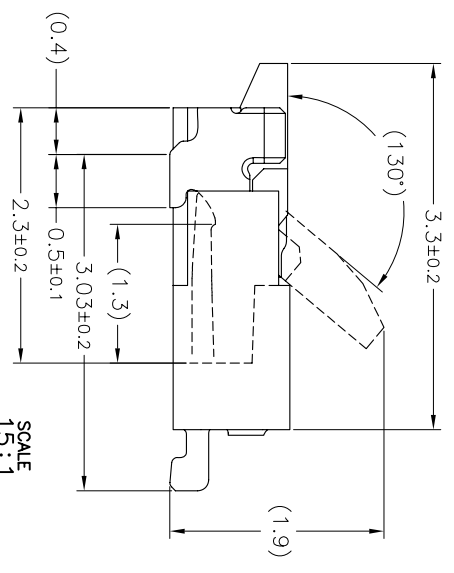


Recommended PCB Layout (Top View)  
Recommended metal mask pattern (thickness 0.1mm)



Recommend FPC Dim.

- NOTES: MATERIAL & FINISH
- MATERIAL:  
HOUSING: LCP (UL 94V-0)  
ACTUATOR: LCP (UL 94V-0)  
TERMINAL: COPPER ALLOY  
SOLDER PIN: COPPER ALLOY
  - PLATING:  
TERMINAL: GOLD FLASH OVER NICKEL  
SOLDER PIN: TIN OVER NICKEL (LEAD FREE)



SCALE 15:1

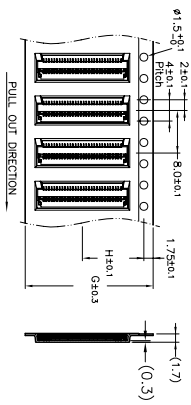
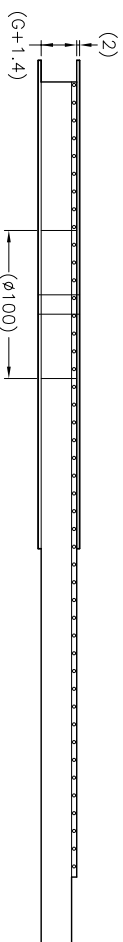
3. ORDER INFORMATION  
THD0510 - XX CL - GF  
NO. OF CONTACTS

| REV.   | REVISIONS | CHK   | DATE       | GENERAL TOLERANCE UNLESS OTHERWISE SPECIFIED | DRAWN      | CHECKED    | APPROVED   | TITLE:                                       | PART NO.        |
|--------|-----------|-------|------------|--|------------|------------|------------|--|-----------------|
| A      | Release   | Jacky | 2012/05/24 | ±0.25<br>XXX<br>X,XXX<br>ANG.                | Jim        | Jim        | 黄德进        | 0.5 PITCH FPC CONN.<br>LOWER CONTACT H=1.0mm | THD0510-XXCL-GF |
| REV. A |           |       |            | ±0.15  | 2012.05.24 | 2012.05.24 | 2012.05.24 | MM   | 1/2             |
| REV. A |           |       |            | ±0.15  | 2012.05.24 | 2012.05.24 | 2012.05.24 | MM   | 1/2             |

