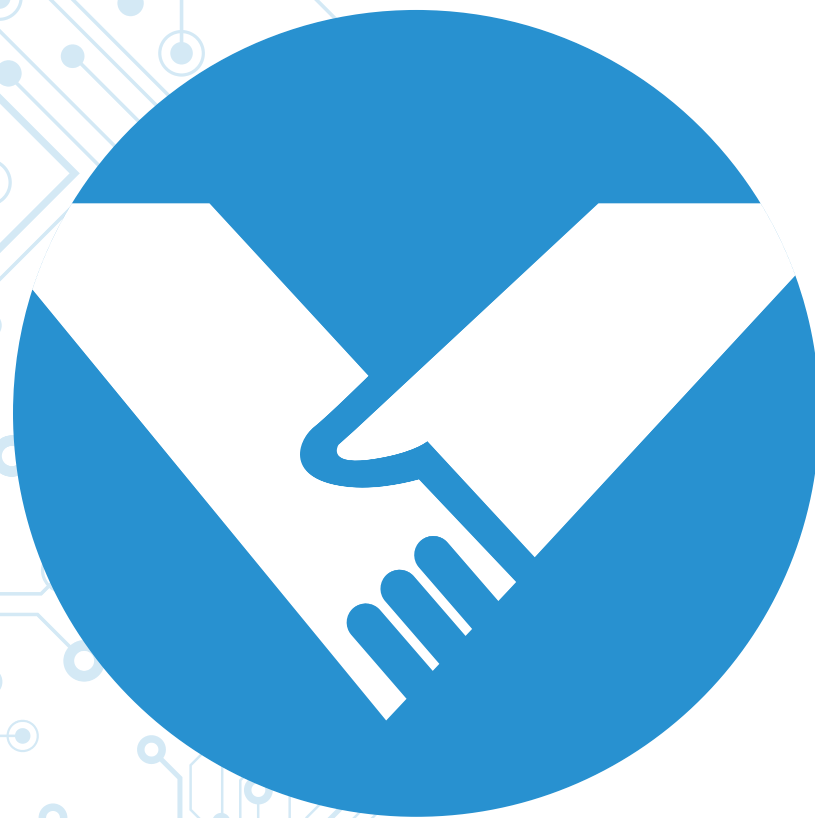

RIGID-FLEX PCB TECHNOLOGY CAPABILITY

HONYA

PŁYTKI DRUKOWANE - PRODUKCJA I IMPORT I DYSTRYBUCJA

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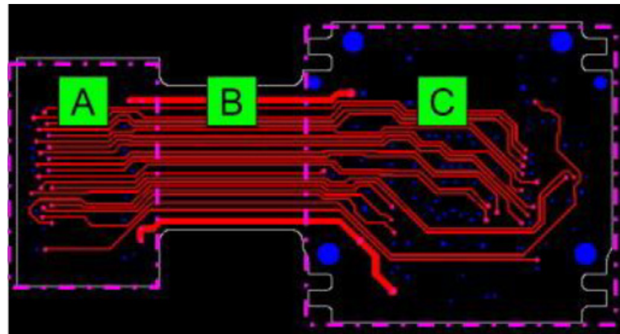
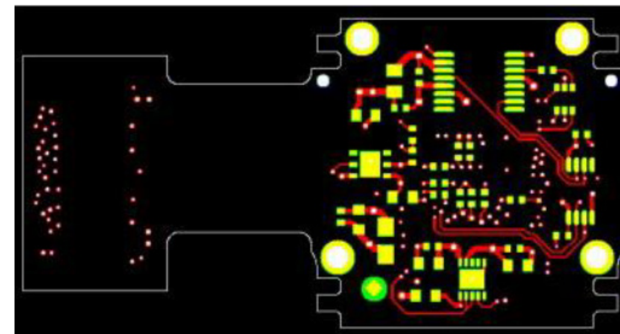
Item	Page
#1 Internal and external structure for rigid flex	3
# 2 Internal distance	4
# 3 External distance	5
# 4 Requirements of distance between hole to inter section	5 -7
# 5 Distance between flex and rigid (extend)	7
# 6 Solder Mask	8
# 7 Length & Radius of Flex	9-12
# 8 Shape of Flex	12
# 9 Reliability Requirements	13
# 10 PCB Spec	13-14
# 11 Board And Array Drawing	14

