

东莞市高钺达电子科技有限公司

DONGGUAN GAOYUEDA ELECTRONICS COLTD

承 认 书

SPECIFICATION FOR APPROVAL

Customer : _____

Description : TYPE C 16PIN沉板1.6带钢片

Part No. : TPS16-N1F1-2016-A

Customer P/N : _____

| 东莞市高钺达电子科技有限公司 | | 客 户 | |
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| 品 管 承 认 章 | | 品 管 承 认 章 | |

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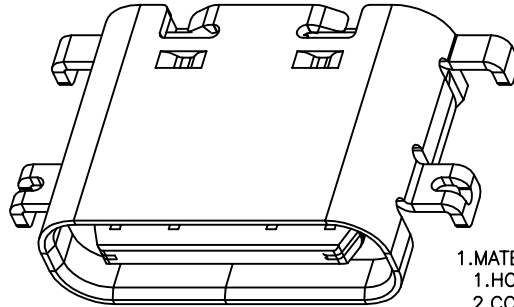
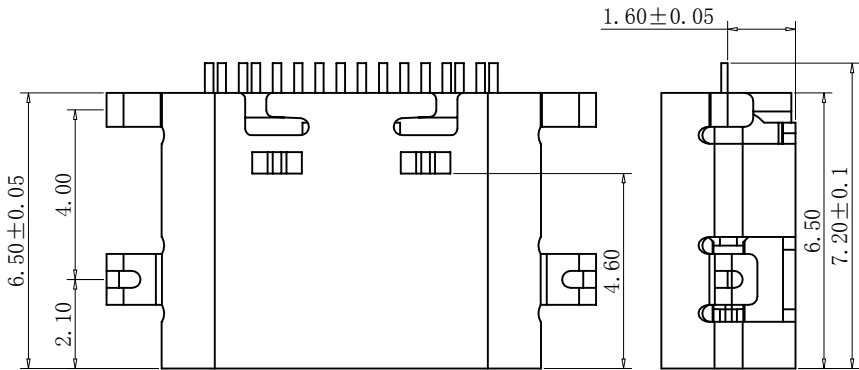
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E-mail: szgaosuda@163.com

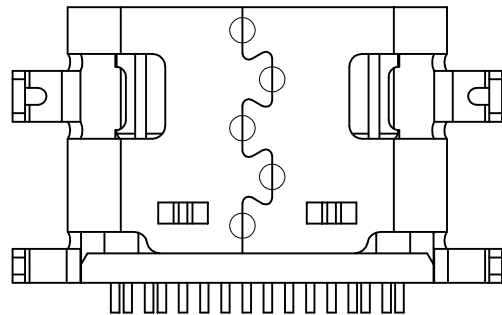
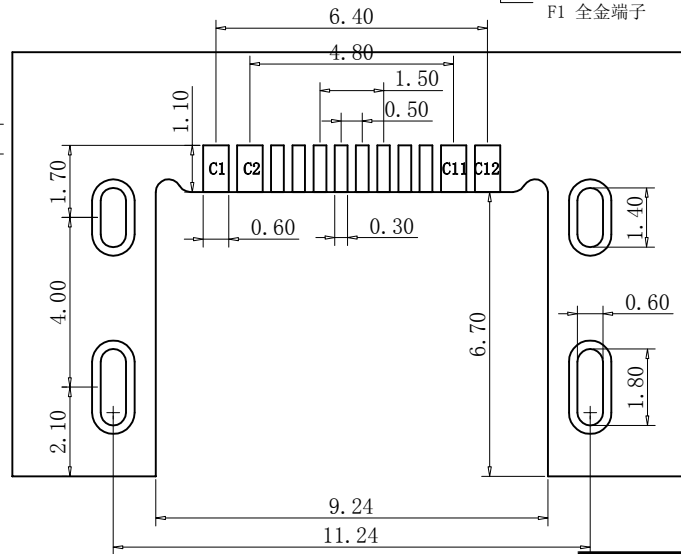
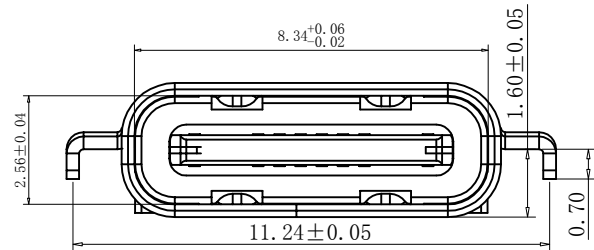
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TPS16-N1S1-2016-A


