A

"A" STAGE OF RESIN The condition of low molecular weight of a resin polymer during which the resin is readily soluble and fusible.

ABRASION RESISTANCE Ability of a material to resist surface wear.

ABRASION STRIPPER A motorized device consisting of buffing wheels that scrape flat cable insulation from conductors. Also called Buffing Stripper.

ABSOLUTE ZERO Theoretical temperature at which all thermal motion of heat action ceases, approximately –273.16º C, -459.69º F or 0º K.

ABSORPTION (1) The amount of moisture a substance will assimilate and retain. (2) The dissipation of energy by radiation passing through a medium.

ACCELERATED AGING A test in which voltage, temperature and other parameters are increased above normal operating values to obtain observable deterioration in a relatively short period of time. See also AGING.

ACCESSORIES Mechanical devices, such as cable clamps or backshells , added to connector shells and other such hardware that are attachable to connectors to make up the total connector configuration.

ACID A hydrogen containing substance which breaks down upon solution in water to produce hydrogen ions which are released in solution. The higher the concentration of hydrogen, the stronger the acid. See pH.

ACID FLUXES Fluxes consisting of inorganic acids and salts that are used when a surface to be soldered is below the ideal for rapid wetting. Also called Corrosive Fluxes.

ACTIVATED That condition of a compound or mixture of compounds having higher chemical activity than that normally found with the compound or mixture. An example is the addition of an activator to rosin to increase its fluxing activity.

ACTIVATING A treatment that renders nonconductive material receptive to electroless deposition. Non-preferred synonyms - Seeding, Catalyzing, Initiating and Sensitizing.

ADAPTER An intermediate device that accomplishes the attachment of special accessories and provides for special mounting.

ADHESION Force of attraction between the molecules (or atoms) of two different phases, such as liquid brazing filler metal and solid copper or plated metal and basic metal. Contrast with COHESION.

ADHESION PROMOTION The chemical process of preparing a surface to provide for a uniform and durable adhesive bond.

ADHESIVE (1) A substance capable of holding materials together by surface attachment. (2) A wide range of materials including animal and vegetable type glues, rubbers, elastomers, thermosetting and thermoplastic resins, ceramics and hot melts. Adhesives are used extensively for bonding, sealing and joining laminates, films and foils, coils, conductors, connector components, etc.

ADMITTANCE The ease with which an alternating current flows in a circuit. The reciprocal of IMPEDANCE.

ADSORPTION The adhesion of gas or liquid molecules to the surface of solids or liquids with which they are in contact.

AGING The change in properties of a material with time under specific conditions, such as varying the temperature, pressure, humidity, etc. See ACCELERATED AGING.

AGITATION The process of shaking/ stirring a plating bath to replenish metal ions at the cathode interface, thereby increasing the deposition rate. Usually, as more effective agitation is achieved, higher duty cycles can be used to increase the plating rate or lower voltage and current for improved quality.

ALLIGATOR CLIP A mechanical device shaped similar to the jaws of an alligator, generally used as a temporary connection on the end of a test lead or interconnection wire.

ALLOY A combination of two or more metal elements. The combination may be in the form of a solid solution of one or more metals in another metal, or distinct phases or components of the alloy. Generally, alloys will have different properties from those exhibited by their constituent elements. An example is 63% tin-37% lead solder alloy. This alloy melts at 361º F, whereas tin melts at 449º F and lead at 621º F.

ALTERNATING CURRENT (AC) Current in which the charge-flow periodically reverses, as opposed to DIRECT CURRENT, and whose average value is zero. It usually implies a sinusoidal variation of current and voltage.

ALUMINUM (Al) A lightweight, silvery white metal identified by Atomic No. 13. Aluminum terminals are compatible with aluminum conductors in weight-sensitive or high-current applications. Because the material is susceptible to oxidation, corrosion and creep, it requires special considerations with regard to crimping and plating.

AMERICAN WIRE GAUGE (AWG) A standard system for designating wire diameter. Also referred to as the Brown and Sharpe (B&S) wire gage.

AMBIENT TEMPERATURE The temperature of the environment, usually air, surrounding a connector or device.

AMORPHOUS A condition of a material whose atoms and molecules are not arranged in any definite pattern or form. The material is not crystalline. A characteristic of amorphous material is the lack of certain well-defined physical properties. Generally, amorphous materials are poor conductors of heat and electricity. Glass, carbon and rosin are examples of amorphous materials.

AMPERE (AMP) The unit of intensity of electric current, one amp being that produced by one volt acting through a resistance of one ohm.

ANALOG CIRCUITS Circuits which provide a continuous relationship between input and output.

ANION Negatively charged atom or radical/ion.

ANNEALING Heating a material to and holding at a suitable temperature and then cooling at a suitable rate, for such purposes as reducing hardness, improving machinability,

facilitating cold working, producing a desired microstructure, or obtaining desired physical, mechanical or other properties.

ANNULAR RING That portion of conductive material completely surrounding a hole on a PC board.

ANODE The positive pole of a plating cell. It is the physical entity of the plating set-up at which negatively charged ions leave the plating solution. The ions are converted back to the parent atom or group of atoms and are discharged as gas, redissolve in the solution, or precipitate as sludge in combination with other components of the solution. The electrical charge that had been carried by the ion then enters the external electrical circuit. In many plating baths the anode is consumed by giving up its metal content to the bath in the form of positive metal ions. These are then deposited on the CATHODE.

ANODIZE Formation of a protective, insulating oxide layer on metal by electrolytic action.

ANSI Abbreviation for the American National Standards Institute, a non-profit, private, membership organization that facilitates, promotes and publishes voluntary consensus standards for many industries.

ANTIOXIDANT A substance that prevents or slows down oxygen decomposition of a material.

ANTI-ROTATION Connector design that includes keying or locking provisions to maintain positive orientation for accessory hardware.

ANVIL That part of the crimping die, normally stationary, which positions and supports the terminal or contact during crimping. Sometimes called NEST.

ARC-OVER VOLTAGE See BREAKDOWN VOLTAGE.

ARC RESISTANCE The characteristic of insulating materials to resist carbonization (usually called tracking) of the material surface between electrodes resulting from voltage breakdown.

ARMORED CABLE See CABLE, ARMORED.

ARRAY A group of elements or circuits arranged in rows and columns on a substrate or PC board.

ASPECT RATIO A ratio of length or depth of a through-hole on a PC board to its preplated diameter.

ASSEMBLY An article consisting of detailed parts and sub-assemblies performing functions necessary to the operation of the device.

ASTM Abbreviation for the American Society for Testing and Materials, a non-profit, industry wide organization that publishes standards, methods for test, recommended practices, definitions and related material.

ATOM The smallest particle of an element which can enter into a chemical combination. All molecules are composed of atoms. The differences between molecules result from the differences in type and number of atoms involved.

ATTENUATION (1) The ratio of the input to output power levels in a network (transmission line) when it is excited by a matched source and terminated in a matched load. (2) Power loss in an electrical system.

AUTOMATED WIRE BONDING A computer aided high production process in which wire bonding is performed by either thermocompression or ultrasonic methods.

AXIAL DISPLACEMENT Incremental difference between an initial position and a final position resulting from a force applied along the component's axis.

AXIAL LEAD Lead wire extending from a component or module body along its longitudinal axis,

B

"B" CRIMP See CRIMP.

"B" STAGE OF RESIN The condition of a resin polymer when it is more viscous, with higher molecular weight. It is insoluble but plastic and fusible.

BACK MOUNTED When a connector is mounted from the inside of a panel or box with its mounting flanges inside the equipment.

BACKPLANE CONNECTOR See CONNECTOR, BACKPLANE.

BACKPLANE PANEL An interconnection panel into which PC cards or other panels can be plugged. These panels come in a variety of designs ranging from a PC motherboard to individual connectors mounted in a metal frame. Panels lend themselves to automated wiring, Also called Backplane.

BACKSHELL A connector accessory or component which may or may not be supplied with the connector to provide for strain relief, tighter harness routing in restricted space, shielding from electrical interference and/or positive moisture protection.

BACKSHELL MOLD A mold used to mold a covering over the backshell of a connector or plug- after it is connected to a cable. Also see POTTING MOLD.

BARE CONDUCTOR A conductor not covered with insulating material.

BARREL The portion(s) of a terminal or contact that are crimped. If designed to receive the conductor, it is called the Crimp Barrel or Wire Barrel. If designed to support or grip the insulation, it is called the Insulation Barrel.

BARREL CHAMFER See CHAMFER.

BARRIER A partition of electrically nonconductive material that increases the electrical path between adjacent electrical circuits or an electrical circuit from ground.

BARRIER STRIP A continuous section of dielectric material that insulates electrical circuits from each other or from ground.

BASE A substance that upon solution in water produces one or more hydroxyl ions. A hydroxyl ion is composed of one atom of oxygen and one atom of hydrogen. The hydroxyl ion carries one negative electrical charge. The number of hydroxyl ions that are released into solution determines the strength of a base. See pH.

BASE MATERIAL The insulating material upon which the conductive patterns of a PC board may be formed. The base material may be rigid or flexible.

BASE METAL (1) Metal from which the connector, contact or other metal accessory is made and on which one or more metals or coatings may be deposited. Sometimes called basis metal. (2) The metal present in the largest proportion in an alloy. (3) The metal to be brazed, cut or welded. (4) After welding, that part of the metal which was not melted.

