
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.

“air-jet loom”	a shuttleless loom that uses compressed air jets to propel the weft yarn across the warp shed during weaving, enabling high-speed fabric production
“bushing”	a precious-metal (typically platinum or platinum-alloy) equipment used in glass fiber manufacturing, with a tip plate containing numerous tips through which molten glass is drawn into continuous filaments
“central processing unit” or “CPU”	the primary general-purpose processor in a computer that sequentially executes instructions for a wide range of tasks, including running the operating system and application logic
“coefficient of thermal expansion” or “CTE”	a thermal characteristic coefficient expressing the ratio at which a material expands when heated and contracts when cooled, a lower CTE is generally preferable for electronic applications, particularly for IC packaging substrates that must match the extremely low thermal expansion of chips
“conductive anodic filament” or “CAF”	a phenomenon of microscopic ion migration that serves as a measure of insulation effectiveness during extended and cyclical operation of printed circuit boards; higher CAF resistance indicates a stronger ability to resist ion migration, with longer endurance time being preferable
“copper clad laminate” or “CCL”	a board material made by using electronic fabric as reinforcement, impregnating it with resin, cladding one or both sides with copper foil, and hot-pressing, which is the dedicated base material for printed circuit boards (PCBs)
“coupling agent”	a chemical agent, typically a silane compound, applied during surface-treatment of glass fiber fabric to improve the bond strength between the inorganic glass fiber surface and the organic resin matrix in composite materials
“crucible”	a specialized high-temperature vessel, typically fabricated from platinum-rhodium alloys or other refractory materials, used to melt glass, which then flows through a bushing to form glass fibers
“desizing”	the process of removing sizing agents from woven glass fiber fabric after weaving, typically performed through high-temperature heat treatment in specialized furnaces to eliminate organic residue from the fabric surface
“dielectric constant” or “Dk”	the ratio of the capacitance of a capacitor filled with a given material to the capacitance of an identical vacuum capacitor, representing the material’s ability to store electrical energy; a lower Dk represents lower ability to store electrical energy, thus allowing signals to travel faster and more effectively through the medium

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“dissipation factor” or “Df”	a measure of energy loss in insulating materials or dielectrics in an alternating electric field, caused by dielectric conductivity and the hysteresis effect of dielectric polarization, expressed as the tangent of the phase angle; a lower Df means better signal integrity and lower signal loss
“electronic fabric”	a plain-weave fabric woven from electronic yarn, primarily used as an insulating and reinforcing material in copper-clad laminates for printed circuits
“electronic yarn”	electronic yarn composed of tens to hundreds of individual glass fiber filaments with diameters ranging from a few micrometers to tens of micrometers, serving as the primary raw material for electronic fabric
“fiber drawing”	the process in glass fiber manufacturing of mechanically drawing molten glass extruded through bushing tips with drawing machines into thin continuous filaments, with the filament diameter controlled by the drawing speed, the viscosity of the molten glass and other factors
“fine yarn”	electronic-grade glass fiber yarn used to produce thin electronic fabric with a thickness between 36 and 100 μm
“fining”	a high-temperature process during glass melting in electronic yarn production that ensures proper removal of gas bubbles and homogenization of the molten glass, thereby enhancing glass melting quality
“graphics processing unit” or “GPU”	a specialized processor designed to perform many calculations simultaneously (in parallel), originally for rendering graphics but now widely used for tasks like machine learning and scientific computing that benefit from massive parallelism
“high-density interconnect” or “HDI”	a type of printed circuit board (PCB) technology that features a higher wiring density per unit area than conventional PCBs, enabling designers to pack more components and complex circuitry into smaller and lighter form factors while improving electrical performance, signal integrity, and reliability, making it a critical enabler for consumer electronics, automotive control systems, medical equipment, etc.
“IC packaging substrate”	a carrier substrate used for chip-level high-precision, high-integration circuits, primarily applied in advanced semiconductor packaging to provide electrical interconnection between the chip and the PCB mother board
“low CTE fabric”	electronic fabric woven from glass fiber yarn formulated with a low coefficient of thermal expansion composition, primarily applied in advanced IC packaging substrates and high-reliability applications to mitigate thermal-induced warpage; there are two generations of low CTE fabric — the first generation produced using the first generation low CTE yarn, and the second generation produced using the second generation low CTE yarn

