

# Welcome to O-leading

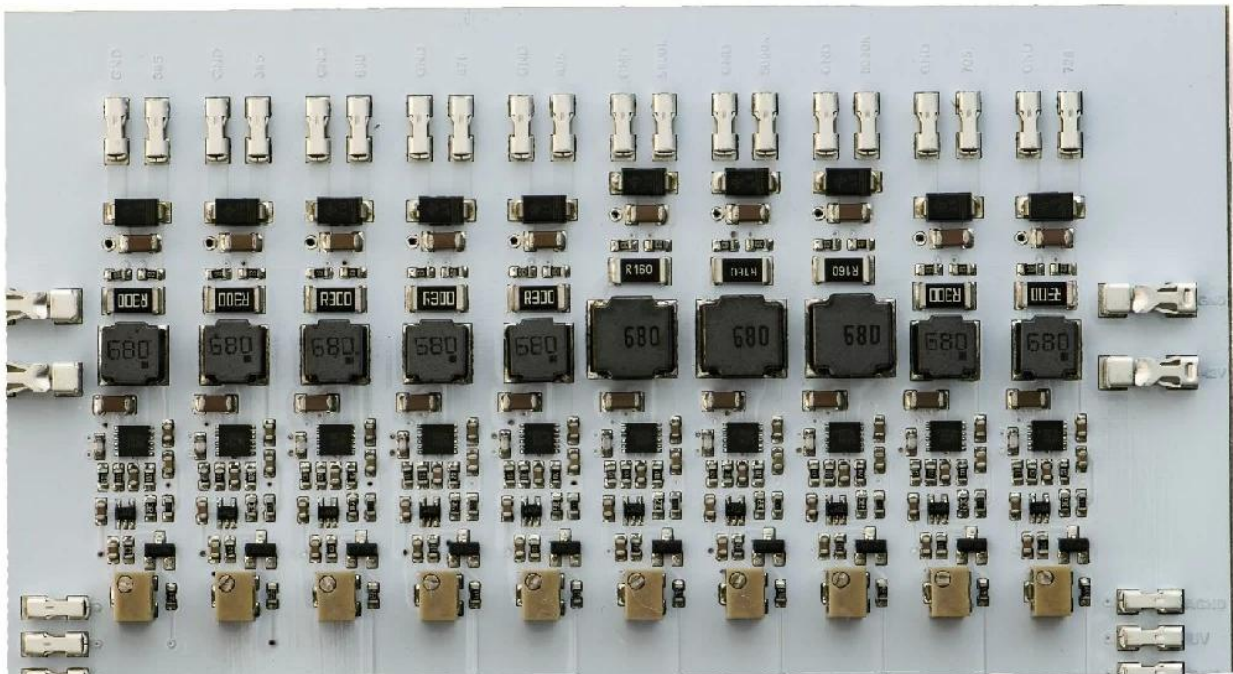
O-Leading strives to be your one stop solution partner in EMS supply chain, including PCB design , PCB fabrication and PCB assembly (PCBA).We provide some of the most advanced PCB technology, including HDI PCBs,multilayer PCBs, Rigid-Flexible PCBs.We can support from quick turn prototype to medium &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

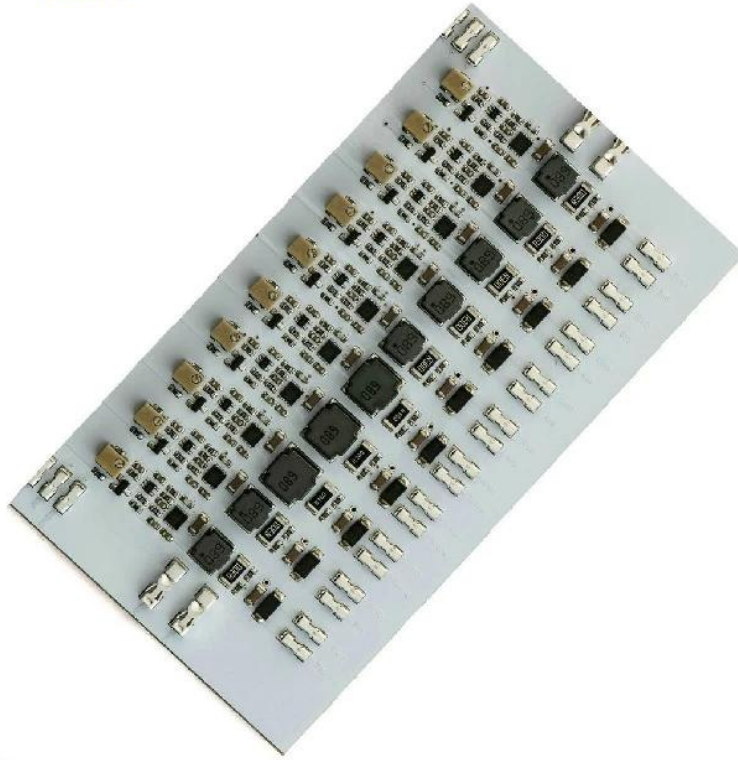
Looking to the future, O-leading will concentrate on the innovation and development of electronics manufacturing technology as always, and make persistent efforts on PCB & PCBA one-stop service to provide first-class services and create more value for our customers.