1. Internal and external structure for rigid flex

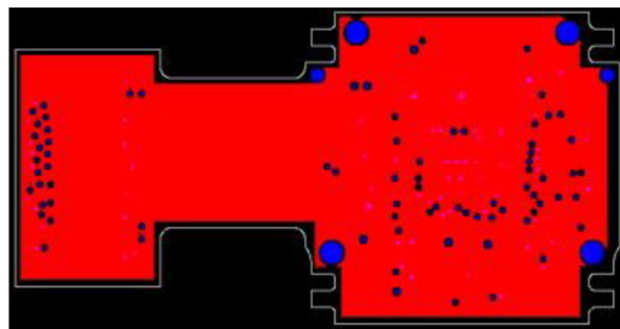
rigid flex for example (4L)



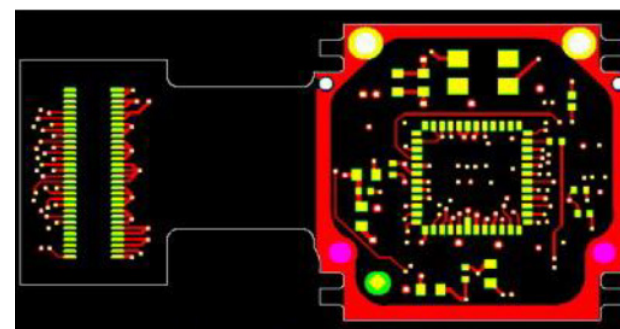
L2 (Inner layer)



Comp (Outer layer)



L3 (Inner layer)



Sold (Outer layer)

Note: Rigid portion (A, C) and Flex portion (B).

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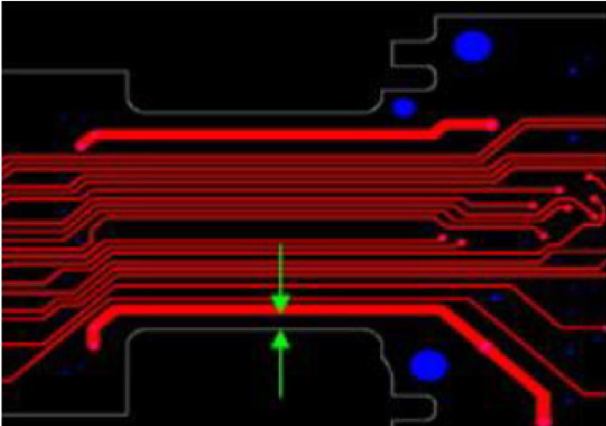
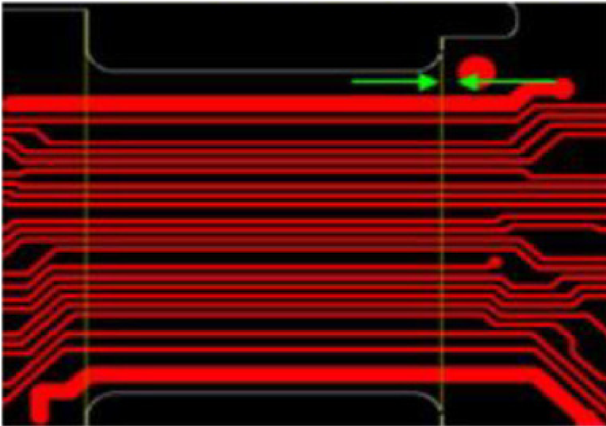
2. Internal distance

1) Internal space (pattern to outline)



Pattern to outline (Internal Layer of flex)	
Expection Value	**Acceptable Value**
L > 15mils (Meet the requirements of routing process, low cost)	L: min 8 mils (Meet the requirements of Stamping and Laser cut Process)

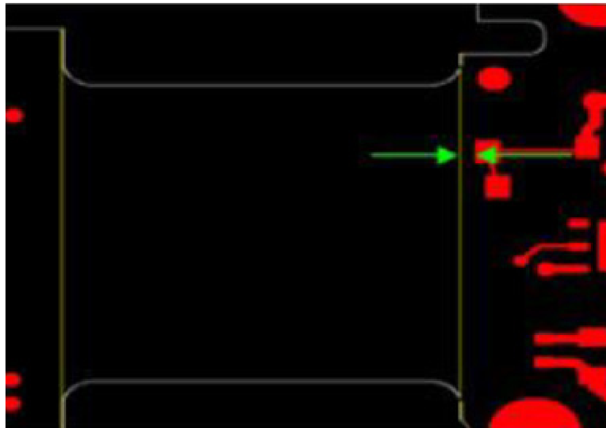
2) Internal space (Pattern to inter section)