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“low CTE yarn”	special-purpose electronic yarn formulated with a low coefficient of thermal expansion composition, used as the raw material for weaving low CTE fabric; there are two generations of Low CTE yarn — the first generation with the CTE of about 3.0 ppm/°C, and the second generation with the CTE of around 2.6ppm/°C
“low Dk/Df fabric”	electronic fabric woven from glass fiber yarn with a low dielectric constant and low dissipation factor composition, used to reduce signal loss and enhance signal transmission speed in high-frequency and high-speed PCB applications; there are two generations of low Dk/Df fabric — the first generation produced using the first generation low Df/Df yarn, and the second generation produced using the second generation low Dk/Df yarn
“low Dk/Df yarn”	special-purpose electronic yarn formulated with a low dielectric constant and low dissipation factor composition, used as the raw material for weaving low Dk/Df fabric; there are two generations of low Dk/Df yarn — the first generation with the Df of around 0.3%, and the second generation with the Df of around 0.2%
“oxy-fuel combustion technology”	a combustion technology that uses high-concentration oxygen instead of air as the oxidant in furnace operations, improving melting efficiency, reducing nitrogen oxide emissions, and enhancing the quality of the molten glass
“printed circuit board” or “PCB”	a board on which point-to-point connecting conductors and printed components are formed on an insulating substrate according to a predetermined design, serving to support and interconnect circuit components in electronic devices
“quartz fabric”	a special-purpose electronic fabric made from high-purity quartz (silicon dioxide) fibers, featuring an ultra-low dielectric constant, low dissipation factor, and exceptionally low coefficient of thermal expansion, applied in high-frequency, high-speed, and high-performance computing applications
“sizing”	the process of dipping a layer of organic sizing agent to glass fiber yarn prior to weaving, which improves the bundling integrity of fiber tows and protects the fragile fibers from abrasion damage during the weaving process
“sizing agent”	a chemical substance coated on fibers, textiles, paper, or other materials to fill pores, coat surfaces, and enhance properties such as stiffness, smoothness, strength, and resistance to moisture or abrasion during processing or end use
“spreading”	a core technology in electronic fabric production that uses chemical, mechanical, hydraulic, or ultrasonic methods to spread or flatten yarn bundles, reducing surface gaps and fabric thickness, thereby enhancing resin impregnation and penetration
“super-fine yarn”	electronic yarn used to produce super-thin electronic fabric with a thickness between 28 and 35 μm
“super-thin fabric”	high-end electronic fabric with a thickness between 28 and 35 μm , applied in smartphones, wearable devices, tablets, servers, etc.

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“surface treatment”	the process of chemically treating fabric surfaces with a silane coupling agent after desizing to enhance interfacial strength between electronic fabric and resin, ensuring heat resistance and anti-CAF performance for PCBs and semiconductor substrates
“furnace”	a type of continuous melting furnace used in glass fiber production, made from various refractory materials, used for the melting of fiberglass raw materials
“TEX”	a unit of measurement for the linear mass density of fibers and yarn, defined as the mass in grams per 1,000 meters of yarn; a higher TEX value indicates a heavier or thicker yarn
“thick fabric”	entry-level electronic fabric with a thickness greater than 100 μm
“thin fabric”	mid-range electronic fabric with a thickness between 36 and 100 μm , applied in automotive electronics, consumer electronics, telecommunications, etc.
“twisting”	a process in yarn manufacturing in which individual glass fiber strands are twisted to produce a finished yarn with a desired twist level, improving the bundling integrity of yarn
“ultra-fine yarn”	the grade of electronic yarn used to produce ultra-thin electronic fabric with a thickness of less than 28 μm
“ultra-thin fabric”	the highest-end electronic fabric with a thickness of less than 28 μm , which has the highest production difficulty and technical content, and is applied in IC packaging substrates, high-end smartphones, and wearable devices
“warp yarn”	the yarn bundle running parallel to the fabric edge in electronic fabric
“weaving”	the process of interlacing weft and warp yarn on a loom to form a fabric in a plain-weave structure, which is the primary process affecting the appearance quality of electronic fabric
“weft yarn”	the yarn bundle running perpendicular to the fabric edge in electronic fabric