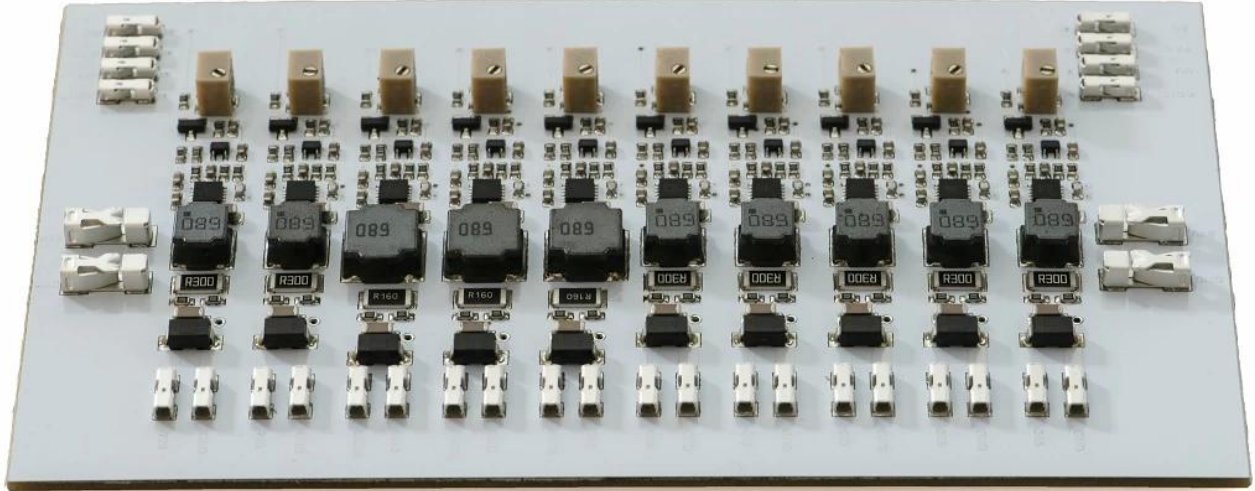
PLEASE CLICK THESE FOR MORE INFORMATION [China Rigid-flexible pcb on sale](#)

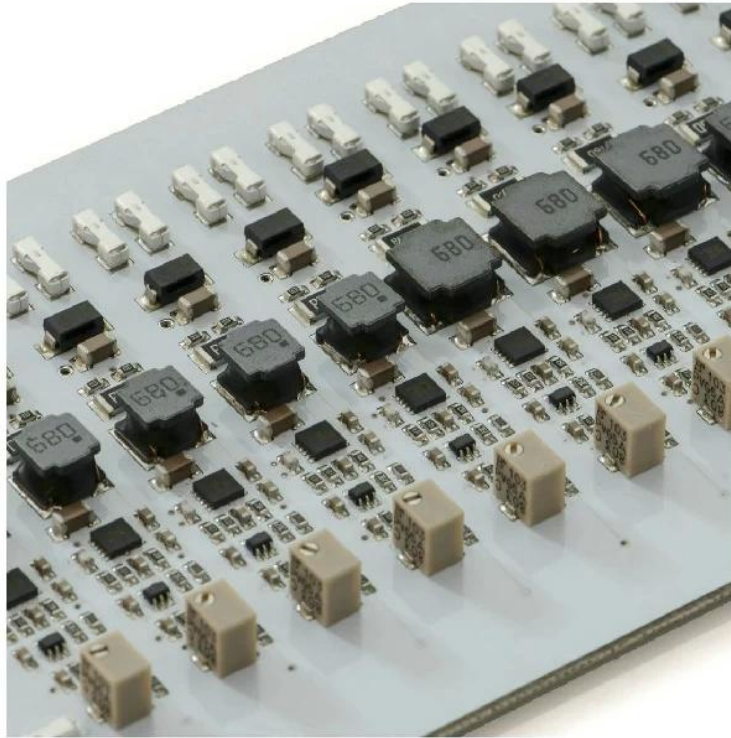
## Product Description



[www.o-leading.com](http://www.o-leading.com)







