## Welcome to O-leading

**Oem customized rohs pcb supplier** O-Leading strives to be your one stop solution partner in EMS supply chain, including PCB design, PCB fabrication and PCB assembly (PCBA).We provide some of the most advanced PCB technology, including HDI PCBs,multilayer PCBs, Rigid-Flexible PCBs. We can support from quick turn prototype to medium & mass Production.

In general, our global customers are very impressed with our services:rapid response, competitive price and quality

commitment. Providing more valuable technical service and overall solution is the way O-leading forward.

Looking to the future, O-leading will concentrate on the innovation and development of electronics manufacturing technology as always, and make persistent efforts on PCB & PCBA one-stop service to provide first-class services and create more value for our customers.

PLEASE CLICK THESE FOR MORE INFORMATION



#### O-LEADING TRADIDG



#### Кеер Гедалия

There's a phrase in Buddhism, 'Beginner's mind.'

lt's wonderful to have a beginner's mind

# WE HAVE A DREAM

#### Кеер ЛИПЛІЛБ

l would like to live to study and not study to live.

----Bacon

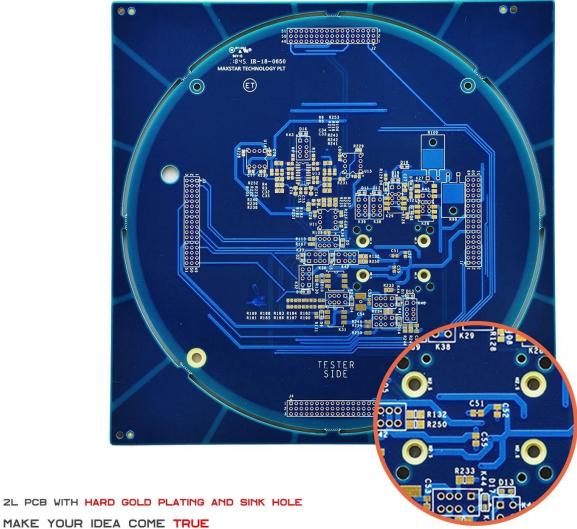


## **Product Description**

HOT sell high quality pcb customized pcb printed circuit boards with sink hole technology hard gold thickness 30u