BASIS METAL See BASE METAL.

BAYONET COUPLING A quick coupling device for plug and receptacle connectors, accomplished by rotation of a cam operating device designed to bring the connector halves together.

BELLED MOUTH See CHAMFER.

BELLOWS CONTACT See CONTACT, BELLOWS.

BERYLLIUM (Be) Metal identified by Atomic No. 4. It is lighter than aluminum, nonmagnetic and is characterized by good electrical conductivity and high thermal conductivity. The most important use for beryllium is in alloys--especially beryllium copper alloys.

BERYLLIUM COPPER (BeCu) A relatively expensive contact material with properties superior to brass and phosphor bronze. It is recommended for contact applications requiring repeated extraction/reinsertion and mating/unmating cycles because of its resistance to fatigue at high operating temperatures.

BIFURCATE Describes lengthwise slotting of a flat spring contact to provide additional independently operating points of contact. Example: Bifurcated Contact.

BIFURCATED CONTACT See CONTACT, BIFURCATED.

BINDING POST A fixed support, generally screw-type, to which conductors are connected.

BIRDCAGE A defect in stranded wire where the strands in the stripped portion between the covering of an insulated wire and a connection, contact or terminal have separated from the normal lay of the strands.

BLADE CONTACT See CONTACT, BLADE.

BLOCK Connector body. See BODY.

BLIND VIA See VIA, BLIND.

BLISTER A raised area on the surface of a molded part caused by the pressure of gasses inside on its incompletely hardened surface.

BLOW HOLE A small hole or cavity in the vicinity of the solder joint caused by gas entrapped during solidification. A defect.

BOARD THICKNESS The thickness of the metal-clad base material of the PC board, including conductive layer or layers. Can include additional platings and coatings depending upon when the measurement is made.

BODY Main portion of a connector to which contacts and other components are attached. Typically used in reference to one piece molded plastic connectors. This term is not used with connectors incorporating non-integral shells, inserts, etc. in their construction.

BOND (1) The union of materials by adhesives. To unite materials by means of an adhesive.(2) An attachment between a die/substrate or substrate and package using an adhesive for mechanical reasons or an interconnection such as a thermocompression or ultrasonic wire bond to perform an electrical function. (3) The junction of joined parts. Example is the joining point of solder and the heat affected base metal for solder joints.

BOND LIFTOFF The failure mode whereby the bonded lead separates from the surface to which it was bonded.

BOND STRENGTH The force-per-unit area required to separate two bonded materials by a tensile force perpendicular to the bond line. See also PEEL STRENGTH.

BONDED Two or more components joined by atomic attraction or by intimate contact with a filler material such as adhesive or solder.

BONDING WIRE Fine gold or aluminum wire for making electrical connections in monolithic or hybrid circuits between various bonding pads on the semiconductor device substrate and device terminals or substrate lands.

BOOT A connector accessory, usually made from a flexible or semi-rigid insulating material, designed as a protective device to house wire/cable terminations. It provides harness direction and moisture sealing when bonded or used as a potting form.

BRAID (1) Woven bare metallic or tinned copper wire used as EMI shielding for wires and cables and as ground wire for batteries or heavy industrial equipment. (2) A woven fibrous protective outer covering, over conductors, wires and/or cables.

BRANCH CONNECTOR See CONNECTOR, BRANCH.

BRASS A low cost, copper alloy material that is an excellent electric conductor. Brass reaches its yield point at low deflection force; hence, it deforms easily and fatigues slowly. Often used in contact design and fabrication, but not typically for spring contacts.

BRAZING A group of joining processes utilizing a filler with a nonferrous metal or alloy with a melting point greater than 1000° F, but lower than that of the metals or alloys to be joined. Brazing is sometimes referred to as HARD SOLDERING.

BREAKDOWN VOLTAGE The voltage at which an insulator or dielectric ruptures, or at which ionization and conduction take place in a gas or vapor. Also called Arc-Over Voltage.

BREAKOUT The point at which one or more wires emerges from a cable or wire harness assembly.

BRIDGING, ELECTRICAL The formation of a conductive path between contacts/conductors.

BRIDGING, SOLDER The filling of the space between conductors with solder.

BRIGHT DIP A solution that produces, through chemical action, a bright surface on an immersed metal.

BUFFING STRIPPER See ABRASION STRIPPER.

BULK RESISTANCE The portion of the contact resistance that is due to the length, cross section and material of the contacts.

BULKHEAD CONNECTOR See CONNECTOR, BULKHEAD.

BUMP A means of providing connections to terminal areas of a device. A small mound is formed on the device (or substrate) pads, and is utilized as a contact for facedown bonding.

BUNDLE A group of wires fastened or held together by an auxiliary means such as straps, ties, clamps or flexible wrappings (jackets) or sheaths. Also can define Cable.

BURIED VIA See VIA, BURIED.

BURRS Featherlike cross sections developed along the edge of a piece of metal or plastic that has been sawed, filed or ground.

BUS (1) Wire or conductor used for interconnecting component leads. (2) A circuit over which data or power is transmitted.

BUS BARS (1) A heavy copper or aluminum strip or bar used to carry large amounts of current. (2) Power distribution components. Many consist of two or more conductor layers, electrically insulated from one another and from other components by thin dielectric layers. Applications include distribution of power on PC boards.

BUSHING See EYELETS.

BUSSING The joining of two or more circuits.

BUTT Joining of two conductors end to end, with no overlap and with their axes in line.

BUTT CONNECTOR See CONNECTOR, BUTT.

BUTT CONTACT See CONTACT, BUTT.

BUTT JOINT A joint between two members lying approximately in the same plane.

BUTT SPLICE Device for joining conductors end-to-end with their axis in line and not overlapping. See SPLICE.

BUTTON BOARD CONNECTOR See CONNECTOR, BUTTON BOARD.

BUTTONHOOK CONTACT See CONTACT, BUTTONHOOK.

C

"C" STAGE OF RESIN The condition of a resin polymer when it is in the solid state, with high molecular weight, being insoluble and infusible.

CABLE Either a stranded conductor with or without insulation or other coverings (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable). Usually has an outer covering or jacket over other components such as braided shield, grounding tape, strengthening members, extruded insulating jacket, etc.

CABLE, ARMORED A cable provided with a wrapping of metal, usually steel wires or tapes, primarily for the purpose of mechanical protection.

CABLE ASSEMBLY Cables and/or wires with connectors on one or several ends.

CABLE CLAMP A mechanical connector accessory (often an adjustable collar secured by hardware) attached to the cable side of the connector to support the wire bundle, provide strain relief and absorb vibration and shock otherwise transmitted by the cable to the contact/wire terminations.

CABLE TERMINAL A device that seals the end of a cable and provides insulated egress for the conductors. Also known as a pot head or an end bell.

CADMIUM (Cd) A white, ductile element identified by Atomic No. 48. Generally used as a plated coating on steel or aluminum connector components and electronic equipment. It provides improved solderability, surface conductivity and helps to prevent corrosion. Its use is banned in certain applications and geographic locations due to environmental considerations.

CANTILEVERED CONTACT See CONTACT, CANTILEVERED.

CAPACITANCE That property of a system of conductors and dielectrics that permits the storage of electricity when potential difference exists between the conductors. Its value is expressed as the ratio of quantity of electricity to a potential difference. A capacitance value is always positive.

CAPACITOR A device consisting essentially of two conducting surfaces separated by an insulating material such as air, paper, mica, ceramic, glass, metal or plastic film. A capacitor stores electric energy and blocks flow of alternating current to a degree dependent on its capacitance and the frequency.

CAPILLARY ACTION The interaction between a liquid and a small diameter channel or opening in a solid. Because of the physics involved, if the liquid wets the sides of the solid channel, surface tension will draw the liquid up into the channel. The term capillary, alone, refers to the channel itself. An example is stranded wire dipped into flux. The liquid flux will travel for a considerable distance up between the stranded wires.

CAPILLARY ATTRACTION The combination force, adhesion and cohesion, which causes liquids, including molten metals, to flow between very closely spaced solid surfaces, even against gravity.

CAPTIVE DEVICE A multi-part fastener, usually screw-type, whose components are retained without separation when loosened from the base assembly.

CARD EDGE CONNECTOR See CONNECTOR, EDGEBOARD.

CARD GUIDE A plastic or metal support for printed boards. It relieves the stress on connector contacts, makes insertion into and extraction from the connector easier and eliminates the possibility of twisting the board.

CARD SLOT The lengthwise opening in a printed circuit edge connector that receives the PC board.

CATALYST A substance that initiates or accelerates a chemical reaction, like curing a resin, but which does not become a chemical part of the final product.

CATHODE The negative pole of a plating cell. It is the physical entity of the plating set-up at which positively charged ions leave the plating solution. The cathode is

normally the object of the plating, i.e., a metal is deposited on the cathode. The anode metal enters the bath as positive ions that are attracted to the negative cathode where they give up their electrical charge to the external circuit. The ion is then converted to an atom that then remains adhering to the cathode. See also ANODE.

CENTER-TO-CENTER DISTANCE See PITCH.

CENTER-TO-CENTER SPACING See PITCH.

CERTIFICATION Verification that specified testing has been performed and required parameter values have been attained.

CHAMFER Angled, flared, or widened inside edge of the entrance of a contact that permits easier insertion of the conductor into the barrel or on the engaging end of a socket contact to permit positive alignment and easier insertion of the mating pin contact. Also can apply to the mating shroud of a connector shell.