Pattern to inter section (Internal Layer)	
Expection Value	**Acceptable Value**
L ≥ 20 mils	L: min 15 mils

3. External distance

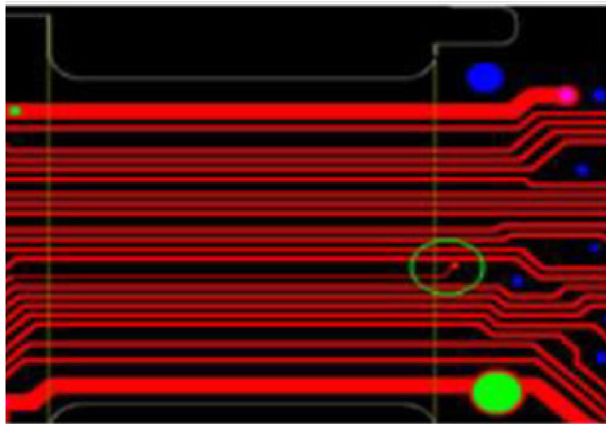
External space (pattern to inter section)



Pattern to inter section (External Layer)	
Expection Value	**Acceptable Value**
L ≥ 20 mils	L: min 10 mils

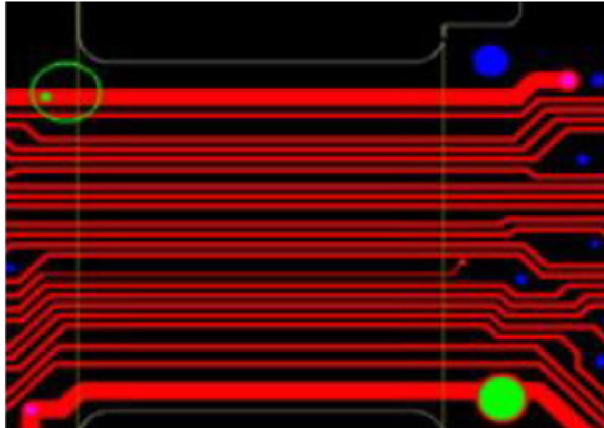
4. Requirements of distance between hole to inter section

1) Space between hole edge to inter section (Blind hole)



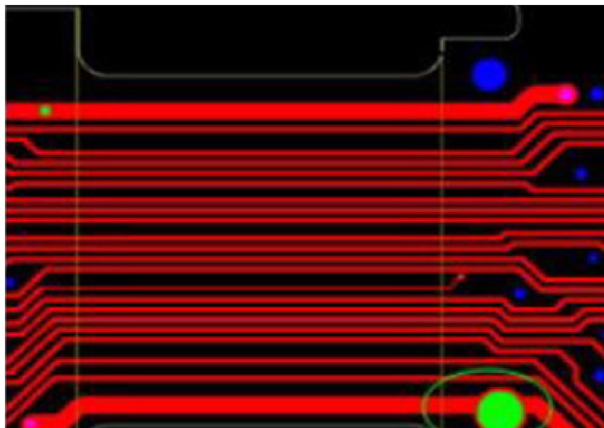
Blind Hole (Laser hole) edge to inter section	
Expection Value	**Acceptable Value**
L ≥ 20 mils	L: min 15 mils

2)Space between hole edge to inter section (Through via hole)



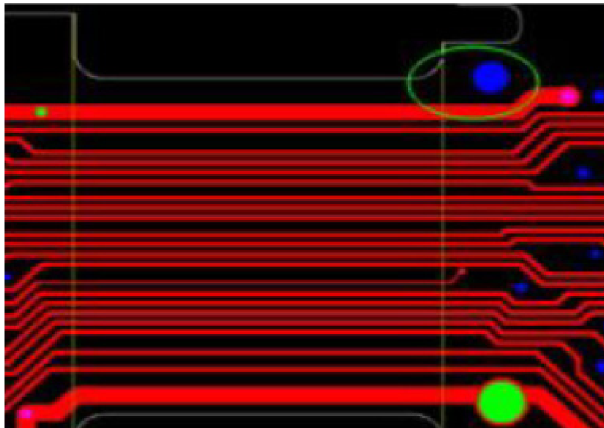
Through Via Hole edge to inter section	
Expection Value	**Acceptable Value**
L ≥ 30 mils	L: min 25 mils

