

# O-leading 專業 製造 印刷電路板

O-Leading 專業 PCB 製造, PCB 設計及 PCB 組裝 (PCBA) 服務 EMS 客戶。我們提供多種印刷電路板產品, 包括 HDI PCB, 剛性 PCB, 剛-柔性 PCB 及柔性 PCB 印刷電路板。我們可為客戶提供從設計到生產的全方位服務。

無論客戶需要的是大批量生產, 還是小批量生產, 我們都能提供優質的服務。我們擁有先進的生產設備和技術, 確保客戶的印刷電路板產品能夠達到最高的品質和性能。

我們 O-leading 專業 製造 印刷電路板, 為客戶提供從設計到生產的全方位服務。我們擁有先進的生產設備和技術, 確保客戶的印刷電路板產品能夠達到最高的品質和性能。

歡迎 垂詢 印刷電路板。

**O-LEADING**  
To Be Reliable, To Be Valuable  
WE ALWAYS PROVIDE YOU  
**BEST HIGH DENSITY INTERCONNECT PCB**

**O-LEADING**  
To Be Reliable, To Be Valuable  
WE ALWAYS PROVIDE YOU  
**BEST RIGID-FLEXIBLE CIRCUIT**

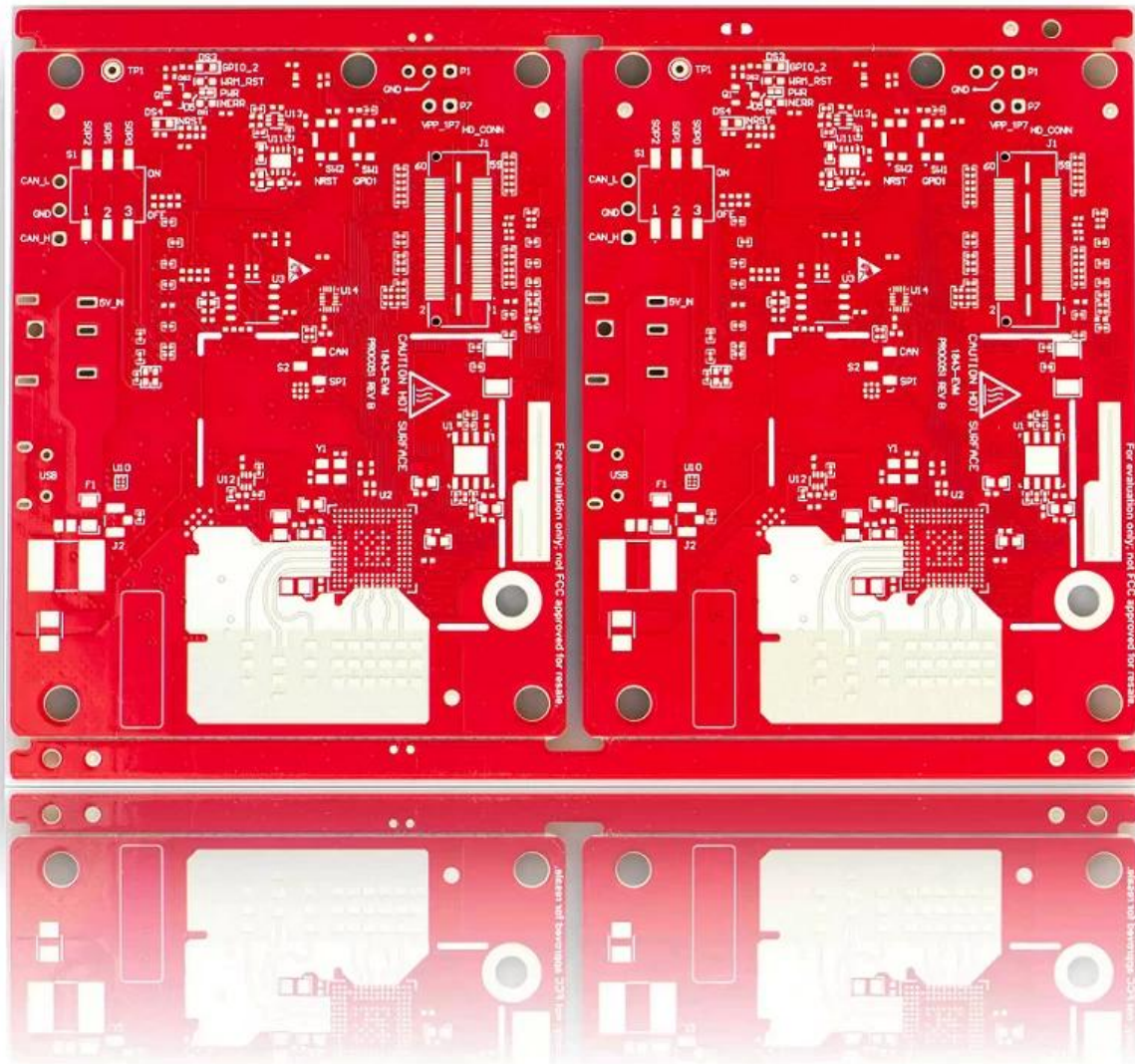
專業 製造

**O-LEADING**  
To Be Reliable, To Be Valuable

**QUALITY IS OUR CULTURE**



## PCB with ROGERS and FR-4 two kinds raw material



## PCB with impedance control and mixed raw material of 370HR and Ro4835 LOPRO

## RF traces

Impedance control

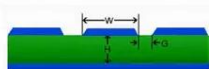
The TX and RX RF traces need to be 50ohms impedance controlled at 80GHz frequency with  $\pm 10\%$  tolerance. A coplanar wave structure is used on layer 1 (referenced to layer 2) for impedance control

 $W=7.08$  miles

W=7.08 mil  
H = 4mils

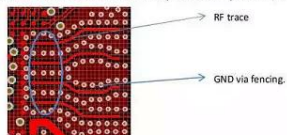
H = 4mils  
G = 8mils

Dielectric constant = 3.66



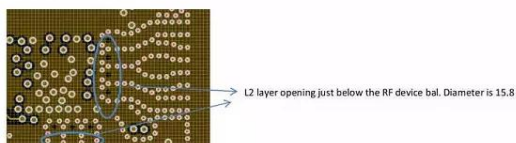
## TX and RX traces

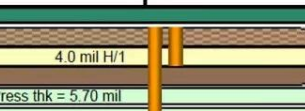
The TX1/TX2/TX3 traces should be length matched . The traces should be as symmetric as possible, with no sharp bends , to reduce phase mismatch  
The RX1/RX2/RX3/RX4 traces should be length matched . The traces should be as symmetric as possible, with no sharp bends , to reduce phase mismatch