[www.o-leading.com](http://www.o-leading.com)

Rigid-flexible PCB with ENIG

Our Team



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Factory PCB

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Automatic vacuum press machine



Drilling Machine



Pattern Plating Machine



Scrubbing Machine



Developing Machine



Routing Machine



High-speed flying probe machine



E-test Machine

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Factory SMT

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# Certifications

CICC INSPECTION CERTIFICATION



**嘉泰认证**

**QUALITY MANAGEMENT SYSTEM CERTIFICATE**

Certificate No: 18118Q10347R05

**We hereby certify that**

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

Credit No: 61691591-000-07-18-7

Registration Add: FLAT/RM 1205 12/F TAI SANG BANK BUILDING 130-132 DES VODEUS ROAD CENTRAL HK

Business Add: 1213, Floor 13, Fortune Building, Danshui Town, Huiyang District, Huizhou, Guangdong, China

Has implemented and maintains a **Quality Management System** Which fulfills the requirements of the following standards  
GB/T19001-2016 idt ISO9001:2015

**Scope of certification**  
Sales of printed circuit boards

Initial issuance period: February 27, 2018  
Renewal date: April 22, 2019  
This certificate is valid during: April 22, 2019 – February 26, 2021  
This certificate is invalid without CICC qualified label in the following period

|                             |                              |                |
|-----------------------------|------------------------------|----------------|
| First supervision and audit | Second supervision and audit | Qualified mark |
|-----------------------------|------------------------------|----------------|

The certification registration number does not include those production stages which fail to be covered by the relevant effective administrative procedures and qualification procedures stipulated by the state. The effectiveness of this certificate shall be restricted to those activities which are covered by the certification. The actual information of this certification can be searched on the internet of CICC www.cicc.com.cn






CICC INSPECTION CERTIFICATION



**嘉泰认证**

**质量管理体系认证证书**

证书号: 18118Q10347R05

**兹证明**

**诚领供应链（香港）有限公司**

统一社会信用代码: 61691591-000-07-18-7

注册地址: 香港中環德輔道中130-132號大生銀行大廈1205室

经营地址: 广东惠州惠阳淡水南亨西路财富大厦13楼1313

**建立的质量管理体系符合**  
GB/T19001-2016 idt ISO9001:2015 质量标准适用条款的要求

**认证范围**  
印刷线路板的销售

初次获证日期: 2018年02月27日  
换证日期: 2019年04月22日  
证书有效期: 自2019年04月22日至2021年02月26日  
在下列期限内, 未经CICC黏贴合格标贴, 本证书无效

|       |       |     |
|-------|-------|-----|
| 第一次监督 | 第二次监督 | 黏贴处 |
|-------|-------|-----|

本证书认证范围不包括未取得有效的国家规定的行政许可、资质许可的产品/服务范围; 本证书通过CICC定期监督审核保持, 与年度《保持认证通知书》共同方为有效; 本证书信息可在国家认监委网站: www.cnca.gov.cn及CICC网站www.cicc.com.cn查询。








Test Report

No. SZXEC1900530401 Date: 30 Mar 2019 Page 1 of 6

O-LEADING SUPPLY CHAIN (HK) CO., LIMITED
1313.FLOOR 13, FORTUNE BUILDING, DANSHUI TOWN, HUIYANG DISTRICT, HUIZHOU, GUANGDONG, CHINA

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

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, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

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

Tina
Tina Fan
Approved Signatory



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Test Report

No. SZXEC1900530401 Date: 30 Mar 2019 Page 2 of 6

Test Results :

Test Part Description :

Table with 3 columns: Specimen No., SGS Sample ID, Description. Row 1: SN1, SZX19-005304.001, Green"PCB"

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 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Table with 5 columns: Test Item(s), Limit, Unit, MDL, 0/1. Lists various chemical elements and compounds like Cadmium, Lead, Mercury, Hexavalent Chromium, etc.



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# 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