3) Space between hole edge to inter section (PTH hole)



PTH edge to inter section	
Expection Value	**Acceptable Value**
L ≥ 50 mils	L: min 40 mils

4) Space between hole edge to inter section (N-PTH hole)



N-PTH edge to inter section	
Expection Value	**Acceptable Value**
L ≥ 50 mils	L: min 40 mils

5) Distance between flex and rigid (extend)
Space between flex to rigid

Flex portion to rigid portion	
Expection Value	**Acceptable Value**
L ≥ 1.2 mm	L: min 1.0 mm

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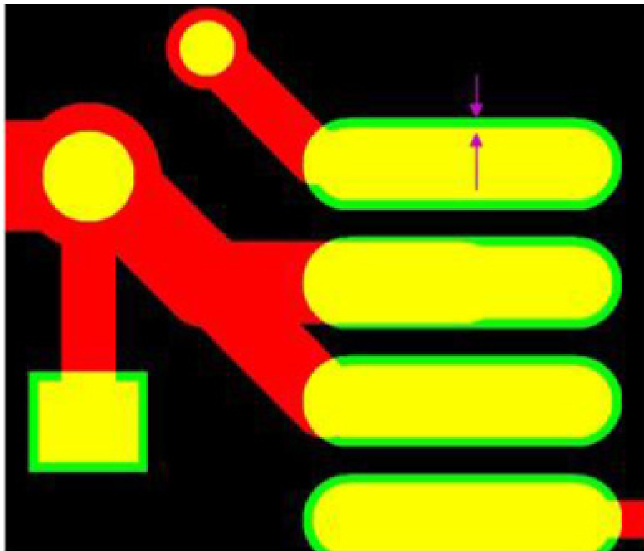
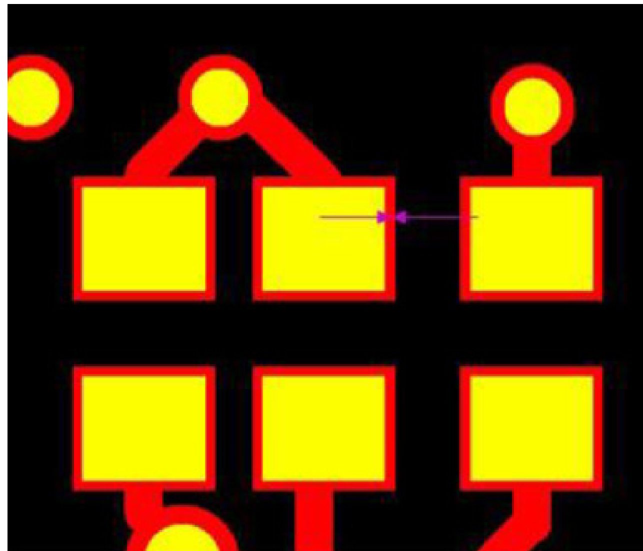
6) Solder Mask

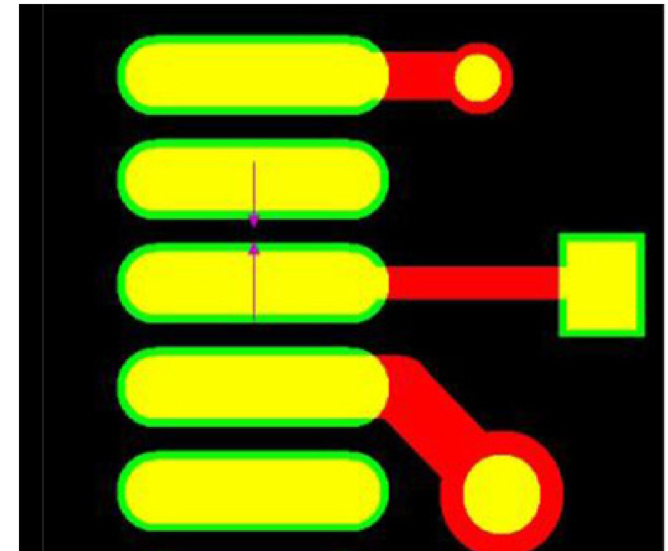
Solder mask layer's requirements (a , b, c)



(a)



(b)



(c)

a) Solder mask clearance - 2 mils at least.