CHARACTERISTIC IMPEDANCE That value (in ohms) which when connected as the load to an arbitrary length of the line is reproduced as the input impedance (unchanged) at the other end.

CHIP The unpackaged and normally leadless form of an IC semiconductor, either passive or active, discrete or integrated. Chip components have metalized terminations for interconnecting to the substrate.

CIRCUIT (1) A complete path of electron flow from a negative terminal of a voltage source through a conductor and back to the positive terminal. (2) The interconnection of a number of elements or parts to accomplish a desired function.

CIRCUIT ANALYZER An assembly that electrically stimulates an item to be tested and monitors for proper response. This includes shorts and opens testing as well as functional diagnostic testing. Also circuit verifier.

CIRCUIT DENSITY The amount of circuitry on a given area of PC board, usually expressed as a ratio of total surface area to circuitry and component coverage.

CIRCULAR MIL A unit of area used to indicate wire size. One circular mil equals the cross-sectional area of a wire one mil (0.0001 inches) in diameter.

CIRCUMFERENTIAL CRIMP See CRIMP, CIRCUMFERENTIAL.

CLAD OR CLADDING A thin layer or sheet of metal foil that is bonded to a core or dissimilar metal.

CLEARANCE (1) The gap or space between two mating parts. (2) Space provided between the relief of a cutting tool and the surface cut.

CLOCKING Also called Keying. See POLARIZATION.

CLOSED CRIMP BARREL See CRIMP BARREL, CLOSED.

CLOSED ENTRY A contact or contact cavity design in the insert or body of the connector that limits the size or position of the mating contact or printed circuit board to a predetermined dimension.

CLOSED ENTRY CONTACT See CONTACT, CLOSED ENTRY

COAT To cover with a finishing, protecting or enclosing layer of any compound.

COAXIAL CABLE A high-bandwidth cable consisting of two concentric cylindrical conductors with a common axis that are used for high-speed data communication and video signals.

COAXIAL CONTACT See CONTACT, COAXIAL.

COEFFICIENT OF EXPANSION AND CONTRACTION The degree to which a material will expand or contract when heated or cooled.

COHESION Force of attraction between the molecules or atoms within a single phase. Contrast with ADHESION.

COLD FLOW Permanent deformation of insulation due to mechanical forces, without the aid of heat softening of the insulating material. See also CREEP.

COLD JOINTS This type of solder joint is characterized by non-wetting of one or both of the surfaces being joined. Usual causes are surfaces that are not clean and/or insufficient heat.

COLD WELD A weld achieved by pressure only, i.e., without electrical current or elevated temperature.

COLD WORK Embrittlement of metal due to repeated flexing action.

COLOR CODING (1) Marking a terminal or contact with color to aid in identification and selection of wire size and crimping tool. (2) Coding system for insulated wires used in electrical equipment where insulations are various solid colors or stripes of color on a base color, usually white.

COMBUSTION Rapid oxidation. The rusting of iron, an oxidation process, is not combustion, since it proceeds at a very slow rate. The burning of a candle is an example of rapid oxidation or combustion.

COMPONENT An article that is normally a part or combination of detailed parts, sub-assemblies or assemblies, and is a self-contained element which performs a function necessary to the operation of the device. Examples are resistors, screws, capacitors, connectors, harnesses, etc.

COMPONENT DENSITY The quantity of components on a PC board per unit area.

COMPONENT HOLE A hole used for the attachment and electrical connection of component terminations, including pins and wires, to the PC board.

COMPONENT LEAD The solid or stranded wire or conductor that extends from a component and serves as a readily formable mechanical and/or electrical.

COMPOSITE A material that consists of two or more combined elements. Generally they consist of a strengthening component(s) in the form of particulates, whiskers, and/or short discontinuous or continuous fibers embedded in another component(s) called a matrix. Composite materials are usually divided into three broad groups identified by the matrix material - resin, metal and ceramic.

COMPOUND A homogenous, pure substance composed of two or more essentially different chemical elements, which are present in definite proportions. Compounds usually possess properties differing from those of the constituent elements. Usually used to refer to insulating materials.

COMPRESSIVE STRENGTH The maximum compressive stress a material is capable of sustaining. For materials that do not fail by a shattering fracture, the value is arbitrary, depending on the distortion allowed.

CONCENTRIC More than one circular item having the same geometric center. Example is the measurement of the center of a single conductor wire with respect to the center of the outer insulation.

CONDUCTANCE The ratio of current passing through a material to the potential difference at its ends. The reciprocal of RESISTANCE.

CONDUCTIVE CONTAMINANT GROWTH The bridging of circuits by conductive salts. The contamination develops from plating, flux and/or etching.

CONDUCTIVITY The ability of a material to conduct electric current. It is expressed in terms of the current per unit of applied voltage. It is the reciprocal of RESISTIVITY.

CONDUCTOR Any circuit element that carries current. Examples are electrical wire, contacts, terminals, the copper traces on PCBs, etc.

CONDUCTOR SPACING The distance between adjacent edges (not center- to-center) of conductive patterns in a conductor layer.

CONDUCTOR STOP A device on a terminal splice, contact or tool used to prevent excessive extension of the conductor beyond the contact/terminal barrel.

CONFIGURATION Specific arrangement of contacts in a multiple contact connector.

CONFORMAL COATING Thin layer of polymer material deposited on electronic components or assemblies, providing a protective or insulation barrier on all surfaces and edges.

CONNECTION That part of a circuit that has negligible impedance and that joins components, devices, etc., together.

CONNECTION DIAGRAM A pattern illustrating the connections needed to place an electronic system in operation when such system includes one or more assemblies, power supplies and/or devices.

CONNECTOR A device used to terminate or connect the conductors of wires (individual or in cables) or which provides a means to continue the conductors to a mating connector or printed circuit board. Multiple contact connectors join two or more conductors with others in one mechanical assembly.

CONNECTOR, BACKPLANE An interconnection assembly configuration having terminals on one side and usually having connector receptacles on the other side that will accept either a mating connector or PCB.

CONNECTOR, BRANCH A connector that joins a branch conductor or conductors to the main conductor or harness at a specified angle. See also CONNECTOR, “T”.

CONNECTOR, BUTTON BOARD Essentially a wad of crumpled wire, the cylindrical button is a mass of fine, springy, highly conductive wire that is fitted into a substrate through hole by compression. The configuration shortens signal paths to increase processing speed without attendant heat rise, lowers contact resistance, inductance and mating force required.

CONNECTOR, BULKHEAD Type of connector designed for insertion into a panel cutout from the component side.

CONNECTOR, DIN Usually refers to DIN 41612, the standard developed by the German Institute for Standardization and the Association of German Electrical Engineers. It covers a variety of connector styles and is based on a family of two-piece PC board connectors having contact tails for soldering on 0.100 or 0.200" centers. Other standards do, however, exist.

CONNECTOR, D-SUBMINIATURE (D-SUB) Based on MIL-PRF-24308 military connector. Rectangular with a D shaped polarized shroud on the engaging ends of metal shells. The pitch is on approximately 0.075 inch (high density) and 0.100 inch centers with a variety of contact types such as crimp, solder tails, solder cups, removable, etc.

CONNECTOR, DUMMY A device designed to mate with another connector to perform protective, environmental and/or electrical shorting functions.

CONNECTOR, EDGEBOARD A connector that mates with printed wiring traces running to the edge of a PC board. Also called Card Edge Connector.

CONNECTOR, FEMALE The half of a connector set that accepts the male connector, usually by the engaging end shroud surrounding the male shroud when mated.

CONNECTOR, FLAT CABLE Connector designed specifically to terminate to flat cable. May be designed for flat conductor/flat cable or round conductor/flat cable. See also CONNECTOR, INSULATION DISPLACEMENT.

CONNECTOR, HERMAPHRODITIC An interconnecting device in which both mating parts are identical at their mating surfaces. Also called Sexless Connector.

CONNECTOR, HERMETIC .Hermetically sealed connectors are usually multiple contact connectors where the contacts are bonded to the connector by glass or other non-permeable materials.

CONNECTOR HOUSING See SHELL.

CONNECTOR, INPUT/OUTPUT (I/O Connector) A mating pair of connectors used to carry signals into and out of a panel-mounted subsystem. An example is a connector pair that interconnects the individual back panels in a large array of panels.

CONNECTOR INSERT See INSERT.

CONNECTOR INSERTION LOSS See INSERTION LOSS.

CONNECTOR, INSULATION DISPLACEMENT (IDC) A mass termination connector for flat cable with contacts that displace the conductor insulation to establish simultaneous contact with all conductors. See also CONNECTOR, FLAT CABLE.

CONNECTOR, MALE The half of a connector set that goes into the female connector, usually by the engaging end shroud being inserted into the female shroud when mated.

CONNECTOR, MICROMINIATURE Based on MIL-PRF-83513 military connector. Rectangular with a D shaped polarized shroud on the engaging ends of metal shells and all plastic body designs. The pitch is on 0.050 inch centers with a variety of reverse gender (male pin in male connector and female socket in female connector) contact types such as crimp, solder cups, etc. Contacts are all non-removable. Non-military styles of connectors include strip, circular, custom configurations, etc.