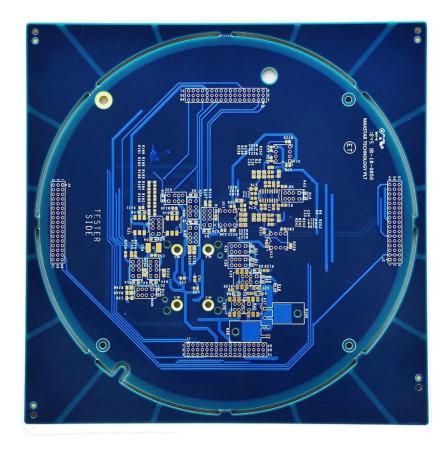






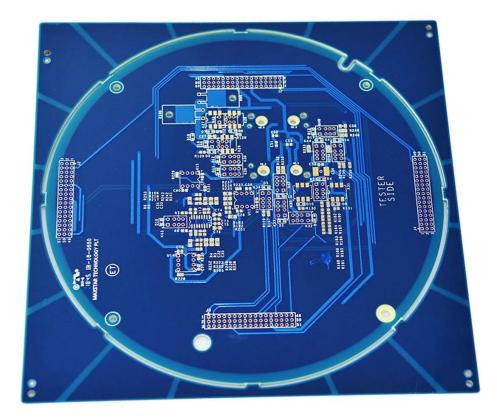






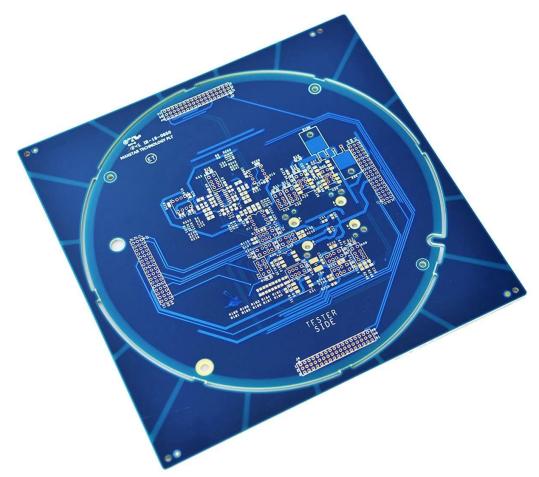






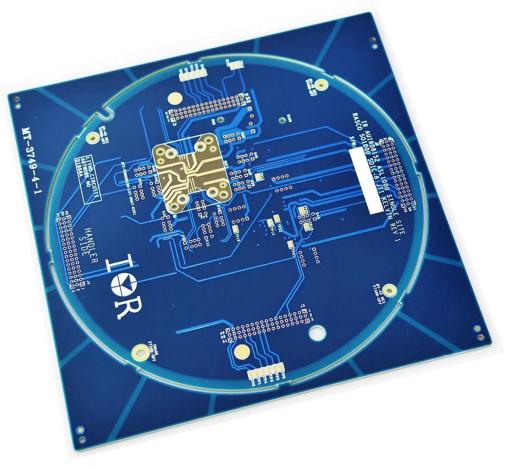


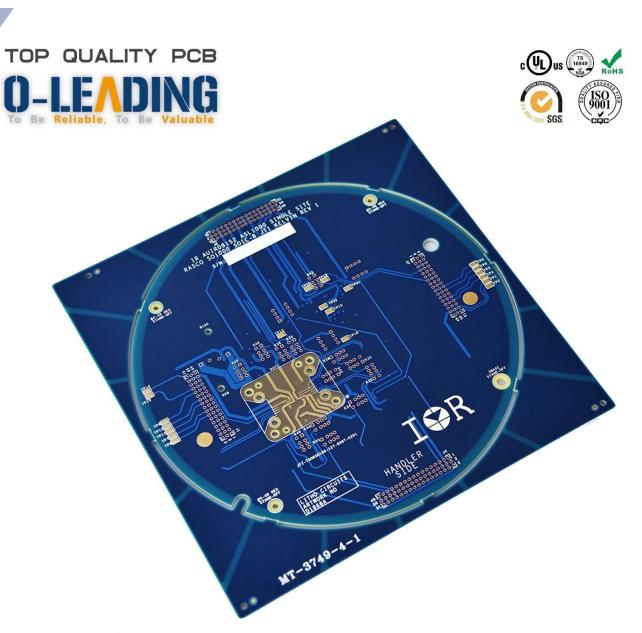




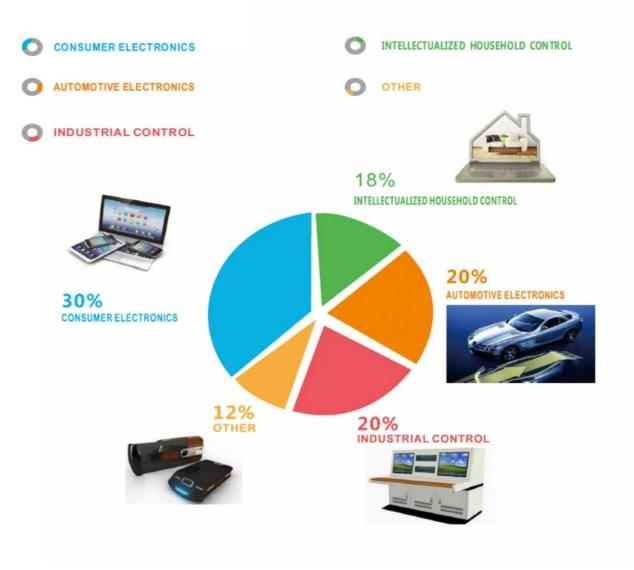


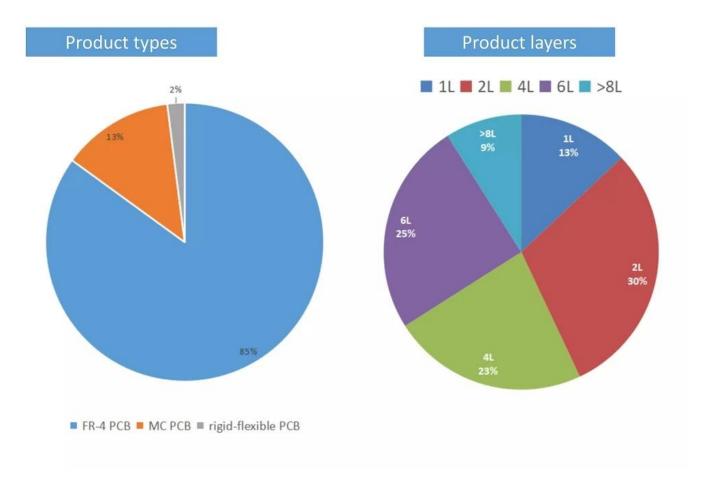






## **Market Share**





# **Production Process**

18 years experience in one-stop PCB and PCBA, we can make your idea come true,



## Our Team



#### Factory PCB





Drilling Machine



Pattern Plating Machine



Scrubbing Machine



Developing Machine



Routing Machine



High-speed flying probe machine



E-test Machine

- Factory SMT













## To be **AELIABLE**

Quality first ,

Customer supreme ,

Scientifically management ,

Striving for famous brand







#### To be **Valuaale**

Science and technology keeps head ,

Put people first,

Be precise and practical,

contribute sincerely



合作伙伴 Customers

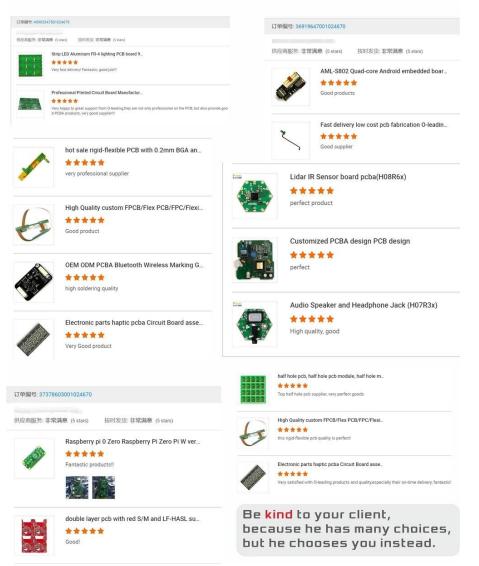


#### O-LEADING *CUSTOMER REVIEW*

#### CUSTOMER VOICE IS EXTREMELY IMPORTANT TO US

| 订单编号: 49335                                                                       | 5463501024670                                                                                                                                                                                                                                          | 订伸编号: 45922411001024670                                                                                                                                                                 |  |  |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| 供应商服务: 非常                                                                         |                                                                                                                                                                                                                                                        | 605時后分: 世際調練 (Sister) 裕田(25): 世際編集 (Sister)<br>High TG180 FR4 Circuit HOJ PCB 94V0 Board                                                                                                |  |  |
|                                                                                   | High quality usb power pcb , pcba manufacturer                                                                                                                                                                                                         | High Tu Lie Pre-4 Uncut In UP Feat Yorku Baste _     This is a very difficult PCB design, but we are fucily to find 0-leading to support the PCB for us/very good to     prCB supplief. |  |  |