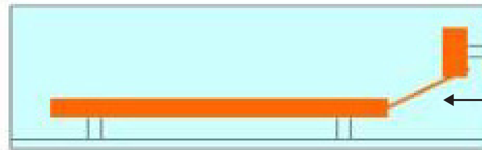
b) Coverage (Solder mask defined pad) - 2mils or more.

c) Solder mask dam to be 3mils or more (Green solder mask).
Solder mask dam to be 5mils or more (Black solder mask).

7) Length Radius of Flex

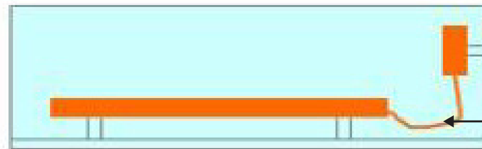
1) Overall flex length design

Not preferred



Too short

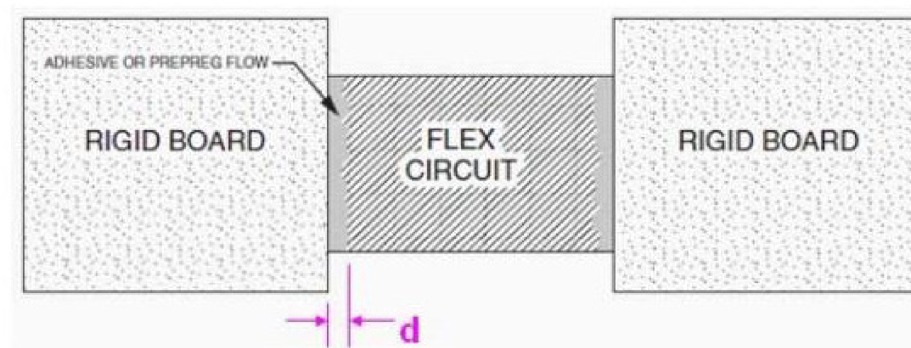
Not preferred



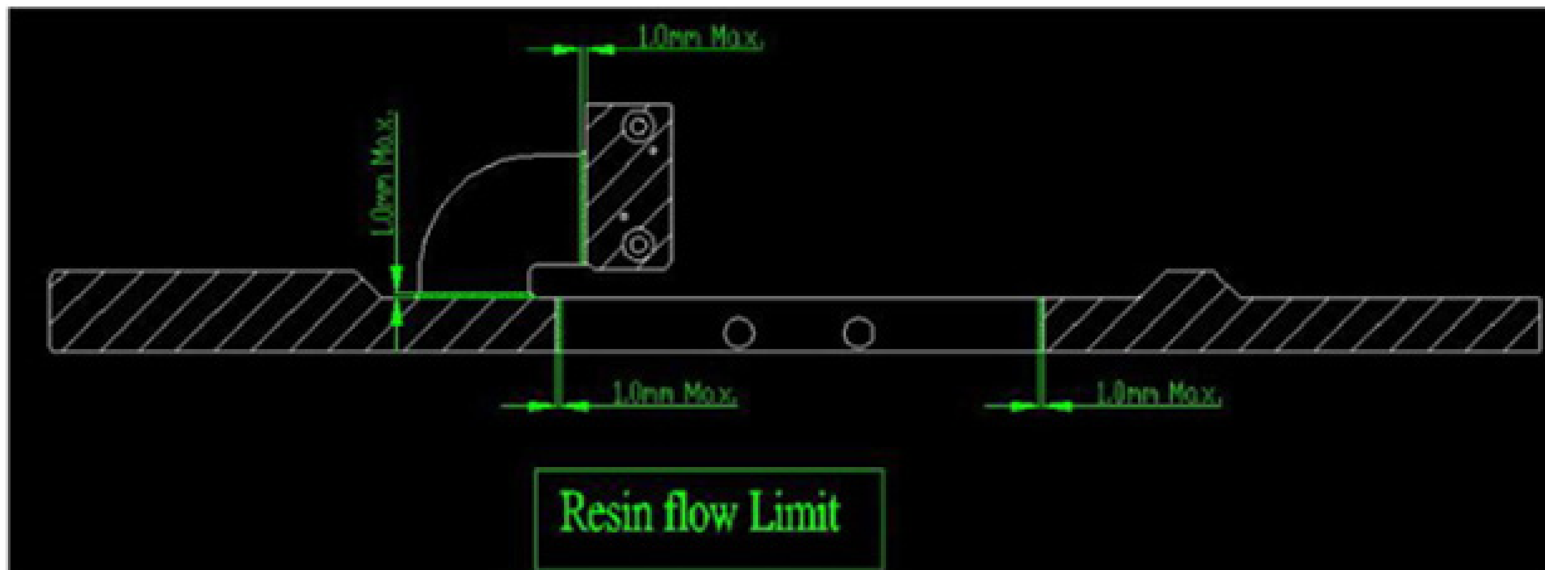