CONNECTOR, PLUG (1) An electrical connector intended to be attached to the free end of a conductor, wire, cable or bundle, which couples or mates to a receptacle connector. (2) General term for the male half of a connector pair.

CONNECTOR, PRESSURE TYPE A basic connector type including the bolted-type connector, compression connector, self-tapping connector and the twist-on connector. All establish a connection by means of mechanical pressure and without the use of solder.

CONNECTOR, RACK AND PANEL Connects the inside back end of the cabinet (rack) with the drawer containing the equipment when it is fully inserted. The drawer permits convenient removal of portions of the equipment for repair or examination. Special design and rugged construction of the connector allow for variations in rack-to-panel alignment.

CONNECTOR, RECEPTACLE (1) An electrical connector intended to be mounted or installed onto a fixed structure such as a panel, electrical case or chassis, which couples or mates to a plug connector. (2) General term used for the female half of a connector pair.

CONNECTOR SHELL See SHELL

CONNECTOR, SOLDER-TYPE A connector in which the contacts are attached to the conductors by a soldered joint.

CONNECTOR, STACKING A connector designed to be utilized when the application calls for the "stacking" of boards. Connectors usually have special dual contacts that are sockets on one end and pins on the other end with a middle portion to which boards or flex circuits may be soldered. The contacts designed into the free end of the termination mate to the next connector stacked on the assembly.

CONNECTOR, STRAIGHT A connector that joins two lengths of conductor end to end in a straight line.

CONNECTOR, SURFACE MOUNT A connector designed to be soldered to pads instead of through holes on a PCB.

CONNECTOR, "T" A branch connector that joins a branch conductor or conductors to the main conductor or harness at an angle of 90º. See also CONNECTOR, BRANCH.

CONNECTOR, UMBILICAL A connector used to connect cables to a rocket or missile prior to launching, and which is removed from the missile at the time of launching.

CONNECTOR, VERTICAL MOUNT A connector designed to be mounted with the mating face parallel to the printed circuit boards on which it is soldered. The connector's mating face points away from the board. Leads can be soldered to either pads or through holes.

CONTACT The conductive element of a connector that makes actual contact to complete or break an electrical circuit. Contacts generally engage other contacts at the engaging end and are terminated to wire, PCBs, or other conductors at the rear end. Contacts provide a separable through connection for a large variety of applications including cable-to-cable, cable-to-box and box-to-box

CONTACT ALIGNMENT Defines the overall side play that contacts have within the insert cavity so as to permit self-alignment of mated contacts. Sometimes referred to as Contact Float

CONTACT AREA Area that is in contact between two conductors, two contacts or a conductor and a connector, permitting flow of electrical current.

CONTACT ARRANGEMENT The number, spacing and pattern of contacts in a connector.

CONTACT, BELLOWS Contact that is a flat spring folded to provide uniform spring rate over the full tolerance range of the mating unit.

CONTACT, BIFURCATED Contact (usually a spring) that is slotted lengthwise to provide additional independently operating points of contact.

CONTACT, BLADE A flat male contact designed to mate with a tuning fork or a flat formed female contact.

CONTACT, BUTT A contact configuration in which the mating surfaces engage end-to-end without overlap and with their axes in line. This engagement is usually under spring pressure with the ends designed to provide optimum surface contact.

CONTACT, BUTTON HOOK A contact with a curved, hook-like rear termination design often located at the rear of hermetic headers to facilitate soldering or desoldering of leads.

CONTACT, CANTILEVERED A spring contact in which the contact force is provided by one or more cantilevered springs. It is used almost exclusively in PC board connectors.

CONTACT CAVITY A defined hole in the connector insert into which the contacts fit.

CONTACT CHATTER Ohmic discontinuities of contacts in a mated connector pair.

CONTACT, CLOSED ENTRY A female contact designed to prevent the entry of a pin or probing device having a cross-sectional dimension (diameter) greater than the recommended mating pin.

CONTACT, COAXIAL A contact having two conductors with a common axis, separated by a dielectric.

CONTACT, CRIMP A contact with a back portion that is a hollow cylinder or an open "U" shape to allow it to accept a wire/conductor. After a conductor is inserted, a swaging tool is applied to compress (crimp) the contact metal firmly against the wire. A crimp contact often is referred to as a Solderless Contact.

CONTACT DURABILITY See DURABILITY.

CONTACT ENGAGING AND SEPARATING FORCE Force needed to either engage or separate mating contacts when they are in and out of connector inserts. Values are

generally established for maximum engage and minimum separate forces.

CONTACT, EDGEBOARD A contact printed on or near any edge of a printed circuit board and intended for mating with an Edgeboard Connector.

CONTACT, FEMALE See CONTACT, SOCKET.

CONTACT, FIXED A contact that is permanently mounted in the insert or body material of a connector. This is done by molding with the insert/body, mechanically capturing between or within insert sections, bonding in place after termination, etc. Also called Non-removable Contact.

CONTACT FLOAT See CONTACT ALIGNMENT.

CONTACT, FRONT RELEASE Contacts that are released from the front (mating side) of the connector and removed from the rear (wire side) with a tool. The removal tool engages the contact retainer from the front and releases the contact allowing it to be removed out of the rear by hand.

CONTACT, HERMAPHRODITIC A contact in which both mating elements are identical at their mating faces.

CONTACT INSPECTION HOLE See INSPECTION HOLE.

CONTACT, MALE – See CONTACT, PIN.

CONTACT, NON-REMOVABLE See CONTACT, FIXED.

CONTACT, OHMIC A contact between two materials across which the voltage drop is the same regardless of the direction of current flow.

CONTACT, OPEN ENTRY A female contact with no design provision to protect from possible damage or distortion from a test probe or other wedging device that has a diameter larger than the mating pin.

CONTACT, PIN A male contact designed with an engaging end that enters a female (socket) contact.

CONTACT PLATING Plated-on metal applied to the base contact metal to provide the required contact resistance and/or wear resistance.

CONTACT, POKE-HOME Term applied to a male or female contact to which a wire has been permanently affixed prior to the assembly of the contact into the insert.

CONTACT, PRESS-FIT A contact that can be pressed into a hole in an insulator, printed board (with or without plated through-holes) or a metal plate and maintain contact and position without soldering.

CONTACT PRESSURE Force that contact mating surfaces exert against each other.

CONTACT, REAR RELEASE Contacts that are released and removed from the rear (wire side) of the connector with a tool. The removal tool engages the contact retainer from the rear and pulls the contact out of the connector insert.

CONTACT, REMOVABLE A contact that is designed to be removed from the insert or body after assembly of the connector for such purposes as replacement or repair/rework. Usually special tools are required to lock the contact in place or remove it. See also CONTACT, FRONT RELEASE and CONTACT, REAR RELEASE.

CONTACT RESISTANCE Electrical resistance of a pair of engaged contacts. Resistance may be measured in ohms or millivolt drop at a specified current over the engaged contacts. Specified types, sizes and lengths of wire may be terminated to the contacts and included in the test. See also RESISTANCE and ELECTRICAL RESISTANCE TEST.

CONTACT RETAINER A device either on the contact or in the insert to retain the contact.

CONTACT RETENTION FORCE The axial load in either direction that a contact can withstand being dislodged from its normal position within an insert or body.

CONTACT, SHIELDED A contact designed to carry alternating current and to be shielded from unwanted signals (EMI and RFI). Generally these contacts are not impedance matched.

CONTACT SHOULDER The flanged portion of the contact that limits its travel into the insert.

CONTACT SIZE An assigned number denoting the size of the contact engaging end. Either a single number designator based on the AWG size number most closely corresponding in circular mil area (CMA) to the CMA of the pin contact of the given contact set, or a double number designator, similarly based, whereby the first number corresponds to the CMA of the pin contact and the second number corresponds to the maximum wire size accommodated by the contact's conductor barrel.

CONTACT, SOCKET A female contact designed so that the engaging end surrounds a male (pin) contact.

CONTACT, SOLDER A contact or terminal having a cup, hollow cylinder, eyelet, hook, etc. to accept a wire for a soldered termination.

CONTACT SPACING See PITCH.

CONTACT, SPADE A contact with fork-shaped female members designed to dovetail with spade-shaped male members. Proper alignment in some types is very critical if good conductivity is to be achieved.

CONTACT SPRING The spring placed inside the socket-type contact to force the pin into a position of positive intimate contact.

CONTACT, THERMOCOUPLE Contact of special material terminated to thermocouple wire, used in connectors employed in thermocouple applications. Common materials used are iron, constantin, copper, chromel and alumel.

CONTACT, TUNING FORK A U-shaped female contact that resembles a tuning fork. Often mated with a Blade Contact.

CONTACT WIPE The distance of travel (electrical engagement) made by one contact with another during its engagement or separation or during mating or unmating of the connector halves. See also WIPING ACTION.

CONTAMINANT An impurity or foreign substance present in a material or on a surface which affects performance of the material or circuit.

CONTINUITY A continuous path for the flow of current in an electrical circuit.

CONTINUOUS CURRENT RATING The designated alternating or direct current that the connector can carry continuously under specified conditions.

CONTROL CABLE A multiconductor cable made for operation in control or signal circuits, usually flexible, relatively small in size, and with relatively small current ratings.

CONTROLLED IMPEDANCE CABLE Package of two or more insulated conductors where impedance measurement between respective conductors is kept essentially constant throughout entire length.