|                                                                                   | Fancy has done an exilent job, whenever we write, she answered us within 1 second. O-leading is very perfe<br>cr with fast delivery, fast logistics, the most important thing is good quality, good packaging, thank you!                              | universal TR4 Multilayer PCB washing machine                                                                                                                                            |  |  |
|                                                                                   | oem customized tohs pcb drawing schematic s<br>*******<br>We received the boards, the quality is very good the price is very reasonable. Fancy is very nice & smart & e<br>sperimend, the digitatic is super Fall vill come to see more in the future. | 3丁伸編時: 49024962001024070<br>                                                                                                                                                            |  |  |
| 订单编号: 49298;                                                                      | 同意演评论                                                                                                                                                                                                                                                  | High quality Keyboard pcb & pcba Factory SMT                                                                                                                                            |  |  |
| 現成商服务: 非常满意 (5 stars) 按时发发: 非常满意 (5 stars)                                        |                                                                                                                                                                                                                                                        | In an                                                                                                                                               |  |  |
| <i>M</i> ,                                                                        | High TG180 FR-4 Circuit HDI PCB 94V0 Board                                                                                                                                                                                                             | [7]用泉号-409842250102473<br>(PGR長安: 安安田県 のvan) HIFESE 17日2年 のvan)<br>Pedessonal Penned Circuit Board Manufactur                                                                           |  |  |
| ananananan<br>ananananan<br>ananananan<br>ananananan<br>ananananan<br>tararananan | eem customized rohs pcb drawing schematic s                                                                                                                                                                                                            | ***** Vry high builty PCB products. Orkeding is the best PCB sugginise that we have ever worked with UTGPR-0F: LICKASTP26501026210                                                      |  |  |
