
GLOSSARY OF TECHNICAL TERMS

This glossary of technical terms contains explanations of certain technical terms used in this document in connection with our Company and our business. Such terminology and meanings may not correspond to standard industry meanings or usages of those terms.

“3D”	three-dimensional
“6G”	sixth generation of cellular network technology
“12x-density electrical testing equipment”	PCB electrical testing equipment in which the probe array density of the test fixture (grid density) is increased by 12 times compared to the 1x-density baseline. The equipment is primarily used for electrical testing of HDI PCBs and high-precision LED boards. Its key specifications include a grid pitch of 28.98 mil, a probe density of 1,180 points per square inch, and a minimum testable pad size of 100 μm .
“AI”	artificial intelligence
“AIDC”	AI data centers
“AOI”	automated optical inspection, an automated inspection process that uses optical imaging technology and image-analysis algorithms to detect defects and irregularities in PCB during the production process
“AVI”	automated visual inspection, an automated inspection process that uses imaging systems, lighting and image-analysis software to visually inspect PCBs for defects, abnormalities, or nonconformities. Primarily used for late-stage or finished-PCB inspection
“bed of nails”	a fixture-based electrical test tool used in PCB testing in which an array of spring-loaded contact pins, is arranged to make simultaneous electrical contact with designated test points on a PCB to check its electrical performance
“CAD”	computer-aided design, the use of software to create, modify, analyze, and optimize 2D or 3D digital models of physical objects, replacing manual drafting
“CAM”	computer-aided manufacturing, the use of software and computer-controlled machinery to perform tasks like drilling and component insertion
“CCD”	charge-coupled device, a specialized integrated circuit that converts light into electrical signals to capture high-quality digital images
“consumer electronics”	electronic devices intended for everyday household use, such as televisions, mobile phones and computers
“continuity protection testing”	a test that verifies circuit continuity and low resistance under controlled conditions, while ensuring testing safety through built-in protection mechanisms
“coverlay lamination”	the process of applying a protective polyimide film over circuit traces to provide insulation and mechanical protection
“CPU”	central processing unit

GLOSSARY OF TECHNICAL TERMS

“DER”	defect escape rate, which measures the number of undiscovered defects that escaped detection in the product development cycle and were released to customers
“dimple”	a defect or depression that occurs on the surface of a plated via or microvia, typically in HDI boards
“DPPM”	defective parts per million, a quality metric used in manufacturing to quantify the number of defective units produced per million parts, indicating product quality level
“EAP”	equipment automation programming, a system used to control manufacturing equipment for automated production
“EDA”	electronic design automation, the suite of software tools and methodologies used to design, simulate, verify, inspect, and implement electronic systems across a wide range of applications, including integrated circuit and PCB
“ERP system”	enterprise resource planning system, an information technology system that integrates internal and external information such as accounting, financial information, human resources management and inventory management, for the purpose of automating business operations
“ESD protection”	electrostatic discharge protection, the procedures, equipment and design features used to prevent sudden bursts of static electricity from damaging sensitive electronic components during PCB testing
“etching”	a manufacturing process that removes unwanted copper from a substrate, leaving behind only the desired conductive tracks or traces to form a circuit
“excitation”	the controlled application of a controlled signal, typically current, to a circuit or component for measurement purposes
“fixture”	a specialized tool for automated PCB quality inspection that establishes reliable electrical connections via probes and other contact components, allowing testing equipment to conduct various tests on PCBs
“four-wire testing”	a measurement method that two separate pairs of probes are used for current injection and voltage measurement, respectively. By eliminating the influence of probe and contact resistance, it enables high-accuracy measurement and is suitable for high-precision testing scenarios
“FPC”	flexible printed circuit, a type of ultra-thin, lightweight PCB made from flexible insulating substrates that can be bent to fit the shape of the device they are placed inside; usually used in moving parts like camera hinges, laptop screens and automotive sensors
“FQC”	final quality control
“G”	gigabit, a unit of data measurement equaling one billion bits
“GDP”	gross domestic product, the total monetary value of all final goods and services produced within a country’s borders in a specific time period
“Gerber RS-274X”	the standard human-readable file format used in PCB manufacturing to describe 2D image data