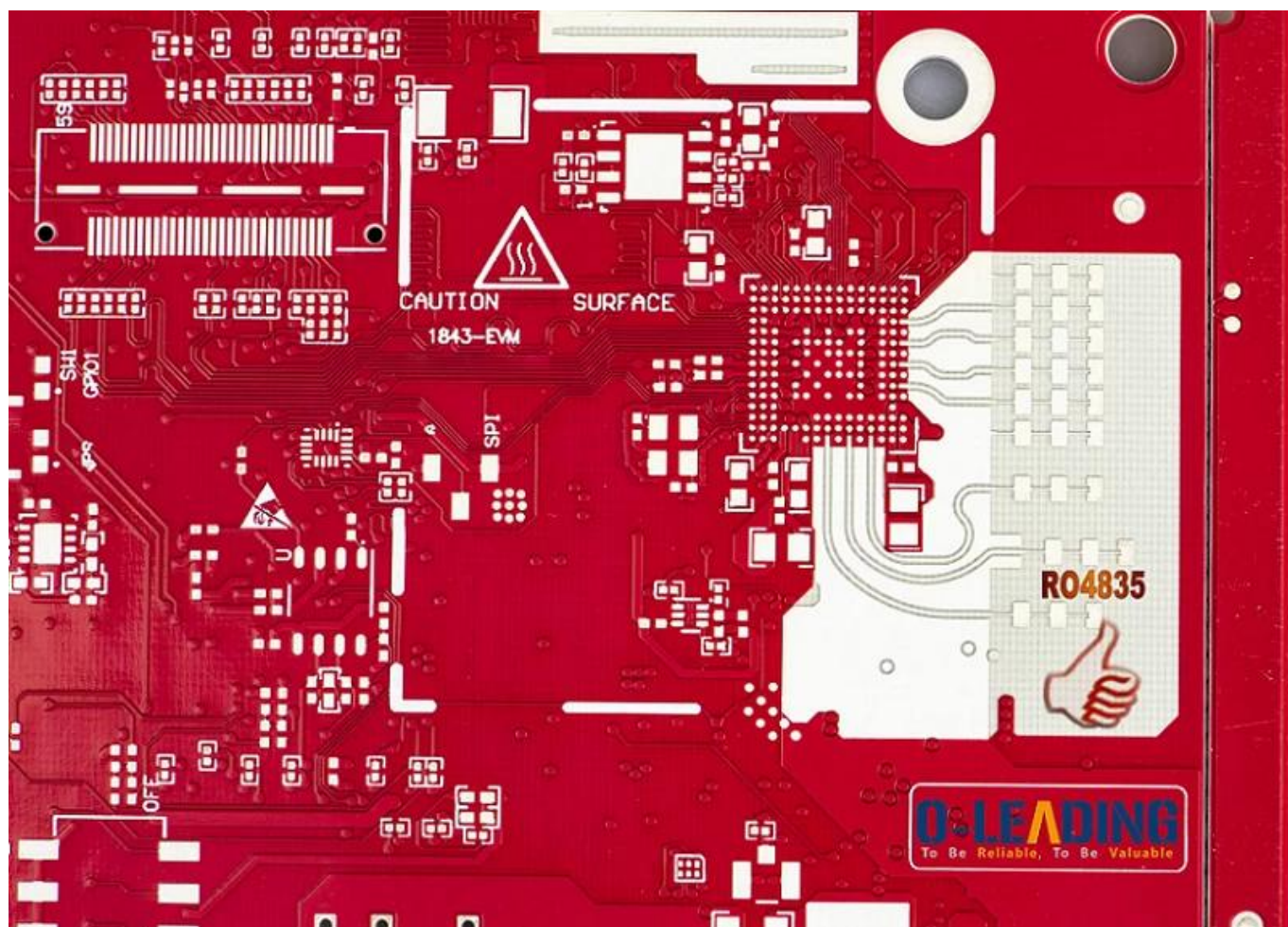


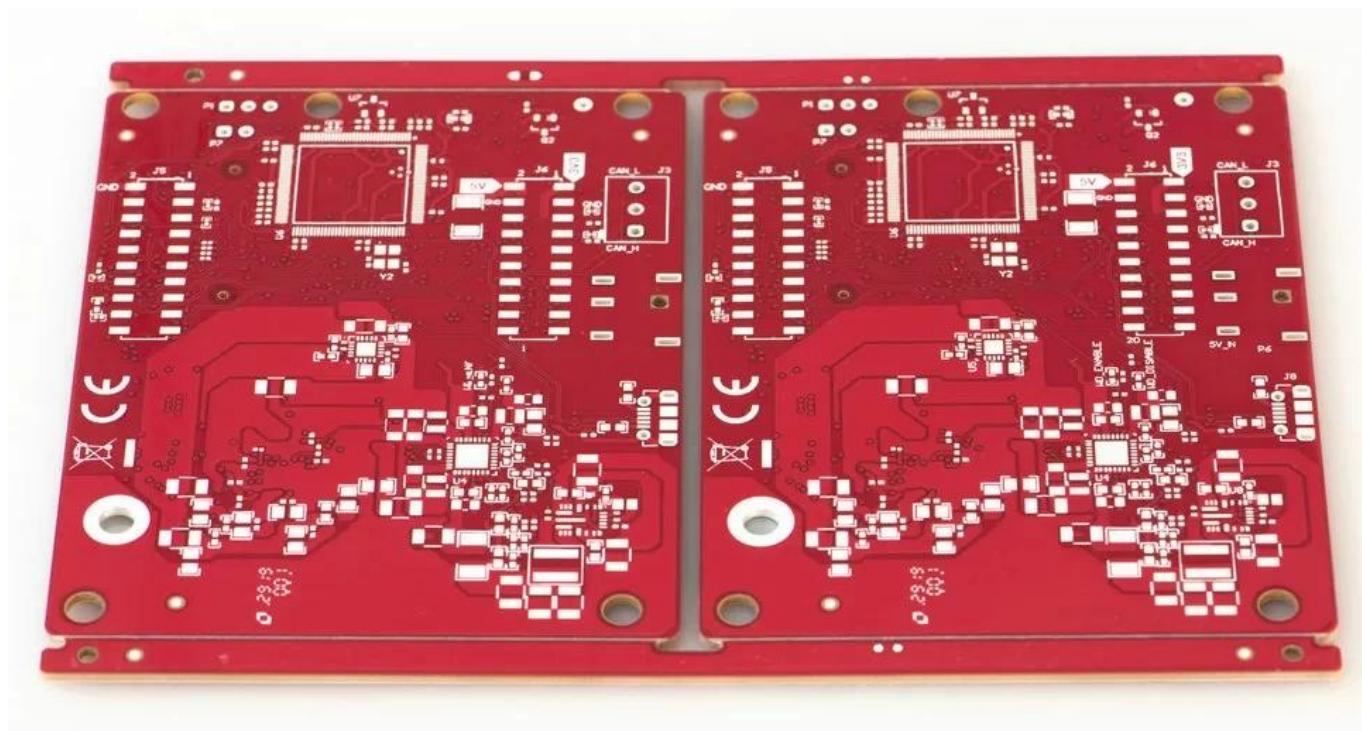
## Ref GND plane

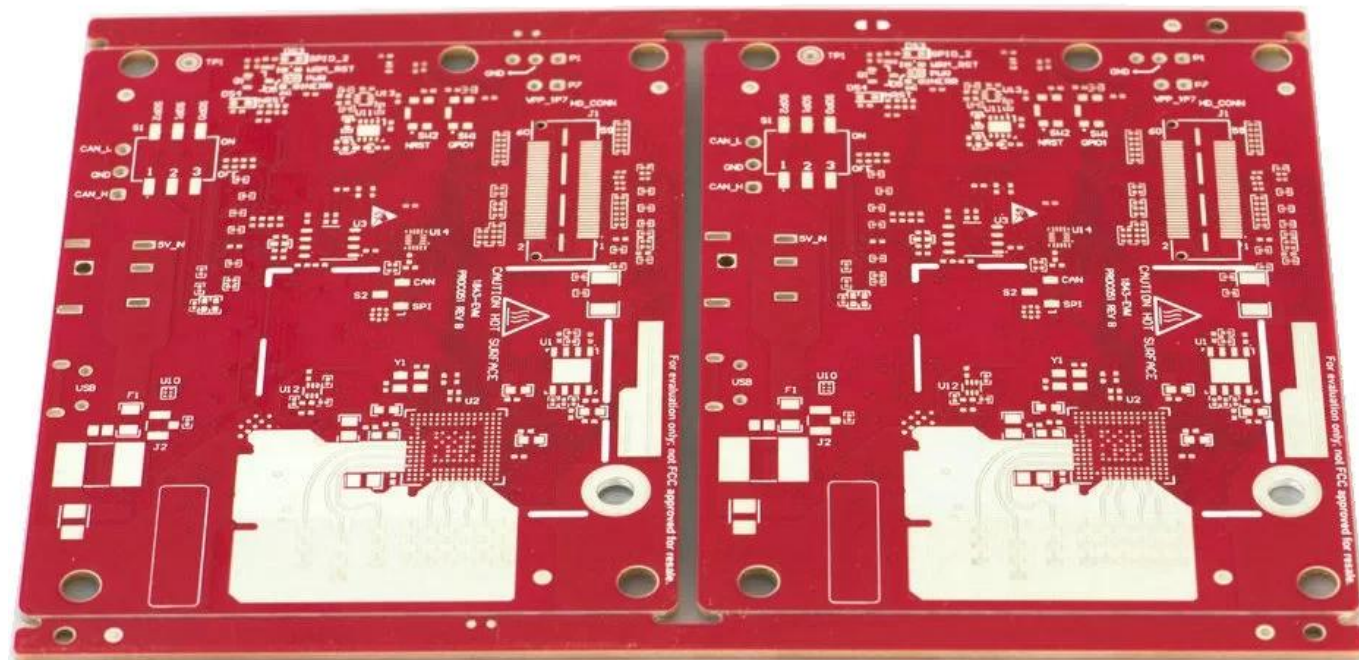
The layer one is referenced to Layer2 GND. There should be continuous GND planes on the Layer 2 below the RF traces. ONLY below the RF balls in the AWR1642 device the L2 layer has a 15.8mil diameter opening. Below this opening the Layer 3 should be solid GND