|                                                                                   | 國國議評论                                                                                                                                                                                                                                                  | (供应商服务: 非常满意 (5 stars) 按时发货: 非常满意 (5 stars)                                                                                                                                             |  |  |
|                                                                                   | Strip LED Aluminum FR-4 lighting PCB board 9<br>*******<br>High quality, fast delivery, good service, competitive price, lucky and happy to purchase from O-leading!                                                                                   | High TG180 FR-4 Circuit HDI PCB 94V0 Board<br>******<br>We bought two batches, one by DHL, the other one by air, good quality and fast delive                                           |  |  |

## LISTER TO CUSTOMER VOICE



## Certifications







O-LEADING SUPPLY CHAIN (HK) CO., LIMITED

Test Report

# SGS

#### Test Report

#### No. SZXEC1900530401

Date: 30 Mar 2019 Page 2 of 6

#### Test Part Description :

Test Results :

## Specimen No. SGS Sample ID Description SN1 SZX19-005304.001 Green"PCB"

Date: 30 Mar 2019 Page 1 of 6

The following sample(s) was/were submitted and identified on behalf of the clients as : OSP

No. SZXEC1900530401

| SGS Job No. :             | RP19-005089 - SZ                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of Sample Received : | 22 Mar 2019                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Testing Period :          | 22 Mar 2019 - 30 Mar 2019                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Test Requested :          | Selected test(s) as requested by client.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Method :             | Please refer to next page(s).                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test Results :            | Please refer to next page(s).                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Conclusion :              | Based on the performed tests on submitted sample(s), the results of Lead.<br>Mercury, Cadmium, Heavalent chromium, Polybrominated biphenyls (PBBs),<br>Polybrominated diphenyl ethers (PBDEs) and Phthalates such as<br>Bis(2-ethylhexyl) phthalate (DEHP), Buyl) benzyl phthalate (BBP), Dbuyl<br>phthalate (DBP), and Disobutyl phthalate (DBP) comply with the limits as set bj<br>RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/85/EU. |

1313.FLOOR 13, FORTUNE BUILDING, DANSHUI TOWN, HUIYANG DISTRICT, HUIZHOU, GUANGDONG, CHINA

Signed for and on behalf of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Tina

Tina Fan Approved Signatory



Member of the SGS Group (SGS SA)

