

FAQ GUIDE

PCB MANUFACTURING & ENGINEERING FAQS

Comprehensive technical support and design guidelines for high-performance electronic systems.

— 1. General PCB Manufacturing Questions

Q: What is AEAR's standard manufacturing capability for layer counts?

A: AEAR specializes in high-layer count boards, supporting up to 32+ layers in rigid configurations and up to 12 layers in rigid-flex designs, utilizing advanced registration systems for precision alignment.

Q: Does AEAR support IPC Class 3 standards?

A: Yes, we provide full support for IPC-A-600 and IPC-A-610 Class 3 standards, which are essential for medical, aerospace, and mission-critical automotive applications.

— 2. PCB Material FAQs

Choosing the correct laminate is critical for signal integrity and thermal performance.

Requirement	Recommended Material	Benefit
High Frequency	Rogers 4350B / PTFE	Ultra-low Df (loss)
High Temperature	High-Tg FR4 (170°C+)	Dimensional Stability
Power/Thermal	Aluminum/Copper Base	Maximum Heat Transfer

Q: Can I mix different materials in one stackup?

A: Yes, AEAR supports hybrid stackups (e.g., Rogers on FR4), allowing designers to optimize cost by using premium materials only on high-speed signal layers.

— 3. DFM Design Rule Questions

● Minimum Trace/Space

Standard production supports 75µm (3 mil), while advanced HDI lines support down to 35µm for extreme miniaturization.

● Aspect Ratio

We maintain a standard mechanical drilling aspect ratio of 10:1 and laser-drilled micro-via ratio of 0.75:1.

● Solder Mask Clearance

Recommended minimum clearance is 50µm (2 mil) to ensure reliable solder dam formation and prevent bridging.

— 4. PCB Layer Stackup Questions

UNBALANCED STACKUP

Asymmetrical copper distribution leads to board warping (bow and twist) during the reflow soldering process.

AEAR OPTIMIZED

Our engineers ensure symmetrical stackups to maintain flatness within 0.75% as per IPC-6012 standards.

Q: How does AEAR manage impedance control?

A: We utilize Polar SI9000 for field solver calculations, providing tolerance control within +/- 5% on critical differential pairs and single-ended traces.

5. SMT Assembly FAQs

Component Sizing

AEAR supports ultra-fine pitch components down to 01005 passives and 0.35mm pitch BGAs.

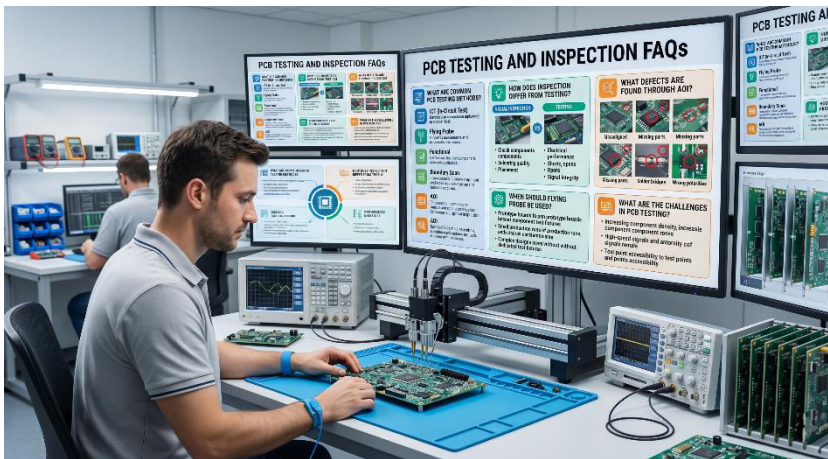
Solder Paste

Standard use of SAC305 lead-free paste, with specialized support for water-soluble or no-clean fluxes.

Q: Do you offer nitrogen (N2) reflow?

A: Yes, nitrogen-inerted reflow is available to minimize oxidation and improve wetting for high-reliability medical and aerospace assemblies.

6. PCB Testing and Inspection FAQs



Test Method	Standard	Detection Capability
AOI	100%	Placement, Polarity, Solder Bridges
X-Ray (AXI)	Sample/100%	BGA Voids, Hidden Joint Integrity
Flying Probe	Optional	Netlist Continuity & Isolation

— 7. Lead Time and Production FAQs

● Quick-Turn Prototypes

24 to 48 hours for standard 2-6 layer boards; 3-5 days for complex multi-layers.

● Standard Mass Production

Typically 12-15 working days depending on material availability and complexity.

— 8. Quality Standards

AEAR is certified to **ISO 9001:2015** and **IATF 16949** for automotive systems. Every batch includes a Certificate of Conformance (CoC) and cross-section report upon request.

— 9. Shipping and Packaging

Boards are vacuum-sealed with desiccant and humidity indicator cards (HIC) to prevent moisture absorption and oxidation during transit. We ship globally via DHL, FedEx, and UPS with real-time tracking.

— 10. Technical Support Information

Our engineering team provides **Free DFM Review** for every order. For urgent technical queries, contact our support desk at sales@aearpcb.com or via the live chat on our website.