CONVECTION A transference of heat or electricity by moving particles of matter either through a material (electricity moving from one end of a wire to the other) or between materials (the metal shell of a connector sitting on a hot plate becomes hot).

COPPER (Cu) A malleable, ductile, reddish metal identified by Atomic No. 29. It is a good conductor of heat and electricity (second only to silver in electrical conductivity). Copper is the most widely used electrical conductor for wires and cables; copper and its alloys are used extensively for contacts, fuse clips, terminals and connectors. Copper and copper alloys offer excellent corrosion resistance, high thermal conductivity and ease of fabricating, joining and forming.

CORONA A discharge resulting from a partial electrical breakdown in voltage exceeding a specified breakdown value.

CORROSION The destruction of the surface of a metal by chemical reaction. The most common kind of corrosion is that of rusting. This is a special case of a general classification known as atmospheric corrosion, when the oxygen of the atmosphere reacts with a material. Most metals, with the exception of the noble metals such as gold, can be oxidized by atmospheric oxygen. Usually, though, water vapor must be present before any appreciable oxidation takes place. Corrosion is the slow destruction of materials by chemical agent and electrochemical reactions.

CORROSIVE FLUXES See ACID FLUXES.

COUPLER (1) A component that transfers energy from one circuit to another. (2) An optical component that interconnects three or more optical conductors.

COUPLING See BAYONET COUPLING.

COUPLING RING A device used on cylindrical connectors to lock plug and receptacle together. It may or may not give mechanical advantage to the operator during the mating operation.

COUPLING TORQUE Force required to rotate a coupling ring or jackscrew to fully engage a mating pair of connectors. Usually measured in inch-ounces or inch-pounds.

COVER An item specifically designed to cover the mating-end of a connector for mechanical and/or environmental protection.

CRAZING Minute cracks on the surface of materials such as ceramic and plastic.

CREEP The dimensional change with time of a material under load, following the initial instantaneous elastic deformation Creep at room temperature is sometimes called cold flow.

CREEP DISTANCE Shortest distance on the surface of an insulator separating two electrically conductive surfaces.

CREEP STRENGTH That characteristic of a material that describes its strength and resistance to elongation. This can be measured either as the load needed to fracture the sample at a given temperature, or the load that will produce a given percent of stretch or elongation at a given temperature.

CREEP TESTS Tests on soldered joints performed by stressing the joint at a specific load to determine the rate of strain obtained.

CREEPAGE Conduction of electricity across the surface of a dielectric.

CRIMP The physical compression (deformation) of a contact/terminal barrel around a conductor in order to make an electrical connection. Crimps are done usually with a crimp die operated by hand (pliers or hand presses) or by semi or fully automatic machinery. The most common types of crimps are:

"B" Crimp Shaped like the letter B. The "U"-shaped open crimp barrels are most commonly used for this style.

Indented Crimp Shaped by a crimp die that compresses a closed crimp barrel from one or more sides simultaneously. One type is the Four-Indent Crimp.

CRIMP ADAPTER A sleeve that fits around the stripped conductor and allows for a small wire to fit into a large gage crimp barrel (pot). Also called Crimp Pot Adapter

CRIMP BARREL See BARREL.

CRIMP BARREL, CLOSED Shaped like a hollow tube to receive and surround a conductor.

CRIMP BARREL, OPEN Usually "U"-shaped crimp saddle in which a conductor is laid prior to crimping.

CRIMP, CIRCUMFERENTIAL Final configuration of a terminal barrel made when crimping dies completely surround the barrel and form symmetrical indentations.

CRIMP CONTACT See CONTACT, CRIMP.

CRIMP INDENTOR That portion of the crimping die, usually the moving part, that indents, reshapes or compresses the barrel or ferrule.

CRIMP POT ADAPTER See CRIMP ADAPTER.

CRIMP SADDLE "U"-shape portion of an open crimp barrel on a contact or terminal.

CRIMP TENSILE STRENGTH The axial force required to separate the wire from the crimped barrel. The wire may pull out of or break in the crimped area of the barrel.

CRIMP TERMINAL A point at which the bared portion of the hook-up wire is crimped to either the contact or a tab or pin that mate with the contact terminal.

CRIMPER See CRIMP INDENTOR.

CRIMPING A pressure method of mechanically securing a terminal, splice or contact to a conductor.

CRIMPING CHAMBER Shaped area formed by a crimping tool when mating the anvil (nest) and crimper (crimp indentor).

CRIMPING DIE The parts of the crimping tool that shape the crimp. Consists of the anvil (nest) and crimper (crimp indentor).

CRIMPING TOOL The complete mechanism used for crimping.

CRITICAL TEMPERATURE The maximum temperature at which superconductivity occurs in a substance.

CROSS LINKING When chemical links set up between molecular chains, the plastic is said to be cross-linked. In thermosets, cross-linking makes one infusible super-molecule of all the chains, contributing to strength, rigidity and high-temperature resistance. Thermoplastics (e.g., polyethylene) can also be cross-linked (e.g., by irradiation or chemically through formulation) to produce three-dimensional structures that are thermoset in nature and offer improved tensile strength and stress-crack resistance.

CROSSTALK (1) Undesired electrical currents in conductors caused by electromagnetic or electrostatic coupling from other conductors or from external sources. Also called Spurious Signal. (2) Leakage of optical power from one optical conductor to another.

CURE To change the physical properties of a material (usually from a liquid to a solid) by chemical reaction, by the action of heat and catalysts, alone or in combination, with or without pressure.

CURE TIME The time at which ultimate physical properties of the curing thermoset plastic composition is reached.

CURRENT A movement of electrons, positive ions, negative ions or holes; the rate of transfer of electricity from one point to another. Current is usually measured in amperes.

CURRENT CARRYING CAPACITY The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.

CURRENT RATING Maximum current that a device is designed to conduct for a specified time at a specified operating temperature.

CUTOUT The hole, usually round or rectangular, cut in a metal panel for mounting a connector. May include holes for mounting screws or bolts.

D

DAP The abbreviation for DIALLYL PHTHALATE.

DIN CONNECTOR See CONNECTOR, DIN

DAUGHTER BOARD A printed wiring board on which components are assembled. Usually plugs into a backplane called a MOTHER BOARD.

DEAD FRONT Mating surface of a connector designed so that the contacts are recessed below the surface of the connector insulator body to prevent accidental short-circuiting of the contacts.

DECIBEL (dB) A unit of measurement to express logarithmic differences of power level. It is used to express power gain in amplifiers or power loss in passive circuits or components.

DEFECT Any non-conformance with the normally accepted or specified characteristic of a part.

DEGRADATION A deterioration in performance of a device, component, etc.

DEGREASING Removing oil or grease from a surface. Also see VAPOR DEGREASING.

DEIONIZED WATER Water that has been treated to remove ions. Deionized water is required in certain electronic applications to prevent contamination of parts coming in contact with the water. See also DEMINERALIZED WATER.

DELAMINATION A separation between any of the layers of a base material of the PC board or between the laminate and the conductive foil or both

DEMINERALIZED WATER Water that has been treated to remove the minerals that are normally present in hard water. Demineralized water is required in some electronic applications where extreme precautions must be taken to prevent contamination. See Deionized Water.

DENDRITIC GROWTH The electrolytic transfer of metal from one conductor to another, similar to electroplating except the dendritic growth usually, though not always, forms from cathode to anode. The dendrite resembles a tree in appearance, and when it touches the opposite conductor, there is an abrupt rise in current.

DENSITY The ratio of the weight or mass of a substance to its volume. For example, the density of water is 62.4-lbs./cu. ft.

DEPOSITION Process of applying a material to a base via vacuum, chemical, electrical, screening or vapor methods.

DEPTH OF CRIMP The distance the indentor penetrates into the barrel. It is measured by gauging thickness of the crimped portion of a contact between two opposite points on the crimped surface. See "T" Dimension.

DESOLDERING Process of disassembling soldered parts in order to repair, replace, inspect or salvage them. Typical desoldering methods are wicking, pulse vacuum (solder sucker), heat and pull and solder extraction.

DETENT (1) A bump or raised section projecting from the surface of a spring or other part. (2) A device that holds, a part, control or assembly in a given position.

DEVICE An individual electrical element, usually in an independent body, which cannot be further reduced without destroying its stated function.

DEWETTING A condition that results when molten solder has coated a surface and then receded, leaving irregularly shaped mounds of solder separated by areas covered with a thin solder film; base metal is not exposed.

DIALLYL PHTHALATE (DAP) A thermosetting plastic that offers outstanding dimensional stability and resistance to most chemicals and chemical compounds. It is used in the production of connector housings.

DIELECTRIC (1) A material having electrical insulating properties; is a very poor conductor of electric current (2) A

material that does not generate any currents within itself when placed in an electrical field.

DIELECTRIC CONSTANT See PERMITIVITY.

DIELECTRIC STRENGTH The maximum voltage that a dielectric material can withstand, under specified conditions, without rupturing. It is usually expressed as volts/units thickness. Also called Electric Strength.

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Parameter generally defined as 75% of the specified Breakdown Voltage for connectors or coaxial contacts. DWV testing proves the device can operate safely at its Rated Voltage and withstand momentary overpotentials. See also OPERATING VOLTAGE.

DIODE A simple two-electrode semiconductor having a much greater resistance in one direction. Zener diodes (avalanche diodes) are used for voltage regulation.

DIP SOLDER TERMINAL The terminals on a connector that are inserted into holes in the PC board and then soldered in place.