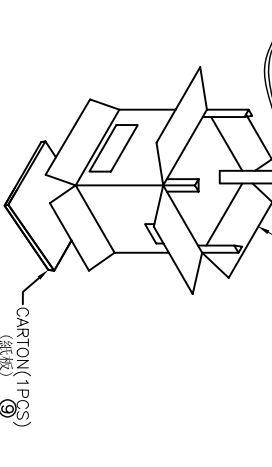
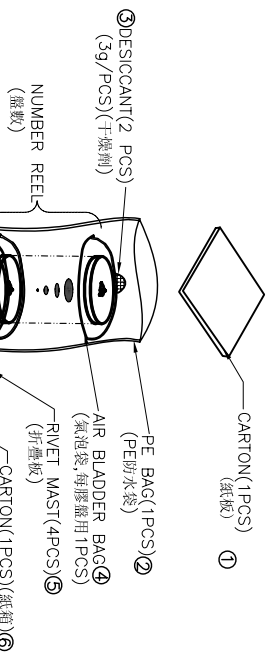
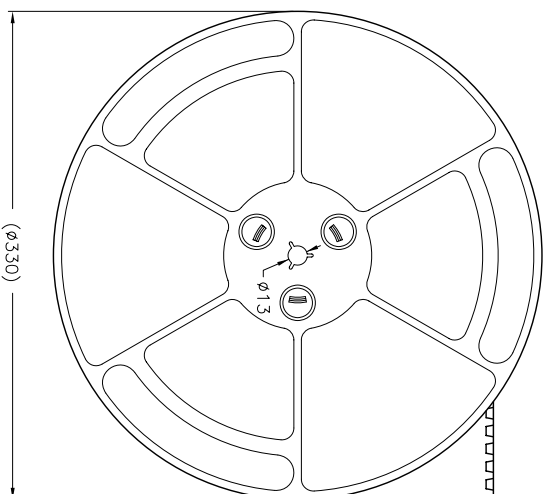
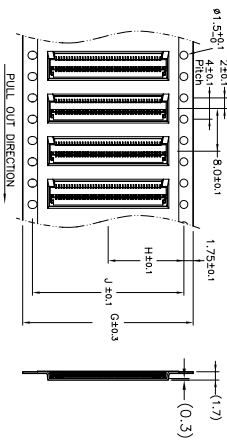
| No. of Contacts | DIM.  |      |      |       |       |
|-----------------|-------|------|------|-------|-------|
|                 | A     | B    | C    | D     | E     |
| 4               | 3.83  | 1.5  | 2.6  | 3.33  | 3.27  |
| 5               | 4.33  | 2.0  | 3.1  | 3.83  | 3.77  |
| 6               | 4.83  | 2.5  | 3.6  | 4.33  | 4.27  |
| 7               | 5.33  | 3.0  | 4.1  | 4.83  | 4.77  |
| 8               | 5.83  | 3.5  | 4.6  | 5.33  | 5.27  |
| 9               | 6.33  | 4.0  | 5.1  | 5.83  | 5.77  |
| 10              | 6.83  | 4.5  | 5.6  | 6.33  | 6.27  |
| 11              | 7.33  | 5.0  | 6.1  | 6.83  | 6.77  |
| 12              | 7.83  | 5.5  | 6.6  | 7.33  | 7.27  |
| 13              | 8.33  | 6.0  | 7.1  | 7.83  | 7.77  |
| 14              | 8.83  | 6.5  | 7.6  | 8.33  | 8.27  |
| 15              | 9.33  | 7.0  | 8.1  | 8.83  | 8.77  |
| 16              | 9.83  | 7.5  | 8.6  | 9.33  | 9.27  |
| 17              | 10.33 | 8.0  | 9.1  | 9.83  | 9.77  |
| 18              | 10.83 | 8.5  | 9.6  | 10.33 | 10.27 |
| 19              | 11.33 | 9.0  | 10.1 | 10.83 | 10.77 |
| 20              | 11.83 | 9.5  | 10.6 | 11.33 | 11.27 |
| 21              | 12.33 | 10.0 | 11.1 | 11.83 | 11.77 |
| 22              | 12.83 | 10.5 | 11.6 | 12.33 | 12.27 |
| 23              | 13.33 | 11.0 | 12.1 | 12.83 | 12.77 |
| 24              | 13.83 | 11.5 | 12.6 | 13.33 | 13.27 |
| 25              | 14.33 | 12.0 | 13.1 | 13.83 | 13.77 |
| 26              | 14.83 | 12.5 | 13.6 | 14.33 | 14.27 |
| 27              | 15.33 | 13.0 | 14.1 | 14.83 | 14.77 |
| 28              | 15.83 | 13.5 | 14.6 | 15.33 | 15.27 |
| 29              | 16.33 | 14.0 | 15.1 | 15.83 | 15.77 |
| 30              | 16.83 | 14.5 | 15.6 | 16.33 | 16.27 |
| 31              | 17.33 | 15.0 | 16.1 | 16.83 | 16.77 |
| 32              | 17.83 | 15.5 | 16.6 | 17.33 | 17.27 |
| 33              | 18.33 | 16.0 | 17.1 | 17.83 | 17.77 |
| 34              | 18.83 | 16.5 | 17.6 | 18.33 | 18.27 |
| 35              | 19.33 | 17.0 | 18.1 | 18.83 | 18.77 |
| 36              | 19.83 | 17.5 | 18.6 | 19.33 | 19.27 |
| 37              | 20.33 | 18.0 | 19.1 | 19.83 | 19.77 |
| 38              | 20.83 | 18.5 | 19.6 | 20.33 | 20.27 |
| 39              | 21.33 | 19.0 | 20.1 | 20.83 | 20.77 |
| 40              | 21.83 | 19.5 | 20.6 | 21.33 | 21.27 |
| 41              | 22.33 | 20.0 | 21.1 | 21.83 | 21.77 |
| 42              | 22.83 | 20.5 | 21.6 | 22.33 | 22.27 |
| 43              | 23.33 | 21.0 | 22.1 | 22.83 | 22.77 |
| 44              | 23.83 | 21.5 | 22.6 | 23.33 | 23.27 |
| 45              | 24.33 | 22.0 | 23.1 | 23.83 | 23.77 |
| 46              | 24.83 | 22.5 | 23.6 | 24.33 | 24.27 |
| 47              | 25.33 | 23.0 | 24.1 | 24.83 | 24.77 |
| 48              | 25.83 | 23.5 | 24.6 | 25.33 | 25.27 |
| 49              | 26.33 | 24.0 | 25.1 | 25.83 | 25.77 |
| 50              | 26.83 | 24.5 | 25.6 | 26.33 | 26.27 |