Excessive overhang

Preferred

2) Distance for Resin flow

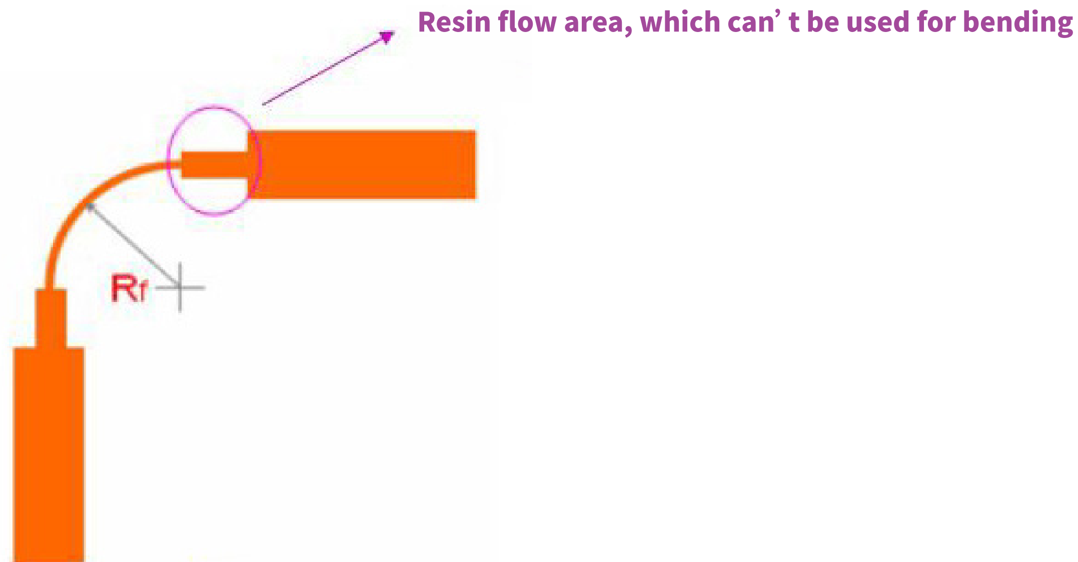


Note:
We suggest to control the distance (d) of resin flow less than 1 mm .
This area can not be used for bending . Give us the particular drawing for the requirement of design (such as the picture of below).



3) Bending Radius

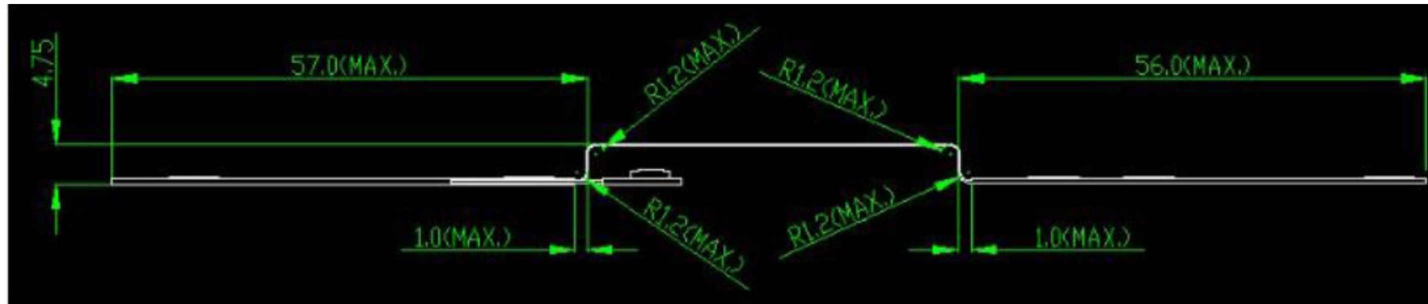
Resin flow area, which can' t be used for bending