DIP SOLDERING A process whereby items such as wires, contact ails & PC boards immersed in a static pool of molten solder for the purpose of applying a coat of solder to the entire exposed surface in one operation.

DIRECT CAPACITANCE The capacitance measured directly from conductor to conductor through a single insulating layer.

DIRECT CURRENT (DC) An electric current which flows in only one direction.

DISCONNECT (1) Separating a conductive device in an electrical circuit, thus breaking the circuit. (2) A reusable conductive device designed to be separated from its mated part.

DISCONTINUITY (1) A broken connection, or the loss of a specific connection characteristic. (2) The temporary interruption or variation in current or voltage.

DISCRETE COMPONENT A circuit component having an individual identity, such as a transistor, capacitor or resistor.

DISSIPATION The undesired loss of electrical energy, usually by conversion into heat.

DISSIPATION FACTOR A measure of AC loss.

DISTILLATION A boiling or evaporating process generally used to separate one liquid component from a mixture of other liquids or suspended solids.

DRAIN CONDUCTOR A conductor in continuous contact with a shield for ground termination.

DRAIN WIRE In a cable, the uninsulated wire laid over the component or components and used as a ground termination.

DROSS Metal oxides and other entrapped impurities that float in or on the surface of a molten metal bath. An example is the oxides of lead and tin and the flux residues that float on a solder bath.

DRY CIRCUIT A circuit where current and voltage are so low that there is no arcing to roughen the contacts. A dry circuit can develop an insulating film that prevents circuit closing when contacts are brought together.

DSCC Abbreviation for the Defense Supply Center, Columbus. An agency of the Department of Defense, DSCC oversees the specifications, qualification testing and QPL's for many military connectors. Formerly DESC, Defense Electronic Supply Center.

DUCTILITY The ability of a material to deform plastically without fracturing. It is measured by elongation or reduction of area in a tensile test, by height of cupping in an Erichsen test or by other means.

DUMMY CONNECTOR See CONNECTOR, DUMMY.

DURABILITY The ability of a connector or contact to withstand repeated mating and unmating while remaining within its specified performance levels.

DUST CAP OR COVER See COVER.

DUTY CYCLE The specified operating and non-operating time of equipment.

DYNAMIC GAP The minimum distance between opposing contacts in a connector when a PC board is removed rapidly.

E

ECCENTRICITY The center of a conductor's location with respect to the circular cross-section of insulation. Eccentricity is expressed as a percentage of displacement of one circle within the other.

EDGEBOARD CONNECTOR See CONNECTOR, EDGEBOARD.

EDGEBOARD CONTACT See CONTACT, EDGEBOARD.

EIA The abbreviation for the Electronics Industry Alliance, a non-profit membership organization which, among many other functions, develops and publishes industry standards.

ELASTICITY The property of a materiel by virtue of which it tends to recover its original size and shape after deformation.

ELASTOMERS Natural or synthetic materials that can be or have been vulcanized to a state in which they have the ability to accept and recover from extreme deformation in the order of hundreds of percent. The term elastomer is used to include natural rubber and a variety of synthetic materials exhibiting rubberlike properties.

ELECTRIC STRENGTH See DIELECTRIC STRENGTH.

ELECTRICAL BRIDGING See BRIDGING, ELECTRICAL.

ELECTRICAL CONNECTOR See CONNECTOR.

ELECTRICAL HOLD VALUE The minimum current that will keep relay contact springs energized

ELECTRICAL INSULATION This property is the inverse of electrical conductivity and is proportional or related to electrical resistance. The insulating properties of a material describe its ability to restrict or block the flow of electricity.

ELECTRICAL NOISE See NOISE.

ELECTRICAL RESISTANCE TEST A measurement of the resistance through a circuit by applying a known voltage and amperage and measuring the resistance. The measurement may be read as ohms or as millivolt drop. The test is designed

to insure satisfactory connection. See also CONTACT RESISTANCE and RESISTANCE.

ELECTROLESS DEPOSITION The deposition of conductive material from an autocatalytic plating solution without application of electrical current.

ELECTROLESS PLATING See PLATING, ELECTROLESS.

ELECTROMAGNETIC COMPATIBILITY (EMC) The ability of systems, equipment and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation or causing unintentional degradation because of electromagnetic radiation or response.

ELECTROMAGNETIC INTERFERENCE (EMI) Any electromagnetic disturbance that interrupts, obstructs or otherwise degrades or limits the effective performance of electronics/electrical equipment. Also called Radio Frequency Interference.

ELECTROMAGNETISM Magnetism caused by the flow of an electric current.

ELECTRONIC Pertaining to the application of that branch of science which deals with the motion, emission and behavior of currents of free electrons, especially in vacuum, gas or semi-conductors. Contrasted with electric, which pertains to the flow of large currents in wires or conventional conductors.

ELECTRONIC HOOK-UP WIRE Wires used to make the internal connections between the various electrical parts of electronic assemblies.

ELECTROPLATING The electrodeposition of an adherent metal coating on a conductive object for protections, decoration or other purposes. The object to be plated is placed in an electrolyte and connected to one terminal of a DC voltage source. The metal to be deposited is similarly immersed and connected to the other terminals. Ions of the depositing metal provided transfer to other metal as they make up the current flow between the electrodes.

Electroplating tin on an object.

ELONGATION The fractional increase in length of a material stressed under tension.

EMC Abbreviation for Electromagnetic Compatibility.

EMI Abbreviation for Electromagnetic Interference.

ENCAPSULATE To coat or cover a component or assembly in an epoxy, liquid rubber, conformal coating, etc. by dipping, brushing, spraying or potting.

ENCAPSULATING Enclosing an article in an envelope of plastic.

ENGAGING END The side of a contact or connector that mates with the counterpart contact or connector. Also called Mating Face.

ENGAGING AND SEPARATING FORCE See CONTACT ENGAGING AND SEPARATING FORCE.

ENTRAPMENT The damaging admission and trapping of air, flux and/or fumes under plated surfaces It is caused by contamination of the plating solution/bath.

ENVIRONMENT The aggregate of all conditions that externally influence a device's performance.

ENVIRONMENTALLY SEALED A device provided with gaskets, seals, potting or other means to keep out moisture, dirt, air and/or dust that might reduce its performance. Does not include non-physical environments such as RF and radiation.

EPOXY A family of thermosetting resins used in the packaging of semiconductor devices and connectors, especially with fixed contacts. Epoxies form a chemical bond to many metal and plastic surfaces.

ETHYLENE-TETRAFLUOROETHYLENE (ETFE) A strong, tough, nonflammable organic fluoropolymer. It is distinguished by its complete indifference to attack by almost all chemicals . It is extruded onto wire and cable as insulation. It provides the same insulation as Teflon at smaller thicknesses and is often preferred in applications that are weight sensitive such as space vehicles, satellites, etc. Trade name: Tefzel.

EUTECTIC (1) An isothermal reversible reaction in which a liquid is converted into two or more intimately mixed solids on cooling, the number of solids formed being the same as the number of components in the system. (2) An alloy having the composition indicated by the eutectic point on an equilibrium diagram. (3) An alloy structure of intermixed solid constituents formed by a eutectic reaction.

EXOTHERM The characteristic curve of a resin during its cure, which shows the heat of reaction (temperature) versus time. Peak exotherm is the maximum temperature on the curve.

EXTRACTION TOOL A device used for removing removable contacts from a connector. See also INSERTION TOOL.

EYELETS Hollow tubes inserted in terminals or printed boards and flanged over top and bottom to provide mechanical support for component leads and/or a path for solder.

F

FACE SEAL See INTERFACIAL SEAL.

FARAD (F) Unit of capacitance. The capacitance of a capacitor that, when charged with one coulomb, gives a difference of potential of one volt.

FATIGUE The phenomenon leading to fracture under repeated or fluctuating stresses having a maximum value less than the tensile strength of the material. Fatigue fractures are progressive, beginning as minute cracks that grow under the action of the fluctuating stress.

FATIGUE LIFE The number of cycles of stress that can be sustained prior to failure for a stated test condition.

FATIGUE STRENGTH .The maximum stress that can be sustained for a specified number of cycles without failure, the stress being completely reversed within each cycle unless otherwise stated.

FATIGUE TESTS Tests on soldered joints that may be required at high stress with relatively low cycle failure or at low stresses under highly cyclic or vibrational conditions.

FEED-THROUGH (1) A conductor that connects patterns on opposite sides of a PC board. Also called interfacial connection. (2) A connector or terminal block, usually having double-ended terminals that permit simple distribution and bussing of electrical circuits. Also used to describe a bushing in a wall or bulkhead separating compartments different pressure levels, with terminations on both sides.

FEED-THROUGH INSULATORS Fabricated from dielectric materials, feed-through insulators are used to carry a metal conductor through the chassis while preventing the "hot" lead from shorting to the ground chassis.

FEMALE CONNECTOR See CONNECTOR, FEMALE.

FERROUS METALS Metal alloys containing iron.

FERRULE (1) A short tube used to make solderless connections to shielded or coaxial cables. (2) A support used in connectors to reduce transmission of torque to grommets.(3) Features molded into the plastic inserts of multiple contact connectors to provide strong, wear-resistant shoulders on which contact retaining springs can bear.

FILLER A material, usually inert, that is added to plastics to reduce cost or modify physical properties, such as stiffness.