| Layer      | Type  | CU Weight | CU % | Material Description | Via Structure                                                                      | Segment | Glass Style  | Material Family | Dielectric constant @ 1GHz | Thickness After lamination [mil] |
|------------|-------|-----------|------|----------------------|------------------------------------------------------------------------------------|---------|--------------|-----------------|----------------------------|----------------------------------|
| Soldermask |       |           |      |                      |                                                                                    |         |              |                 |                            | 0.80                             |
| 1          | Mixed | H         | 37   | 4.0 mil H/1          |  | Core    | RO4835 LOPRO | 3.66            | 1.60                       |                                  |
| 2          | Plane | 1         | 88   | Press thk = 5.70 mil |                                                                                    |         |              |                 | Prepreg                    | 1080(66)<br>1080(66)             |
| 3          | Mixed | 1         | 70   | 28.0 mil 1/1         |                                                                                    | Core    | 4-7628       | 370HR           | 4.36                       | 1.20                             |
| 4          | Mixed | 1         | 82   | Press thk = 5.84 mil |                                                                                    |         |              |                 |                            | Prepreg                          |
| 5          | Plane | 1         | 88   | 4.0 mil 1/H          |                                                                                    | Core    | 1-2116       | 370HR           | 4.26                       | 1.20                             |
| 6          | Mixed | H         | 49   |                      |                                                                                    |         |              |                 |                            |                                  |
| Soldermask |       |           |      |                      |                                                                                    |         |              |                 |                            | 0.80                             |











# Production Process

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



 CONSUMER ELECTRONICS

 AUTOMOTIVE ELECTRONICS

 INDUSTRIAL CONTROL

 INTELLECTUALIZED HOUSEHOLD CONTROL

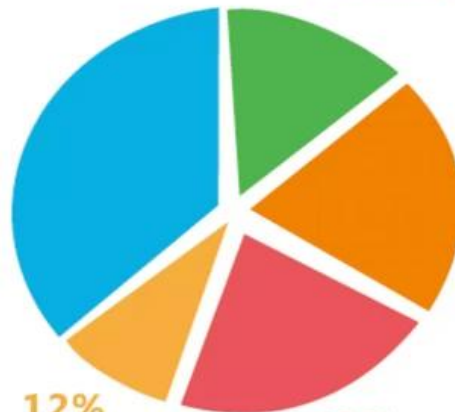
 OTHER



**30%**  
CONSUMER ELECTRONICS



**12%**  
OTHER



**18%**  
INTELLECTUALIZED HOUSEHOLD CONTROL

**20%**  
AUTOMOTIVE ELECTRONICS



**20%**  
INDUSTRIAL CONTROL





## Factory PCB



Automatic vacuum press machine



Drilling Machine



Pattern Plating Machine



Scrubbing Machine



Developing Machine



Routing Machine



High-speed flying probe machine



E-test Machine

## Factory SMT







## 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 Fan  
Approved Signatory



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## Test Report

No. SZXEC1900530401

Date: 30 Mar 2019

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Test Results :

### Test Part Description :

| Specimen No. | SGS Sample ID    | Description |
|--------------|------------------|-------------|
| 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, 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 | Q/Z |
|------------------------------|-------|-------|-----|-----|
| Cadmium (Cd)                 | 100   | mg/kg | 2   | ND  |
| Lead (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              | -     | 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  |
| Dibromodiphenyl 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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## ZPMV2.E490354 - WIRING, PRINTED - COMPONENT

## Wiring, Printed - Component

See General Information for Wiring, Printed - Component

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

E490354

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

| Type                                              | Cond Width    |               | Cond<br>Thk<br>mic(mil) | SS/<br>DS/<br>DSO | Max        |        | Max  |       | Meets<br>UL796<br>Class | C<br>T<br>DSR | C<br>I |
|---------------------------------------------------|---------------|---------------|-------------------------|-------------------|------------|--------|------|-------|-------------------------|---------------|--------|
|                                                   | Min           | Min           |                         |                   | Area       | Solder | Oper | Flame |                         |               |        |
|                                                   | mm(in)        | mm(in)        |                         |                   | Diam       | Limits | Temp | Temp  |                         |               |        |
| Multilayer (mass laminate) printed wiring boards. |               |               |                         |                   |            |        |      |       |                         |               |        |
| O-LEADING-401                                     | 0.1 (0.004)   | 0.3 (0.012)   | 34 (1.34)               | DS                | 12.7 (0.5) | 260    | 10   | 130   | V-0                     | -             | -      |
| O-LEADING-407                                     | 0.08 (0.003)  | 0.2 (0.008)   | 17 (0.67)               | DS                | 9.7 (0.4)  | 260    | 10   | 130   | V-0                     | All           | -      |
| Multilayer printed wiring boards.                 |               |               |                         |                   |            |        |      |       |                         |               |        |
| O-LEADING-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 printed wiring boards.               |               |               |                         |                   |            |        |      |       |                         |               |        |
| O-LEADING-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-003                                     | 0.38 (0.015)  | 1.14 (0.045)  | 34 (1.34)               | SS                | 19.1 (0.8) | 260    | 10   | 130   | V-0                     | ▲             | -      |
| O-LEADING-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-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-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-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-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