Remarks : (1) 1 mg/kg = 1 ppm = 0.0001%
 (2) MDL = Method Detection Limit

(3) ND = Not Detected ( < MDL ) (4) "-" = Not Regulated

#### RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/85/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7:2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

| Test Item(s)                 | Limit | Unit  | MDL | 001 |
|------------------------------|-------|-------|-----|-----|
| Cadmium (Cd)                 | 100   | mg/kg | 2   | ND  |
| _ead (Pb)                    | 1,000 | mg/kg | 2   | 8   |
| Mercury (Hg)                 | 1,000 | mg/kg | 2   | ND  |
| Hexavalent Chromium (Cr(VI)) | 1,000 | mg/kg | 8   | ND  |
| Sum of PBBs                  | 1.000 | mg/kg |     | ND  |
| Monobromobiphenyl            | -     | mg/kg | 5   | ND  |
| Dibromobiphenyl              | 12    | mg/kg | 5   | ND  |
| Tribromobiphenyl             |       | mg/kg | 5   | ND  |
| Tetrabromobiphenyl           |       | mg/kg | 5   | ND  |
| Pentabromobiphenyl           |       | mg/kg | 5   | ND  |
| Hexabromobiphenyl            | -     | mg/kg | 5   | ND  |
| Heptabromobiphenyl           | -     | mg/kg | 5   | ND  |
| Octabromobiphenyl            |       | mg/kg | 5   | ND  |
| Nonabromobiphenyl            |       | mg/kg | 5   | ND  |
| Decabromobiphenyl            |       | mg/kg | 5   | ND  |
| Sum of PBDEs                 | 1,000 | mg/kg |     | ND  |
| Monobromodiphenyl ether      |       | mg/kg | 5   | ND  |
| Dibromodiphen yl ether       |       | mg/kg | 5   | ND  |
| Tribromodiphenyl ether       |       | mg/kg | 5   | ND  |
| Tetrabromodiphenyl ether     | -     | mg/kg | 5   | ND  |
| Pentabromodiphenyl ether     |       | mg/kg | 5   | ND  |