FILLET (1) A radius (curvature) imparted to inside meeting surfaces. An example is the curvature of solder between it and the metals it joins in a proper solder joint. (2) A concave cornerpiece used on foundry patterns.

FILM RESISTOR A device whose resistive material is a film on an insulator substrate. The resistance value is adjusted by trimming.

FIRST ARTICLE A sample part or assembly manufactured prior to the start of production for the purpose of assuring that the manufacturer is capable of manufacturing **a** product that will meet the requirements.

FIXED CONTACT See CONTACT, FIXED.

FLAMMABILITY The measure of a material's ability to support combustion.

FLANGE A projection extending from or around the periphery of a connector, providing holes to permit mounting the connector to a panel or to another mating connector half.

FLASH (1) A thin film of material formed at the sides of a forging, casting or molded part where some of the material is forced between the faces of the forging dies or the mold halves. (2) An extremely thin amount of plating on a material.

FLASH PLATING The application of extremely thin deposits of a plating material for environmental protection or as a base for a subsequent layer of plating material.

FLASH POINT Temperature at which a volatile liquid mixes with air in such proportions as to produce a flammable gaseous mixture. This mixture will flash when exposed to a flame or spark but will not necessarily continue to support combustion.

FLAT CABLE Any cable with two smooth or corrugated but essentially flat surfaces.

FLAT CABLE CONNECTOR See CONNECTOR, FLAT CABLE.

FLAT CONDUCTOR A wire having a rectangular cross section as opposed to a round or square cross section.

FLEX DAMAGE Damage, usually occurring where a cord enters a housing, backshell, etc., which is caused by the sharp bending of the cord.

FLEX LIFE The measurement of the ability of a conductor or cable to withstand repeated bending.

FLEXIBLE PRINTED WIRING An arrangement of printed wiring utilizing flexible base material with or without flexible cover layers.

FLEXURAL STRENGTH The strength of a material in bending expressed as the tensile stress of the outermost fibers of a bent test sample at the instant of failure.

FLOATING BUSHING A design feature that aids in the alignment of plug and receptacle shells during engagement. The floating bushing generally is an eyelet-type bushing, fitted into the plug mounting holes so that there is freedom of motion in all directions between the plug and receptacle.

FLUX (1) The lines of force that make up an electrostatic field. (2) A substance used to promote or facilitate fusion, such as a material that removes oxides from surfaces to be joined by soldering or welding.

FLUX RESIDUE Residue left on a joint after soldering is completed.

FLYING LEAD A conductor (wire, cable, etc.) which breaks out of a wire harness but is not terminated on the free end. Once terminated it is no longer a 'flying' lead.

FOAM FLUXING Commonly used wave solder fluxing method in which flux foam is generated from a liquid flux by means of a porous "diffuser," i.e., a hollow cylindrical stone.

FOLLOWER A sleeve used to compress the grommet, thus tightening the seal around the wire entering the connector.

FRACTURED JOINTS Disturbed solder joints usually caused by movement, relative to each other, of one or both of the surfaces being joined before the solder has completely solidified. This defect may be characterized by strain marks on the surface, by small cracks in the solder or by a rough, gritty appearance.

FOUR-INDENT CRIMP See CRIMP.

FRETTING A condition whereby mated surfaces move slightly and continually expose fresh metal. The exposed metal oxidizes and builds up until electrical continuity of the system is broken.

FRONT MOUNTED A connector is front mounted when it is attached to the outside or mating side of a panel. A front mounted connector can only be installed or removed from the outside of the equipment.

FRONT RELEASE CONTACTS See CONTACT, FRONT RELEASE.

FULL CYCLE CONTROL Controls placed on a crimping tool that force it to be closed to its fullest extent completing the crimping cycle before the tool can be opened.

FUNNEL ENTRY Flared or widened entrance to a terminal or connector wire barrel that offers easier conductor insertion, and assurance that all wire strands are directed into the wire barrel.

FUSING The melting of a metallic coating (usually electro-deposited) followed by solidification.

G

GALVANIC CORROSION Corrosion associated with the current of a galvanic cell consisting of two dissimilar conductors in an electrolyte or two similar conductors in dissimilar electrolytes. Where the two dissimilar metals are in contact, the resulting reaction is referred to as couple action.

GAS TIGHT A contact system that utilizes soft metals at low contact pressure or hard metals at high contact pressure so that upon mating, metal is upset and the resultant joint prevents contaminant gases from enter the contact area.

GAS-TIGHTNESS The characteristic of a contact that is impervious to ingress by corrosive gases.

GIGAHERTZ (GHz) One billion cycles per second.

GLOBULE TEST A solderability test that is specifically for component leads. The time required for a globule of solder to completely wet around a component lead is measured and recorded and then compared against a known standard.

GOLD A soft, ductile, malleable, yellow metal identified by the Atomic No. 79. One of the noble metals which does not corrode. It is one of the standard platings for contacts. It is a good conductor of heat and electricity and is unaffected by air and most reagents. Gold and gold plating is specified for critical aerospace, communication and electronic products.

GRAPHITE FIBERS Sometimes used as a filler in composite connectors, graphite fibers are high strength, high-modulus fibers made by controlled carbonization and graphitization of organic fibers, usually rayon, acrylonitrile or pitch

GRID An orthogonal network of two sets of parallel equidistant lines used for locating points on a printed board. Connections should be located on the cross-points of the gridlines.

GROMMET (1) An elastomeric seal used on the cable side of a multiple-contact connector to seal the connector against moisture, dirt, or air. (2) An insulator, usually of elastomer material, that covers the rear portion of individual contacts and a short length of the incoming wire.

GROUND A conducting connection between an electrical circuit and the earth or other large conducting body to serve as an earth thus making a complete electrical circuit.

GROUND PLANE A conductor layer or portion of conductor layers used as a common reference point for circuit returns, shielding or heat sinking.

GROUNDING FINGERS A set of spring fingers provided in the connector to allow shell-to-shell grounding before contacts mate and after they separate.

GUIDE PIN A pin or rod extending beyond the mating face of a connector designed to guide the closing or mating of the connector halves to ensure proper engagement of contacts. See also GUIDE SOCKET.

GUIDE SOCKET OR HOLE A socket or hole in a connector designed to accept the guide pin of a mating connector and thereby position and guide the connectors during mating to ensure proper engagement of the contacts. See also GUIDE PIN.

H

HARD SOLDERING Process of joining two metals by utilizing an alloy with a melting temperature higher than 800º F (427º C) See also SOFT SOLDERING and BRAZING.

HARDENER A substance or mixture of substances added to a plastic composition or a material to promote or control the curing reaction by taking part in it.

HARDNESS Resistance of a metal to deformation, usually by indentation. The term may also refer to stiffness or temper or to resistance to scratching abrasion or cutting. Indentation hardness may be measured by various hardness tests such as Brinell, Rockwell and Vickers.

HARDWARE Hardware usually means shells, guide pins, jackscrews, jackposts, polarizing pins, strain relief clamps, mounting screws, etc.

HARNESS A group of wires and cables that are formed and bound in a planned manner. The paths of parallel wires are called Runs. Harnesses may be bound with Lacing Tape, cable ties or installed inside various types of tubing or braid. A harness provides interconnection of an electric circuit or circuits.

HEADER The part of a component through which the electrical terminals pass.

HEAT DISTORTION Deformation of a material caused by the application of heat. Heat distortion temperature is the maximum temperature that a material will withstand without deformation.

HEAT SHRINKABLE Term describing tubes, sleeves, caps, boots, film or other forms of plastic which shrink when heat is applied to encapsulate, protect or insulate connections, splices, conductors, terminals and other configurations.

HEAT SINK A device used to absorb or transfer heat away from heat sensitive parts.

HEAT SOAK Heating a circuit over a period of time to allow all parts of the package and circuit to stabilize at the same temperature

HEAT TREAT See ANNEALING.

HERMAPHRODITIC CONNECTOR See CONNECTOR, HERMAPHRODITIC.

HERMAPHRODITIC CONTACT See CONTACT, HERMAPHRODITIC.

HERMETIC Permanently sealed by fusion, solder or other means to prevent the transmission of air, moisture vapor and all other gases. Since all materials are permeable to some degree, specifications define acceptable levels of hermetic sealing.

HERMETIC CONNECTOR See CONNECTOR, HERMETIC.

HERTZ (Hz) A unit of frequency equal to one cycle per second. An example is standard electrical outlets provide alternating current at 60 Hz (60 cycles per second).

HI-POT A test designed to determine the highest voltage that can be applied to between conductor without dielectric breakdown.

HI REL (1) High Reliability device designed to extremely tight tolerances and long service life. It must meet high quality control levels. (2) A terminal, usually made of nickel or nickel alloys, designed to tolerate extremely high temperatures.

HOLD CURRENT See ELECTRICAL HOLD VALUE.

HOOD An enclosure, attached to the back of a connector, to contain and protect wires and cable attached to the terminals of a connector. A cable clamp is usually an integral part of a hood.

HOOK-UP WIRE See ELECTRONIC HOOK-UP WIRE.

HOT SOLDER DIP See DIP SOLDERING.

HOUSING See SHELL.

HUMIDITY TEST A test involving exposure of specimens at controlled levels of humidity and temperature for specified durations.

HYGROSCOPIC Capable of absorbing moisture from the air.

