Printed Circuit Board - PCB presentation

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PCB application

◆ P&A supplies customer with Quick Turn Prototype, Small and Medium-volume PCBs.

◆ The PCBs can be widely used in communication product, eg. Bluetooth, Wireless equipment, RF Antenna, Computer Peripherals, eg.: Motherboard, HDD, Digital products, eg: Camera, CCTV, lcd & video Printed Circuit Boards, and so on;

◆ Our PCB products are mainly used in the following sectors: Power Electronics, Communications, Industrial Control, Medical electronics, Security Electronics, Consumer Electronics, Computer, Aerospace, Automotive electronics.

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Our PCB Applications

- Power Electronics: 24.20%
- Communications: 23.40%
- Industrial Control: 8.40%
- Medical Electronics: 7%
- Security Electronics: 5.80%
- Consumer Electronics: 2.80%
- Computer: 1.20%
- Automotive Electronics: 0.70%
- Other: 3.30%

Segments: Power Electronics, Communications, Industrial Control, Medical Electronics, Security Electronics, Consumer Electronics, Computer, Automotive Electronics, Other.
PCB Available by Application

P&A Supplies you PCBs for:

- **LED Products** including:
  - Aluminum, copper or ceramic base PCB for **High-Power LED**
  - FR4 PCB for low-power LED
PCB Available by Application

P&A Supplies you PCBs for:

- Industrial Electronic Products
- Automotive Electronic Products
- Digital products
- Communication products

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P&A supplies both standard FR4 PCB and special PCBs including:

- High Tg PCB
- Aluminum PCB
- Copper Base PCB
- Iron Base PCB
- Halogen Free PCB
- Rogers PCB
- Teflon PCB
- Nelco PCB