- 0 普通外壳
3 点焊三点外壳
5 点焊五点外壳
S1 半金锡端子
F1 全金端子

- 1.MATERIAL SPECIFICATION:
1.HOUSING:HIGH TEMPERATURE RESISTANT PLASTIC,UL94 V-0.
2.CONTACTS:COPPER ALLOY
3.MID PLATE: STAINLESS STEEL
4.FRONT SHELL: STAINLESS STEEL
- 2.PLATING SPECIFICATION:
2-1.CONTACTS:
Ni 40u" MIN. UNDER PLATED OVER ALL.
Au PLATED ON THE FUNCTIONAL AREA OF CONTACT.
(GOLD PLATING THICKNESS FOLLOW THE P/N)
PLATING SPECIFICATIONS OF THE SOLDER AREA FOLLOW THE P/N
- 2-2.FRONT SHELL:
SEE TABLE1.
- 2-3.SHIELD PLATE&EMI PLATE:
CLEAR ONLY
- 3.MECHANICAL PERFORMANCE,
3-1.INSERTION FORCE: 5~20N.
3-2.REMOVAL FORCE: 8N~20N.
3-3.DURABILITY: 10000 CYCLES.
- 4.ELECTRICAL PERFORMANCE,
4-1. CURRENT RATING:5.0A
VOLTAGE RATING:5.0V
- 4-2. LLCR:
VBUS & GND PINS AND OTHER PINS: 40mA/PIN MAX.
SHIELD: 50mA/MAX.
LLCR MAX. CHANGE OF ALL PINS: 10mA.
- 4-3.INSULATION RESISTANCE: 100MΩ MIN
4-4.DIELECTRIC WITHSTAND VOLTAGE,AC 100V FOR 1 MINUTE.
5. ENVIRONMENTAL PERFORMANCE:
OPERATING TEMPERATURE: -25°C~+85°C.
- 6.IR REFLOW:
THE PEAK TEMPERATURE ON THE BOARD SHALL
BE MAINTAINED FOR 10 SECONDS AT 260°C.

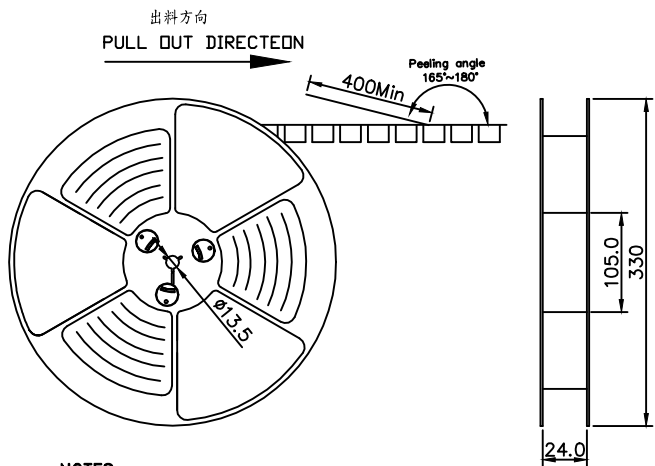


16 PIN USB Type-C Receptacle Interface (Front View)

| PIN NO. | A1/B12 | A4/B9 | B8 | A5 | B7 | A6 | A7 | B6 | A8 | B5 | B4/A9 | B1/A12 |
|-------------|--------|-------|------|-----|----|----|----|----|------|-----|-------|--------|
| SIGNAL NAME | GND | Vbus | SBU2 | CC1 | D- | D+ | D- | D+ | SBU1 | CC2 | Vbus | GND |
| PCB PAD NO. | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 |