|                      |              |              |           |    |            |     |   |     |     |     |   |
|----------------------|--------------|--------------|-----------|----|------------|-----|---|-----|-----|-----|---|
| <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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PCB 規格

|                              |                                            |
|------------------------------|--------------------------------------------|
| PCB 種類                       |                                            |
| 銅箔厚                          | 1 1/2-32 吋                                 |
| 銅箔重量                         | 1 / 3oz-12oz                               |
| 銅箔厚 / 銅箔重量                   | 3.0mil / 3.0mil                            |
| 銅箔厚 / 銅箔重量                   | 4.0mil / 4.0mil                            |
| 銅箔厚                          | 10 : 1                                     |
| 銅箔厚                          | 0.2mm-5.0mm                                |
| 銅箔厚 (mm)                     | 635 * 1500mm                               |
| 銅箔厚 (mm)                     | 4mil                                       |
| Plated 銅箔                    | +/- 3mil                                   |
| Blind / Buried Vias (All 銅箔) | 否                                          |
| 銅箔 (銅箔, 銅箔)                  | 否                                          |
| 銅箔                           | FR-4, FR-4high Tg. 銅箔 銅箔, 銅箔, 銅箔銅箔銅箔銅箔, 銅箔 |
| 銅箔                           | HASL, OSP, ENIG, HAL-LF, 銅箔銅箔, 銅箔銅箔, 銅箔銅箔  |

|             |                            |
|-------------|----------------------------|
| SMT 規格      |                            |
| PCB 種類      | FR-4, CEM-1, CEM-3, 銅箔銅箔銅箔 |
| 銅箔 PCB 種類   | 510x460mm                  |
| 銅箔 PCB 種類   | 50x50mm                    |
| PCB 種類      | 0.5mm-4.5mm                |
| 銅箔厚         | 0.5-4mm                    |
| 銅箔厚 銅箔厚     | 0201                       |
| 銅箔厚 銅箔厚 銅箔厚 | 0603 銅箔                    |
| 銅箔厚 銅箔厚     | 15mm                       |
| 銅箔厚 銅箔      | 0.3mm                      |
| 銅箔 BGA 銅箔   | 0.4mm                      |
| 銅箔 銅箔       | +/- 0.03mm                 |

PCB 規格

# 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                |

## 我們的 服務

### 1. O-Leading 我們 提供 服務?

我們 提供 各種 樣品 及 服務。

1.1 提供 ISO 9001 : 2008 認證 及 服務 證明。

1.2 提供 各種 樣品 及 服務 證明。

1.3 提供 各種 樣品 及 服務。： 提供 各種, X-ray 測試, AOI (Automated Optical Inspector) 及 ICT (in-circuit testing)。

1.4 提供 各種 樣品 及 服務 證明。

1.5. 提供 各種 樣品 及 服務。

### 2. O-Leading 我們 提供 服務?

我們 10 年 來 提供 各種 (： 各種, 各種 樣品) 及 服務。 我們 提供 各種 樣品 31 % 服務。 我們 提供 各種 樣品。

我們 O-Leading 提供 各種 樣品。 我們 提供 各種, 各種 樣品 及 服務 證明。 我們 提供 各種 樣品 及 服務 證明。

我們 提供 各種 樣品。 我們 提供 各種 樣品 及 服務 證明。 我們 提供 各種 樣品 及 服務 證明。

### 3. O-Leading 我們 提供 服務?

我們 FR4, 各種 TG 及 各種 樣品, Rogers, Arlon, Telfon, 各種 / 各種 樣品, PI 及



□□□□ □□ □□□□ □□ □□□□ □□, SI6000 soft □ POLAR INSTRUMENTS□ CITS 500s □□□□ □□□□□□.  
□ □□□ □□□□ □□□□ □□ □□□□ □□ □□ □□□□ □□□□□□ □□□□□□.