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## UL Product iQ™



E490354

ZPMV2.E490354 - WIRING, PRINTED - COMPONENT

## Wiring, Printed - Component

See General Information for Wiring, Printed - Component

#### O-LEADING SUPPLY CHAIN (HK) CO LTD

ROOM 1205, 12/F TAI SANG BANK BLDG 130-132 DES VOEUS ROAD CENTRAL, HONG KONG

|                   | Cond            | Width           |                      |     | Max        |      |     | Max  |       |       |   |
|-------------------|-----------------|-----------------|----------------------|-----|------------|------|-----|------|-------|-------|---|
|                   |                 | Min             | Cond                 | SS/ | Area       | Solo | der | Oper |       | Meets | с |
|                   | Min             | Edge            | Thk                  | DS/ | Diam       | Lim  | its | Temp | Flame | UL796 | т |
| Туре              | mm(in)          | mm(in)          | mic(mil)             | DSO | mm(in)     | с    | sec | с    | Class | DSR   | L |
| Multilayer (m     | ass laminate) p | rinted wiring l | ooards.              |     |            |      |     |      |       |       |   |
| O-LEADING-<br>401 | 0.1 (0.004)     | 0.3 (0.012)     | 34 (1.34)            | DS  | 12.7 (0.5) | 260  | 10  | 130  | V-0   | -     | - |
| O-LEADING-<br>407 | 0.08 (0.003)    | 0.2 (0.008)     | 17 (0.67)            | DS  | 9.7 (0.4)  | 260  | 10  | 130  | V-0   | All   | - |
| Multilayer pri    | nted wiring bo  | ards.           | A                    |     |            |      |     |      |       |       |   |
| O-LEADING-<br>408 | 0.125 (0.005)   | 0.125 (0.005)   | 12 (0.47)<br>Int:136 | DS  | 50.8 (2.0) | 280  | 20  | 130  | V-0   | All   | * |
| Single layer p    | rinted wiring b | oards.          | n.                   |     |            |      |     | 600  | 3 7   | 200   |   |
| O-LEADING-<br>002 | 0.38 (0.015)    | 1.14 (0.045)    | 34 (1.34)            | SS  | 19.1 (0.8) | 260  | 10  | 105  | V-0   | All   | - |
| O-LEADING-<br>003 | 0.38 (0.015)    | 1.14 (0.045)    | 34 (1.34)            | SS  | 19.1 (0.8) | 260  | 10  | 130  | V-0   |       | - |
| O-LEADING-<br>033 | 0.15 (0.006)    | 0.3 (0.012)     | 34 (1.34)            | SS  | 25.4 (1.0) | 260  | 10  | 120  | V-0   | All   | - |
| O-LEADING-<br>205 | 0.1 (0.004)     | 0.3 (0.012)     | 34 (1.34)            | DS  | 69.6 (2.7) | 260  | 10  | 130  | V-0   | All   | - |
| O-LEADING-<br>206 | 0.15 (0.006)    | 0.33 (0.013)    | 17 (0.67)            | DS  | 69.6 (2.7) | 260  | 10  | 130  | V-0   | All   | - |
| O-LEADING-<br>D01 | 0.14 (0.006)    | 0.15 (0.006)    | 33 (1.30)            | DS  | 25.4 (1.0) | 260  | 10  | 130  | V-0   | All   | * |
| O-LEADING-<br>S01 | 0.25 (0.010)    | 0.25 (0.010)    | 17 (0.67)            | SS  | 25.4 (1.0) | 260  | 4   | 130  | V-0   | All   | * |

#### WIRING, PRINTED - COMPONENT | UL Product iQ

| O-LEADING-<br>S02 | 0.2 (0.008)  | 0.2 (0.008)  | 17 (0.67) | SS | 25.4 (1.0) | 260 | 4 | 130 | НВ  |     | * |
|-------------------|--------------|--------------|-----------|----|------------|-----|---|-----|-----|-----|---|
| O-LEADING-<br>S03 | 0.25 (0.010) | 0.25 (0.010) | 34 (1.34) | SS | 25.4 (1.0) | 260 | 4 | 130 | V-0 | All | * |

\* - CTI marking is optional and may be marked on the printed wiring board.

Marking: Company name or file number and type designation. May be followed by a suffix to denote factory identification or burning test classification.

并不是所有出现在本数据库中的公司名称和产品都满足了UL跟踪检验服务的要求。只有带有 UL 标志的产品,才应该被视为经过 UL认证,并满足UL 跟踪检验服务的要求。注意查看产品上的标志。