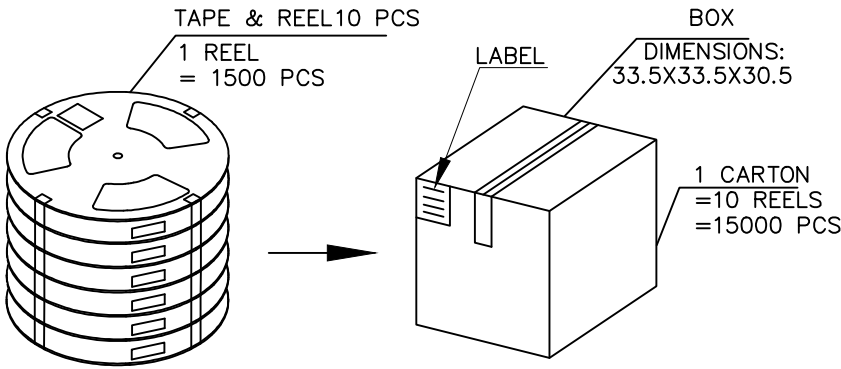
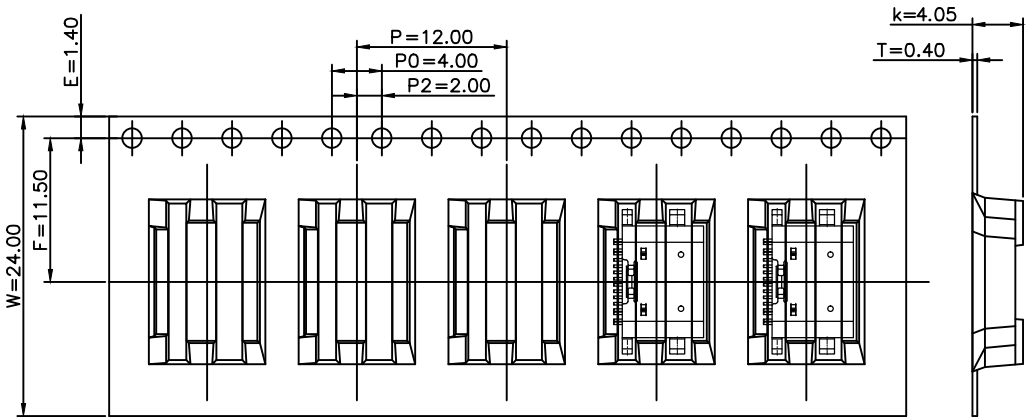
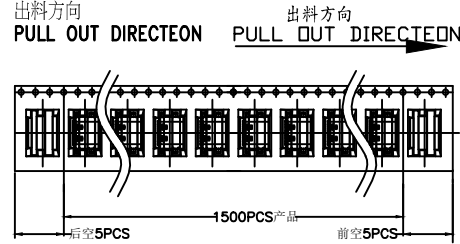
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|--|----------|-----------|--|---|---------------|
| PART NO: TPS16-N1F1-2016-A | | MATERIAL: | | 东莞市高钺达电子科技有限公司 | |
| LOT NO: | | FINSH: | | | |
| UNIT: MM | SIZE: A4 | COLOR: | | TITLE: | |
| TOLERANCES: X. X=±0.35 X. XX=±0.25 X. XXX=±0.15 | | DR: 刘 静 | | TYPE C 16pin 母座 沉板1.6(钢片) | |
| | | CHK: | | DWG NO: FP-090012 | |
| | | APP: | | REV: A | |
| | | | | SCALE: 1:1 | SHEET: 1 OF 1 |
| | | | |  | |

| REV. | DESCRIPTION | APPD | DATE |
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NOTES

1.帶子引導長度
LEAD TAPE LENGTH



| | | | | |
|--|----------|-----------|-----------------------------|---------------|
| PART NO: | | MATERIAL: | 东莞市高钺达电子科技有限公司 | |
| LOT NO: | | FINSH: | | |
| UNIT: MM | SIZE: A4 | COLOR: | TITLE: TYPE C 16pin 沉板母座 | |
| TOLERANCES: X. X=±0.35 X. XX=±0.25 X. XXX=±0.15 | | DR: 刘静 | DWG NO: FP-090012 | REV: A |
| GENERAL ANGLE: X. X=±3.0° X. XX=±2.0° | | CHK: | SCALE: 1:1 | SHEET: 1 OF 1 |
| | | APP: | | |

| | | | | | | | |
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|  | | USB C type series connectors Product Specification | | DOC. No.DB-SP-006 | | Rev.: A5 | Page:1/5 |
| | | | | Approved/Date | | Checked/Date | Written/Date |
| | | | | 卢楚 2018/01/05 | | 卢楚 2018/01/05 | LXH 2018/01/05 |

1.0 Scope : This specification covers the requirements for product performance and test methods of USB C TYPE Series Connectors of the part numbers specified as bellow.

Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

2.0 Rating :

2.1 Current Rating : VBUS pins(A4,B4,A9 and B9)&GND pins(A1,B1 ,B12 and A12) 5.0A(1.25A /Pin)
Other pins 0.25A/Pin

2.2 Temperature Range: storage : -20℃ to +60℃ ;
operatin g : -30℃ to +80℃ :
Humidity: 90% Rh max.

3.0 Test Condition:

All tests shall be performed as bellow conditions unless otherwise specified.