Note:

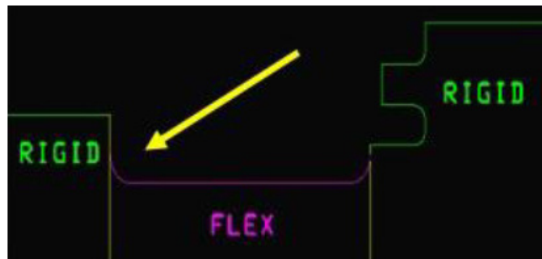
Minimum Radius of bending (R f)
Regal: R f =12 multiple x (thickness of flex)
Flex-R: R f =6 multiple x (thickness of flex)

Example for bending drawing (below)



8) Shape of Flex

Smooth shape of flex



Preferred

Not Preferred

9) Reliability Requirements

If you have some requirements of reliability, such as below..

2.9.3 Rapid temperature change (thermal shocks)
Sample: 5 PCB after 3x reflow (without solder)
Method: IEC 60068-2-14

PCB thermal cycles according:

- Class A: -40/+85 °C - 30min/10s/30min - 500 cycles
- Class B: -40/+110 °C - 30min/10s/30min - 500 cycles
- **Class C: -40/+125 °C - 30min/10s/30min - 500 cycles**
- **Class C+: -40/+125 °C - 30min/10s/30min - 1000 cycles**
- Class D: -40/+140 °C - 30min/10s/30min - 500 cycles
- Class D+: -40/+140 °C - 30min/10s/30min - 1000 cycles
- Class E: -40/+160°C - 30min/10s/30min - 500 cycles

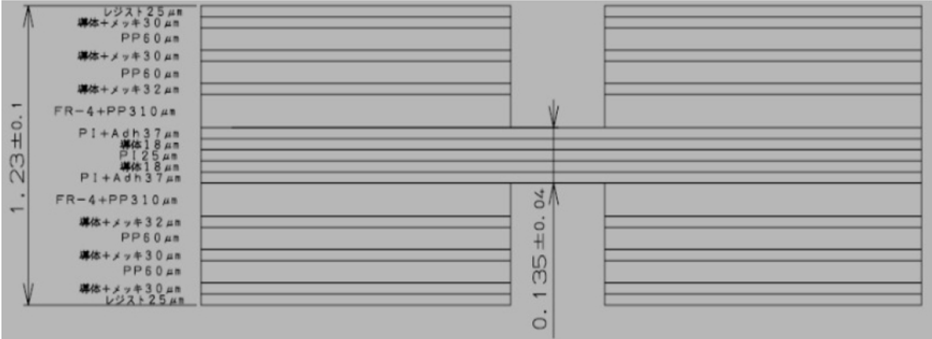
Avoid that the specimen touch among themselves. Take out 2 PCB after 300x, after 500x, after 750 and 1000x cycles.

Please let us know firstly.

10) PCB Spec

You need to provide us with the pcb spec for manufacture.

Such as:
1) Stack up



Give us the stack up and thickness (include tolerance).

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2) Material Capability & UL Requirement

Example:
a) Tg
b) Lead Free
c) Halogen Free
d) UL Mark

3) Copper thickness

Such as:
a) Inner layer copper thickness
b) Outer layer copper thickness
c) Hole wall copper thickness (include buried hole, throught hole, blind hole)

4) Solder mask

a) Throught via hole, pluged or not?
b) Color (Green or black..., gloss or matte)

5) Surface finished

OSP, ENIG, Soft Gold or others...

For example:
Surface finished: ENIG, Ni : ≥ 120 u" , Au: ≥ 1.2u"

11) Board And Array Drawing

Board and array format drawing (.dxf or .dwg) are important