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# Process Capability

| PCB Production Capabilities         |                                                      |                                                                                  |  |  |  |
|-------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------|--|--|--|
| Layer Count                         | 1Layer-32Layer                                       |                                                                                  |  |  |  |
| Finished copper thickness           | 1/3oz-12oz                                           |                                                                                  |  |  |  |
| Min Line width/spacing internal     | 3.0mil/3.0mil                                        |                                                                                  |  |  |  |
| Min Line width/spacing external     | 4.0mil/4.0mil                                        |                                                                                  |  |  |  |
| Max Aspect Ratio                    | 10:1                                                 |                                                                                  |  |  |  |
| Board thickness                     | 0.2mm-5.0mm                                          |                                                                                  |  |  |  |
| Max Panel size(inches)              | 635*1500mm                                           |                                                                                  |  |  |  |
| Minimum Drilled Hole Size           | 4mil                                                 |                                                                                  |  |  |  |
| Plated Hole Tolerance               | +/-3mil                                              |                                                                                  |  |  |  |
| Blind/Buried Vias (AII Types)       | YES                                                  |                                                                                  |  |  |  |
| Via Fill(Conductive,Non-Conductive) | YES                                                  |                                                                                  |  |  |  |
| Base Material                       | FR-4,FR-4high Tg.Halogen free n<br>manufacture China | naterial,Rogers,Aluminium base,Polyimide,Heavy Copper/FR4 Rigid Double layer PCB |  |  |  |
| Surface finishes                    | HASL,OSP,ENIG,HAL-LF,lmmers                          | ion silver, Immersion Tin, Gold fingers, Carbon ink                              |  |  |  |
| <b>SMT Production Capab</b>         | ilities                                              |                                                                                  |  |  |  |
| PCB Material                        |                                                      | FR-4,CEM-1,CEM-3,Aluminum-based board                                            |  |  |  |
| Max PCB size                        |                                                      | 510x1500mm                                                                       |  |  |  |
| Min PCB size                        |                                                      | 50x50mm                                                                          |  |  |  |
| PCB Thickness                       |                                                      | 0.5mm-4.5mm                                                                      |  |  |  |
| Board thickness                     |                                                      | 0.5-4mm                                                                          |  |  |  |
| Min Components size                 |                                                      | 0201                                                                             |  |  |  |
| Standard chip size compone          | ent                                                  | 0603 and larger                                                                  |  |  |  |
| Component max height                |                                                      | 15mm                                                                             |  |  |  |
| Min lead pitch                      |                                                      | 0.3mm                                                                            |  |  |  |
| Min BGA ball pitch                  |                                                      | 0.4mm                                                                            |  |  |  |
| Placement precision                 |                                                      | +/-0.03mm                                                                        |  |  |  |

# Packaging & Delivery

## Shipping service





Express

| Quick Turn Lead Time |          |                     |  |  |  |
|----------------------|----------|---------------------|--|--|--|
| Layer Count:         | Lead Tim | Special Requirement |  |  |  |
| 1L/2L                | 2-3days  | 24 Hours,48 Hours   |  |  |  |
| 4L                   | 3-4days  | 48 Hours            |  |  |  |
| 6L                   | 4-5days  | 72 Hours            |  |  |  |
| 8L                   | 5-6days  | NA                  |  |  |  |
| 10L                  | 6-7days  | NA                  |  |  |  |
| 12L                  | 7-8days  | NA                  |  |  |  |
| 14L                  | 8-9days  | NA                  |  |  |  |

| Standard Lead Time |                  |                        |  |  |  |
|--------------------|------------------|------------------------|--|--|--|
| Layer Count:       | Sample Lead Time | Volume order lead time |  |  |  |
| 2L                 | 4 days           | 10 days                |  |  |  |
| 4L                 | 5 days           | 11 days                |  |  |  |
| 6L                 | 6 days           | 12 days                |  |  |  |
| 8L                 | 8 days           | 14 days                |  |  |  |
| 10L                | 10 days          | 16 days                |  |  |  |
| 12L                | 12 days          | 18 days                |  |  |  |
| 14L                | 14 days          | 20 days                |  |  |  |
| 16-32L             | 18 days          | 24 days                |  |  |  |

FAQ

#### **1**. How do O-Leading ensure quality?Our high quality standard is achieved with the following.

1.1 The process is strictly controlled under ISO 9001:2008 standards.

1.2 Extensive use of software in managing the production process

1.3 State-of-art testing equipments and tools. E.g. Flying Probe, X-ray Inspection, AOI (Automated Optical Inspector) and ICT(in-circuit testing).

1.4.Dedicated quality assurance team with failure case analysis process

1.5.Continuous staff training and education

#### 2. How do O-Leading keep your price competitive?

Over the last decade, prices of many raw materials (e.g. copper, chemicals) had doubled, tripled or quadrupled; Chinese currency RMB had appreciated 31% over US dollar; And our labor cost also increased significantly.

However, O-Leading have kept our pricing steady. This owns entirely to our innovations in reducing cost, avoiding wastes and improving efficiency. Our prices are very competitive in the industry at the same quality level.