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# Production Capability

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Technical Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Layers</td>
<td>2-16 Layers</td>
</tr>
<tr>
<td>2</td>
<td>Max. Board Size</td>
<td>864 x 610 mm (34” x 24”)</td>
</tr>
<tr>
<td>3</td>
<td>Min. Board Thickness</td>
<td>0.2mm (2 layers) / 0.4mm (4 layers) / 0.9mm (8 layers) / 1.2mm (10 layers) / 1.3mm (12 layers) / 1.5mm (14 layers) / 1.7mm (16 layers) / 1.8mm / 2.0 mm (18 layers) / 2.2mm (20 layers) / 2.4mm (22 layers) / 2.6mm (24 layers)</td>
</tr>
<tr>
<td>4</td>
<td>Max. Board Thickness</td>
<td>315mil (8mm)</td>
</tr>
<tr>
<td>5</td>
<td>Max. Copper Thickness</td>
<td>19oz / Inner Layer: 12oz / Outlayers</td>
</tr>
<tr>
<td>6</td>
<td>Min. Inner Line Width / Space</td>
<td>4mil (0.1mm) / 4mil (0.1mm)</td>
</tr>
<tr>
<td>7</td>
<td>Min. Outer Line Width / Space</td>
<td>4mil (0.1mm) / 3.5mil (0.089mm)</td>
</tr>
<tr>
<td>8</td>
<td>Min. Finish Hole Size</td>
<td>6mil (0.15mm)</td>
</tr>
<tr>
<td>9</td>
<td>Max. Aspect ratio</td>
<td>12:01</td>
</tr>
<tr>
<td>10</td>
<td>Minimum via hole size and pad</td>
<td>via: dia. 0.2mm / pad: dia. 0.4mm ; HDI &lt;0.10mm via</td>
</tr>
<tr>
<td>11</td>
<td>Minimum hole tolerance</td>
<td>± 0.05mm (NPTH), ± 0.076mm (PTH)</td>
</tr>
<tr>
<td>12</td>
<td>Finished hole size tolerance (PTH)</td>
<td>± 2mil (0.05mm)</td>
</tr>
<tr>
<td>13</td>
<td>Finished hole size tolerance (NPTH)</td>
<td>± 1mil (0.025mm)</td>
</tr>
<tr>
<td>14</td>
<td>PTH hole copper thickness</td>
<td>mini 25um (1.0mil)</td>
</tr>
<tr>
<td>15</td>
<td>Hole Position Deviation</td>
<td>± 2mil (0.05mm)</td>
</tr>
<tr>
<td>16</td>
<td>Outline Tolerance</td>
<td>± 4mil (0.1mm)</td>
</tr>
<tr>
<td>17</td>
<td>S/M Pitch</td>
<td>3mil (0.08mm)</td>
</tr>
</tbody>
</table>
**Production Capability**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Insulation Resistance</td>
<td>$1 \times 10^{12} \Omega$</td>
</tr>
<tr>
<td>19</td>
<td>Thermal Shock</td>
<td>$3 \times 10^{Sec@288^\circ C}$</td>
</tr>
<tr>
<td>20</td>
<td>Warp and Twist</td>
<td>$\leq 0.5%$</td>
</tr>
<tr>
<td>21</td>
<td>Peel Strength</td>
<td>$1.4N / \text{mm}$</td>
</tr>
<tr>
<td>22</td>
<td>Solder Mask Abrasion</td>
<td>$\geq 6\text{H}$</td>
</tr>
<tr>
<td>23</td>
<td>Flammability</td>
<td>94V - O</td>
</tr>
<tr>
<td>24</td>
<td>Impedance Control</td>
<td>$\pm 5%$</td>
</tr>
<tr>
<td>25</td>
<td>Mini Solder mask Opening</td>
<td>0.05mm(2mil)</td>
</tr>
<tr>
<td>26</td>
<td>Mini solder mask coverage</td>
<td>0.05mm(2mil)</td>
</tr>
<tr>
<td>27</td>
<td>Mini solder dam</td>
<td>0.076mm(3mil)</td>
</tr>
<tr>
<td>28</td>
<td>Surface Finish Treatment</td>
<td>Flash gold (Electrolytic); Electroless nickel Immersion gold (Electroless Ni/Au); (OSP or Entek), Hot Air Leveling (=HAL-Tin/Lead); Hot Air Leveling (Lead- Free, RoHS); Carbon Ink, Peelable Mask, Gold Fingers (30 μ&quot;), Immersion Silver (3<del>10μ&quot;), Immersion Tin (0.6</del>1.2um).</td>
</tr>
<tr>
<td>29</td>
<td>G/F Au thickness</td>
<td>0.76um max ( 30μ&quot; max )</td>
</tr>
<tr>
<td>30</td>
<td>V-cut angle</td>
<td>30° 45° 60° , tolerance +/- 5°</td>
</tr>
<tr>
<td>31</td>
<td>Mini V-cut board thickness</td>
<td>0.8mm</td>
</tr>
<tr>
<td>32</td>
<td>V-cut remain thickness tolerance</td>
<td>$\pm 0.1\text{mm}$</td>
</tr>
<tr>
<td>33</td>
<td>Profiling mode</td>
<td>Routing &amp; Punching</td>
</tr>
<tr>
<td>34</td>
<td>Profiling tolerance</td>
<td>$\pm 0.1\text{mm}(4\text{mil})$</td>
</tr>
<tr>
<td>35</td>
<td>E-TEST voltage</td>
<td>$250 \pm 5\text{ V}$</td>
</tr>
</tbody>
</table>
Double Sided PCB Manufacturing Processes

Start
Cutting
Baking
CNC Drilling
Edge Drilling
Desmearing (optional)
FIH or Black hole
Photo-imageable

Pattern Plating (Ni/Au Plating or Cu/Ni Plating)
Etching
Sn Stripping
E-test
Wet solder mask
Legend Printing
HASL
Punchin/routing

V-cut
Final E-Test
Rising
FQC 100% visual inspection
FQC inspection
Packaging
End

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Multilayer PCB Manufacturing Processes

- Inner Layer Image
- Inner Layer Etch
- Post Etch Punch
- AOI
- Oxide
- Lamination
- Drilling
- Electroless Copper
- Outline Layer Image
- Plating
- Final Cleaning
- Solder Mask
- Final Finish ENIG
- Routing
- Electrical Testing
- Final Inspection

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Information Necessary for Quotation

(1) Gerber data for all artwork layers

(2) Aperture list or lists for all layers

(3) Drill file in Gerber or Excellon format

(4) Drawings: Print should be hard copy or Gerber HPGL or DXF format

(5) Special notes or "Read Me" file pertaining to:

- Color / type of solder-mask
- Color of silkscreen
- Plating finish (copper, nickel or gold)
- Dielectrics
- Controlled impedance
- Other special requirements or instructions
Contact us

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