GLOSSARY OF TECHNICAL TERMS

“GFA”	gross floor area
“HDI”	high-density interconnect, an advanced manufacturing technique that allows PCB designers to implement a high number of interconnects in a minimal amount of space
“HLC”	high layer count
“High-end PCBs”	PCBs featuring high layer counts, high-density interconnection, high precision, and higher value, including PCBs with 18 layers and above, HDI PCBs, and packaging substrates
“IC”	integrated circuit, a semiconductor device that integrates multiple electronic components and circuit functions onto a single chip to perform specific processing, control, memory or signal-related functions
“inline speed”	the velocity and efficiency at which an automated system can inspect boards while they are physically integrated into the production line
“insulation testing”	a test method used to evaluate the insulating performance between conductive features of a PCB
“low-resistance testing”	the process of measuring very low electrical resistance values to detect failures within electrical components
“IO”	input/output
“ISO”	the International Organization for Standardization, an independent international body that develops and publishes standards to ensure quality, safety, efficiency and consistency across industries and countries
“Kelvin measurement”	a four-wire electrical measurement configuration used to determine the precise resistance of a device under test with high accuracy
“leakage testing”	an electrical test that measures leakage current under a controlled voltage to calculate insulation resistance between conductors
“LED”	light emitting diode, an electronic component that uses a semiconductor to emit light when current flows through it
“LEO”	low earth orbit
“low-altitude economy”	economic activities in airspace below 1,000 meters, presents a wide array of application scenarios including rescues, surveys and delivery of goods and passengers
“MES”	manufacturing execution system, an information system that monitors, tracks and controls manufacturing operations on the shop floor
“MicroLED”	a self-emissive display technology that uses micrometer-scale inorganic light-emitting diodes as individual pixels or sub-pixels to deliver high brightness, high contrast, fast response times and high reliability. It relies on a high-precision PCB backplane as its electrical foundation, where the tiny chips are bonded directly to the PCB to manage power and heat
“mil”	a unit of length equal to one-thousandth of an inch

GLOSSARY OF TECHNICAL TERMS

“MOQ”	minimum order quantity
“MPQ”	minimum pack quantity
“m Ω ”	milliohm, a unit of electrical resistance, commonly used to measure very low resistance values
“M Ω ”	megaohm, unit of electrical resistance, commonly used to measure very high resistance values
“ODB++”	a data exchange format used in PCB design-to-manufacturing to transfer comprehensive fabrication, assembly and testing data
“open circuit”	an electrical circuit with a broken or discontinuous path, preventing electric current from flowing
“pad”	the copper area where electronic components are soldered to the board
“PCB”	printed circuit board, a flat insulating board that mechanically supports and electrically connects electronic components via etched or printed conductive pathways, pads and traces. It is a fundamental component of most electronic devices
“QA”	quality assurance
“Q Mes”	a shop-floor execution system focused on quality control, production monitoring, and traceability in manufacturing operations
“R&D”	research and development
“short circuit”	an electrical circuit that allows electric current to travel along an unintended path with no or very low electrical impedance, resulting in excessive current flowing through the circuit.
“SLP”	substrate-like PCB, ultra-high-density circuit boards that bridge the gap between traditional HDI PCBs and IC packaging substrates
“solder mask”	a thin lacquer-like layer of polymer that is applied to the copper traces of a PCB to protect the board from corrosion due to environmental exposure and prevent accidental short circuits during assembly or use
“solder mask inspection”	the process of examining the solder mask on a PCB to ensure it is correctly applied, positioned, and free from defects before components are soldered
“spark testing”	a high-voltage insulation test that detects latent dielectric defects in a PCB by applying elevated voltage and identifying electrical discharges at insulation weak points
“SPC”	statistical process control, the application of statistical methods to monitor and control the quality of a production process
“sq.m.”	square meter
“substrate”	the base non-conductive material that provides mechanical support and electrical insulation for the PCB’s circuitry. Copper foil is laminated onto the substrate and then patterned to form traces and pads and electronic components are mounted on the substrate
“T”	terabit, a unit of digital information equal to 1 trillion bits

GLOSSARY OF TECHNICAL TERMS

“two-wire testing”	a measurement method that the same pair of probes is used for both current injection and voltage measurement. As the measured results include probe and contact resistance, it is generally applied in scenarios with relatively lower accuracy requirements
μ-short	a high-resistance, intermittent PCB short, harder to detect than a dead short
“μ-short testing”	a test designed to detect potential short circuits that are too subtle to be caught by a normal short-circuit test
“μm”	micrometer, a unit of length equal to one-millionth of a meter
“μm/pixel”	micrometers per pixel, a metric that measures the physical spatial resolution of an imaging system, indicating how much real-world distance is represented by a single pixel
“unit-level alignment testing”	a test that enables localized positioning of critical areas on a PCB to ensure accurate alignment and reliable measurement during electrical testing
“web guiding”	an automatic closed-loop control mechanism used in manufacturing to position flat materials, known as webs, before processing