深圳臺華達科技有限公司  
SHENZHEN THD ELECTRONICS CO., LTD.

# REEL Dim




Tape width 32 and 44 mm



- Notes:
- 1.PER REEL : 5000pcs.
  - 2.Material : Black Conductive Polystyrene Alloy.
  - 3.Thickness : 0.3±0.05mm.
  - 4.All dimensions meet EIA-481-C requirements.

| No.of Contacts | DIM. |      |      | REEL/CARTON | SHEET(S) |
|----------------|------|------|------|-------------|----------|
|                | G    | H    | J    |             |          |
| 4              | 16   | 7.5  | —    | 15          | 75000    |
| 15             | 24   | 11.5 | —    | 10          | 50000    |
| 16             | 32   | 14.2 | 28.4 | 8           | 40000    |
| 31             | 40   | 20.2 | 40.4 | 6           | 30000    |
| 41             | 50   |      |      |             |          |

| REV. | REVISIONS | CHK   | DATE       |
|------|-----------|-------|------------|
| A    | Release   | Jacky | 2012/05/24 |


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**SHENZHEN THD ELECTRONICS CO., LTD.**

|                            |          |            |            |
|----------------------------|----------|------------|------------|
| GENERAL TOLERANCE          | DRAWN    | Jim        | 2012.05.24 |
| UNLESS OTHERWISE SPECIFIED | CHECKED  | Jim        | 2012.05.24 |
| XX                         | APPROVED | 2012.05.24 |            |
| XXX                        |          |            |            |
| X,XXX                      |          |            |            |
| ANG.                       |          |            |            |

**PART NO. THD0510-XXCL-GF**  
**TITLE: 0.5 PITCH FPC CONN. LOWER CONTACT H=1.0mm**

SHEET 2/2  
 UNIT SCALE A4  
 SIZE A  
 REV A

MEAS: 35\*35\*35 CM

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[686116183522](#) [FH64MA-11S-0.25SHW](#)