E490354

| Type   | Cond Width    |               | Cond Thk             | SS/ DS/ DSO | Max        | Max    |      | Meets | C     |       |   |
|--|---------------|---------------|----------------------|-------------|------------|--------|------|-------|-------|-------|---|
|  | Min           | Edge          |                      |             | Area       | Solder | Oper |       |       | Flame |   |
|  | mm(in)        | mm(in)        | mic(mil)             |             | Diam       | Limits | Temp | Class | UL796 | T     |   |
| <b>Multilayer (mass laminate) printed wiring boards.</b> |               |               |                      |             |            |        |      |       |       |       |   |
| <b>O-LEADING-401</b>                                     | 0.1 (0.004)   | 0.3 (0.012)   | 34 (1.34)            | DS          | 12.7 (0.5) | 260    | 10   | 130   | V-0   | -     |   |
| <b>O-LEADING-407</b>                                     | 0.08 (0.003)  | 0.2 (0.008)   | 17 (0.67)            | DS          | 9.7 (0.4)  | 260    | 10   | 130   | V-0   | All   |   |
| <b>Multilayer printed wiring boards.</b>                 |               |               |                      |             |            |        |      |       |       |       |   |
| <b>O-LEADING-408</b>                                     | 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   | * |
| <b>Single layer printed wiring boards.</b>               |               |               |                      |             |            |        |      |       |       |       |   |
| <b>O-LEADING-002</b>                                     | 0.38 (0.015)  | 1.14 (0.045)  | 34 (1.34)            | SS          | 19.1 (0.8) | 260    | 10   | 105   | V-0   | All   | - |
| <b>O-LEADING-003</b>                                     | 0.38 (0.015)  | 1.14 (0.045)  | 34 (1.34)            | SS          | 19.1 (0.8) | 260    | 10   | 130   | V-0   | ▲     | - |
| <b>O-LEADING-033</b>                                     | 0.15 (0.006)  | 0.3 (0.012)   | 34 (1.34)            | SS          | 25.4 (1.0) | 260    | 10   | 120   | V-0   | All   | - |
| <b>O-LEADING-205</b>                                     | 0.1 (0.004)   | 0.3 (0.012)   | 34 (1.34)            | DS          | 69.6 (2.7) | 260    | 10   | 130   | V-0   | All   | - |
| <b>O-LEADING-206</b>                                     | 0.15 (0.006)  | 0.33 (0.013)  | 17 (0.67)            | DS          | 69.6 (2.7) | 260    | 10   | 130   | V-0   | All   | - |
| <b>O-LEADING-D01</b>                                     | 0.14 (0.006)  | 0.15 (0.006)  | 33 (1.30)            | DS          | 25.4 (1.0) | 260    | 10   | 130   | V-0   | All   | * |
| <b>O-LEADING-S01</b>                                     | 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

|                      |              |              |           |    |            |     |   |     |     |     |   |
|----------------------|--------------|--------------|-----------|----|------------|-----|---|-----|-----|-----|---|
| <b>O-LEADING-S02</b> | 0.2 (0.008)  | 0.2 (0.008)  | 17 (0.67) | SS | 25.4 (1.0) | 260 | 4 | 130 | HB  | ▲   | * |
| <b>O-LEADING-S03</b> | 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.

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# Process Capability

| PCB Production Capabilities         |   | SMT Production Capabilities  |                                       |
|-------------------------------------|---|------------------------------|---------------------------------------|
| Layer Count                         | 1Layer-32Layer  | PCB Material                 | FR-4,CEM-1,CEM-3,Aluminum-based board |
| Finished copper thickness           | 1/3oz-12oz  |                              |                                       |
| Min Line width/spacing internal     | 3.0mil/3.0mil   | Max PCB size                 | 510x460mm                             |
| Min Line width/spacing external     | 4.0mil/4.0mil   | Min PCB size                 | 50x50mm                               |
| Max Aspect Ratio                    | 10:1  | PCB Thickness                | 0.5mm-4.5mm                           |
| Board thickness                     | 0.2mm-5.0mm   | Board thickness              | 0.5-4mm                               |
| Max Panel size(inches)              | 635*1500mm  | Min Components size          | 0201                                  |
| Minimum Drilled Hole Size           | 4mil  | Standard chip size component | 0603 and larger                       |
| Plated Hole Tolerance               | +/-3mil   | Component max height         | 15mm                                  |
| Blind/Buried Vias (All Types)       | YES   | Min lead pitch               | 0.3mm                                 |
| Via Fill(Conductive,Non-Conductive) | YES   | Min BGA ball pitch           | 0.4mm                                 |
| Base Material                       | FR-4,FR-4high Tg,Halogen free material,Rogers,Aluminium base,Polyimide,Heavy Copper | Placement precision          | +/-0.03mm                             |
| Surface finishes                    | HASL,OSP,ENIG,HAL-LF,Immersion silver,Immersion Tin,Gold fingers,Carbon ink         |                              |                                       |

## Packaging & Delivery

### Shipping service



| 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 an edgeon 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 → Inner dry film → inner etching → Inner AOI → Multi-bond → Layer stack up Pressing → Drilling → PTH → Panel Plating → Outer Dry Film → Pattern Plating → Outer etching → Outer AOI → Solder Mask → Component Mark → Surface finish → Routing → E/T → 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 rigid-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.