3.1 Temperature range : +15℃ to +35℃
3.2 Humidity range: 90% Rh max


4.0 Test Methods and Requirements:

4.1 Examination of product:


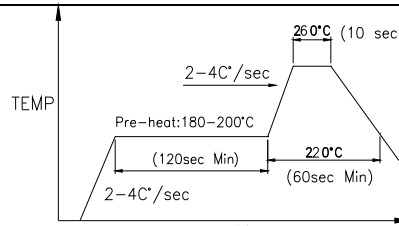
| Item | Test Description | Test Methods | Requirement |
|-------|---|---|--|
| 4.1.1 | Examination of product (Outward Appearance Structure) | EIA 364-18 Shall be confirmed with eyes in accordance with each drawing. Shall be confirmed by using proper measuring instruments. | 1).Outward appearance shall be good without such injurious problem 2).Structure shall be meet the design and dimensional requirements of drawing. |


4.2 Electrical Performance:

| Item | Test Description | Test Methods | Requirement |
|-------|------------------------------|--|----------------|
| 4.2.1 | Low Level Contact Resistance | EIA 364-23 (or MIL-STD-1344A, Method 3002.1, Test Condition B) 30m Ω (Max) when measured at 20mv(max) open circuit at 100mA.Contact resistance below 40 m Ω after 10000 insertion/extraction cycles at a maximum rate of 500 cycles per hour | 40 mΩ Maxi mum |

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|  | | USB C type series connectors Product Specification | DOC. No.DB-SP-006 | | Rev.: A5 | Page:2/5 |
| | | | Approved/Date | | Checked/Date | Written/Date |
| | | | 卢楚 2018/01/05 | | 卢楚 2018/01/05 | LXH 2018/01/05 |
| 4.2.2 | Insulation Resistance | EIA 364-21 (or MIL-STD-202F, Method 302, Test Condition B) /D.C 500 V is applied between adjacent congtacts and insulation resistance is measured within 1 minute. | 100 MΩ Mini mum | | | |
| 4.2.3 | Dielectric Withstanding Voltage | EIA 364-20 (or MIL-STD-202F, Method 301, Test Condition B) Test between adjacent contacts of mated and unmated connector assemblies. The object of this test procedure is to detail a test method to prove that a MICRO USB connector can operate safely at its rated voltage and withstand momentary over potentials due to switching, surges and/or other similar phenomena. | There shall be no shortcircuiting and damage detected at AC 100 V R.M.S for 1 minute. | | | |
| 4.3 Mechanical Performance: (Continued) | | | | | | |
| Item | Test Description | Test Methods | Requirement | | | |
| 4.3.1 | Insertion Force | EIA 364-13 The insertion force test shall be done at a maximum rate of 12.5mm/min. | 0.5~2.0kgf | | | |
| 4.3.2 | Extraction Force | EIA 364-13 The extraction force test shall be done at a maximum rate or 12.5mm/min. | 0.8~2.0kgf | | | |
| 4.3.3 | Durability | EIA 364-09 Mate and unmate Connector assemblies for 10000 cycles at maximum rated of 500 cycles per hour. Flip Interval: Every 2500 cycles | 1) No flashover or insulation breakdown 2) Extraction Force: 1-1000cycles: 0.8~2.0kgf 1000~10000cycles: 0.6~2.0kgf 3)Contact Resistance: Max.50mΩ | | | |
| 4.3.4 | Mechanical Shock | EIA-364-27B Subject mated connector to 50G's half-sine shock pulses of 11msec duration. Three shocks in each direction applied along three mutuall perpendicular planed for a total of 18 | No discontinuities of 1 microsecond or long duration. See note | | | |

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|  | | USB C type series connectors Product Specification | DOC. No.DB-SP-006 | | Rev.: A5 | Page:3/5 |
| | | | Approved/Date | | Checked/Date | Written/Date |
| | | | 卢楚 2018/01/05 | | 卢楚 2018/01/05 | LXH 2018/01/05 |
| | | shocks | | | | |
| 4.3.5 | Vibration | EIA-364-28 Subject mated connectors to 10~55~10Hz traversed in 1 minute at 1.52mm amplitude 2 hours each of 3 mutually perpendicular planes. | No discontinuities of 1 microsecond or long duration. See note | | | |
| 4.4 Environmental Performance: | | | | | | |
| Item | Test Description | Test Methods | | | Requirement | |
| 4.4.1 | Thermal Shock | EIA 364-32, Test Condition I, (or MIL-202F, Method 107G Condition A.) Subject mated connectors to ten cycles between -30℃ to +80℃. The object of this test is to determine the resistance of a micro usb connector to exposure at extremes of high and low temperatures and to the shock of alternate exposures to these extremes, simulating the worst case conditions for storage, transportation and application. | | | 1).Shall meet visual requirement, show no physical damage. 2).Shall meet requirements of additional tests as specified in test sequence in Section 5 | |
| 4.4.2 | Humidity | EIA 364-31, Test Condition A Method III, (or MIL-202F, Method 103B Test Condition B.) Subject mated connectors to 168 Hours (seven complete cycles) The object of this test procedure is to detail a standard method for the evaluation of the properties of materials used in Micro USB connectors as these influenced by the effects of high humidity and heat. | | | 1).Shall meet visual requirement, show no physical damage. 2).Shall meet requirements of additional tests as specified in test sequence in Section 5 | |
| 4.4.3 | Salt Spray | MIL-STD-202F, Method 101D, Test Condition B Subject mated connectors to 24 hours at 35℃ with 5%-Salt-solution concentration. | | | 1).Shall meet visual requirement, show no physical damage. 2).Shall meet requirements of additional tests as specified in test sequence in Section 5 | |