We believe in a win-win partnership with our customers. Our partnership will be mutually beneficial if we can provide you anedgeon cost and quality.

### 3. What kinds of boards can O-Leading process?

Common FR4, high-TG and halogen-free boards, Rogers, Arlon, Telfon, aluminum/copper-based boards, PI, etc.

## 4. What data are needed for PCB & PCBA production?

4.1 BOM (Bill of Materials) with reference designators: component description, manufacturer's name and part number.

4.2 PCB Gerber files.

4.3 PCB fabrication drawing and PCBA assembly drawing.

4.4 Test procedures.

4.5 Any mechanical restrictions such as assembly height requirements.

### 5. What's the typical process flow for multi-layer PCB?

Material cutting  $\rightarrow$  Inner dry film  $\rightarrow$  inner etching  $\rightarrow$  Inner AOI  $\rightarrow$  Multi-bond  $\rightarrow$  Layer stack up Pressing  $\rightarrow$  Drilling  $\rightarrow$  PTH  $\rightarrow$  Panel Plating  $\rightarrow$  Outer Dry Film  $\rightarrow$  Pattern Plating  $\rightarrow$  Outer etching  $\rightarrow$  Outer AOI  $\rightarrow$  Solder Mask  $\rightarrow$  Component Mark  $\rightarrow$  Surface finish  $\rightarrow$  Routing  $\rightarrow$  E/T  $\rightarrow$  Visual Inspection.

### 6. What's the key equipments for HDI manufacturing?

Key equipment list is as following: Laser drilling machine, Pressing machine, VCP line, Automatic Exposing machine, LDI and etc. The equipments we have are the best in the industry, laser drilling machines are from Mitsubishi and Hitachi, LDI machines are from Screen(Japan), Automatic Exposing machines are also from Hitachi, all of them make we can meet customer's technical requirements.

### 7. How many types of surface finish O-lead can do?

O-the leader has the full series of surface finish, such as: ENIG, OSP, LF-HASL, gold plating (soft/hard), immersion silver, Tin, silver plating, immersion tin plating, carbon ink and etc. .. OSP, ENIG, OSP + ENIG commonly used on the HDI, we usually recommend that you use a client or OSP OSP + ENIG if BGA PAD size less than 0.3 mm.

#### 8. What's your capability for FPC? Can O-Leading provide SMT service also?

O-Leading can fabricate FPC from single layer to 8layer, the working panel size can be as large as 2000mm\*240mm, please find the details in the page "Flex Capability". We also provide SMT one stop service to customer.

#### 9. What are the main factors which will affect the price of PCB?

Material; Surface finish; Technology difficulty; Different quality criteria; PCB characteristics; Payment terms; Different manufacturing countries.

## 10. What's the definition of PCB, PWB and FPC and what's the difference?

PCB is short for Printed Circuit Board; PWB is short for Printed Wire Board, same meaning as Printed Circuit Board; FPC is short for Flexible Printed Board.

#### 11. What factors should be considered when choosing the material for a PCB board?

Below factors should be considered when we choose the material for PCB: The material's Tg value should be greater than the operation temperature; Low CTE material has good performance of thermal stability; Good thermal resistance performance: Normally PCBs are required to resist 250°C for at least 50s. Good flatness; In consideration of the electrical properties, low loss/high permittivity material is used on high frequency PCB;

Polyimide glass fiber substrate used for flexible PCB; Metal core is used when the product has strict requirement of heat dissipation.

### 12. What's the merits of O-leading's rlgid-flex PCB?

O-leading's rigid-flex PCB has the characters of both FPC and PCB, so it can be used in some special products. Some part is flexible while the other part rigid, it can help save product's interior space, reduce product volume and improve performance.

### 13. How to you make the impedance calculation?

The impedance control system is done using some test coupons, the SI6000 soft and the CITS 500s equipment from POLAR INSTRUMENTS. The equipment measures the impedance on a representative track configuration coupon of which the client has given us a determinate value and tolerance.