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|  | | USB C type series connectors Product Specification | DOC. No.DB-SP-006 | | Rev.: A5 | Page:4/5 |
| | | | Approved/Date | | Checked/Date | Written/Date |
| | | | 卢楚 2018/01/05 | | 卢楚 2018/01/05 | LXH 2018/01/05 |
| 4.4.4 | Temperature Life | EIA 364-17 Test Condition 3 Method A, Subject mated connectors to temperature life at 80℃ for 250hours | | | 1).Shall meet visual requirement, show no physical damage. 2).Shall meet requirements of additional tests as specified in test sequence in Section 5 | |
| 4.4 Environmental Performance: (Continued) | | | | | | |
| Item | Test Description | Test Methods | | | Requirement | |
| 4.4.5 | Solderability | EIA 364-52 After one hour steam aging. The object of test procedure is to detail a uniform test methods for determining micro usb connectors solderability. The test procedure contained here utilizes the solder dip technique. It is not intended to test or evaluate solder cup, solder eyelet, other hand-soldered type or SMT type terminations. | | | The surface of the portion to be soldered shall at least 95% covered with new solder coating,as specified in Category 2. | |
| 4.4.6 | Resistance to Soldering Heat | 1)for WAVE SOLDE RING : MIL-STD-202F, Method 210A, Test Condition B. Pre-heat : 80℃, 60 Seconds Temperature : 260 ± 5 ℃ Immersion duration : 10 ± 1 sec. | | | 1). No mechanical defect on housing or other parts. | |
| | | 2)for REFLOW SOLDERING : EIAJ RCX-0101/102. Pre-heat : 150(Min)~200(Max) ℃, 60 ~180 Seconds Temperature : 260 ± 5 ℃ Immersion duration : 10~40 sec. | | | | |
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|  | USB C type series connectors Product Specification | DOC. No.DB-SP-006 | | Rev.: A5 | Page:5/5 |
| | | Approved/Date | | Checked/Date | Written/Date |
| | | 卢楚 2018/01/05 | | 卢楚 2018/01/05 | LXH 2018/01/05 |

| 5.0 Test Sequence: | | | | | | | | | |
|----------------------------------|---------------------------------|---------------|------|------|------|------|-----|-----|--|
| Test Group (a) | | Sample Groups | | | | | | | |
| Test Item | Test Description | A | B | C | D | E | F G | | |
| 4.1.1 | Examination of product | 1, 13 | 1, 5 | 1, 8 | 1, 3 | 1, 5 | 1 3 | 1 6 | |
| 4.2.1 | Low Level Contact Resistance | 2, 10 | 2, 4 | | | 2, 4 | | 2 5 | |
| 4.2.2 | Insulation Resistance | 3 11 | | 2 ,6 | | | | | |
| 4.2.3 | Dielectric Withstanding Voltage | 4 12 | | 3 ,7 | | | | | |
| 4.3.1 | Insertion Force | 5 8 | | | | | | | |
| 4.3.2 | Extraction Force | 6 9 | | | | | | | |
| 4.3.3 | Durability | 7 | | | | | | | |
| 4.3.4 | Mechanical Shock | | | | | | | 3 | |
| 4.3.5 | Vibration | | | | | | 4 | | |
| 4.4.1 | Thermal Shock | | | 5 | | | | | |
| 4.4.2 | Humidity | | | 4 | | | | | |
| 4.4.3 | Salt Spray | | 3 | | | | | | |
| 4.4.4 | Temperature Life(see note c) | | | | | 3 | | | |
| 4.4.5 | Solderability | | | 2 | | | | | |
| 4.4.6 | Resistance to Soldering Heat | | | | | | 2 | | |
| Number of Test Samples (Minimum) | | 5 | 5 | 5 5 | | 5 | 5 5 | | |