I

IC Abbreviation for Integrated Circuit

ICICLE A solder 'spike' resulting from poor drain off of liquid solder following wave, hand or dip soldering. Poor solderability of the surfaces to be soldered and contaminated solder are frequent causes of icicles.

IICIT Abbreviation for the International Institute of Connector and Interconnect Technology, a private, membership organization which promotes the spread of technological information throughout the connector industry to engineers, designers, specifiers, consultants and other professionals.

IMMERSION PLATING The chemical deposition of a thin metallic coating over certain base metals by a partial displacement of the base metal.

IMPEDANCE The AC resistance of a circuit expressed in ohms. Since impedance is frequency dependent, the frequency at which it has been measured must be specified. It can be seriously affected by plating defects such as very small blisters, particularly at frequencies above 50 kilohertz.

IMPEDANCE MATCH The condition in which the impedance of a component or circuit is equal to the internal impedance of the source, or the surge impedance of a transmission line, thereby giving maximum transfer of energy from source to load, minimum reflection and minimum distortion.

IMPREGNATE To fill the voids and interstices of a material with a compound.

INCLUSION A foreign particle in the conductive layer, plating or base material.

INDENTED CRIMP See CRIMP.

INDENTOR See CRIMP INDENTOR.

INDUCTANCE The property of a circuit or circuit element that opposes a change in current flow, causing current changes to lag behind voltage changes.

INHIBITOR A material that prevents or delays oxidation and galvanic action on a connector surface or the interface of different conductors.

INPUT/OUTPUT CONNECTOR (I/O Connector) See CONNECTOR, INPUT/OUTPUT.

INSERT That part of a connector that holds the contacts in their proper arrangement and electrically insulates them from each other and from the shell. Usually a discrete component or components which is assembled to an outer shell or housing. Also sometimes referred to as the insulator of the connector.

INSERT ARRANGEMENT The number, spacing and arrangement of contacts in a connector.

INSERT CAVITY A defined hole in the connector insert into which the contacts are inserted.

INSERT RETENTION FORCE Axial load in either direction that an insert must withstand without being damaged or dislocated from its normal position in the connector shell.

INSERTION FORCE The effort, usually measured in ounces, required to engage mating components.

INSERTION LOSS The loss resulting from the insertion of a device in a transmission line, expressed as the reciprocal of the ratio of the signal power delivered to that part of the line following the device insertion to the signal power delivered to that same part before insertion. Usually expressed in decibels (dB).

INSERTION TOOL A device used to insert contacts into a connector. See also REMOVAL TOOL.

INSPECTION HOLE A hole placed at one end of a barrel to permit visual inspection to see that the conductor has been inserted to the proper depth in the barrel prior to crimping.

INSUFFICIENT SOLDER This defect is readily identified by the lack of enough solder to properly wet and bond the surfaces being joined. The resulting joints are very weak and highly susceptible to vibration failures.

INSULATION A material that offers high electric resistance making it suitable for covering components, terminals and wires to prevent the possible future contact of adjacent conductors resulting in a short circuit.

INSULATION BARREL See BARREL.

INSULATION CRIMP The physical reshaping of an insulation sleeve to close or compress around the wire insulation.

INSULATION DISPLACEMENT CONNECTOR (IDC) See CONNECTOR, INSULATION DISPLACEMENT.

INSULATION GRIP An extended cylinder at the rear of a contact designed to accept the bared wire and a small length of its insulation. When crimped, both the wire and insulation are held firmly in place.

INSULATION PIERCING A termination method in which lances pierce wire insulation, enter into the strands and make electrical contact without stripping the wire.

INSULATION RESISTANCE The electrical resistance of the insulating material (determined under specified condition) between any pair of contacts, conductors or grounding devices in various combinations.

INSULATOR (1) A material of such low electrical conductivity that the flow of current through it can usually be ignored. Also see DIELECTRIC. (2) Term used for the part of a connector that positions and insulates the contacts. Also see INSERT. (3) Term used for any discrete component that acts as a dielectric in an electric circuit or assembly.

INTERCHANGEABLE Characteristic of connectors in which one manufacturer's connector can be replaced by the connector of another manufacturer and provide the same function in the same space as the connector it is replacing.

INTERCONNECTING CABLE The wiring between modules, units or other parts of a system.

INTERCONNECTION Mechanically joining devices together to complete an electrical circuit. Examples include wire harnesses, connector assemblies, etc.

INTERFACE A shared boundary, for example, the physical connection between two systems or devices OR the matching of adjacent components, circuits or equipment. The two surfaces on the contact side of both halves of a multiple-contact connector that face each other when the connector is assembled.

INTERFACIAL COMPRESSION The compression of the resilient material that faces the mating inserts and provides positive sealing and insulation when connectors are fully engaged.

INTERFACIAL GAP Any gap between the faces of mated connectors.

INTERFACIAL JUNCTION The junction that is formed by the faces of the two mating halves of a connector. This junction can be tightly compressed or loose, depending upon the requirements of the application of the connector.

INTERFACIAL SEAL A component, usually of elastomeric material, that fills the interface between fully mated to provide sealing around each contact pair.

INTEGRATED CIRCUIT (IC) An electronic circuit that consists of many individual circuit elements, such as transistors, diodes, resistors and other active and passive semiconductor devices, formed on a single chip of semiconducting material and mounted on a single piece of substrate material.

INTERLAYER CONNECTION An electrical connection between conductive patterns in different layers of a multilayer PC.

INTERMATEABLE See INTERCHANGABLE.

ISO Abbreviation for the International Organization for Standardization a worldwide federation of national standards bodies from most countries in the world. ISO promotes international agreements on standardization for most industries and publishes such standards.

J

JACKET Outermost layer of insulating material of a cable or wire. Usually used in reference to multi-conductor cables. Also called Sheath.

JACKSCREW A screw attached to one half of a two-piece, multiple-contact connector and used to draw both halves together and to separate them.

JOINT The location where two or more conductors are to be or have been fastened together mechanically or by brazing, welding or soldering.

JOINT CLEARANCE The dimension between interfaces of the soldered joint.

JUMPER A short piece of wire or cable used to connect two terminals, two connectors or other elements of an electric circuit.

JUMPER CABLE See JUMPER.

K

KEY A short pin or other projection that slides in a mating slot or groove to guide two parts being assembled.

KEYING Also called Clocking. See POLARIZATION.

KEYING PLUG CONTACT See GUIDE PIN.

KEYWAY A slot or groove in which a key slides.

KILOHERTZ One thousand cycles per second.

L

LACING CORD, TAPE OR TWINE Used for lacing and tying cable forms, hook-up wires, cable ends, cable bundles and wire harness assemblies. Available in various materials and impregnants.

LAMINATE The raw material for printed circuits. Consists of a sheet of an insulating material with copper foil adhered to one or both sides.

LAND See PAD.

LANYARD A device attached to certain connectors that permits uncoupling and separation of connector halves by a pull on a wire or cable.

LAP JOINT A method for joining two or more conductors in which the conductors lie parallel and adjacent. Also called Parallel Splice.

LAY The length measured along the axis of a cable required for a single wire to make one complete turn around the axis of the cable. Also applies to a single strand of conductor in a multi-strand conductor wire.

LEAD (1) A wire that connects two points in a circuit. (2) The part of the connector contact that is installed into a PCB hole or in the case of surface mount connectors onto surface mount pads. (3) Any conductor attached to contacts installed in a connector.

LEAD (Pb) A bluish-white lustrous metal identified by Atomic No. 82. Lead is very soft, highly malleable, ductile and a relatively poor conductor of electricity. It is very resistant to corrosion but tarnishes with exposure to air. It is primarily used in solders. See TIN-LEAD.

LIFE CYCLE A test that indicates the time span before failure; the test occurs in a controlled, usually accelerated environment.

LINE IMPEDANCE Impedance measured across the terminals of a transmission line.

LOCATING PIN OR POST Feature on a connector that properly positions the connector on a PCB.

LOCATOR Device for positioning terminals, splices or contacts in crimping dies.

LOCKING SPRING See CONTACT RETAINER.

LOOP RESISTANCE The total resistance of two conductors measured round trip from one end (twisted pair, shield and conductor, etc.).

LOSS (1) Energy dissipated without performing useful work. (2) A decrease in power suffered by a signal as it is transmitted from one point to another (transmission loss).

LOW LEVEL CIRCUIT A circuit at extremely low current and voltage levels.

LOW LOSS DIELECTRIC A low loss dielectric is an insulating material, such as polyethylene, that has a relatively low dielectric loss, making it suitable for transmission of radio frequency.

LUG See TERMINAL.

M

MALE CONNECTOR See CONNECTOR, MALE.

MALLEABILITY The ability of a material to accept deformation under pressure without cracking.

MASK A mask is a material applied to enable selective etching, plating or the application of solder to a PC board. Also material applied to a contact pin to protect the gold finish during hot solder dipping operations.

MAJOR DEFECT A defect which will result in the failure of the component or cause a failure in the system after component installation.

MASS TERMINATION Method of termination in which terminals that pierce flat cable insulation without stripping to cold flow mate with conductors and form a gas-tight metal-to-metal joint.

MATE To join two connector halves in a normal engaging mode.

MATING FACE See ENGAGING END and INTERFACE.

MATRIX One of the two component materials that make up a composite. The other is commonly referred to as the reinforcement. It can be a metal, resin or ceramic material. It holds the reinforcements together to enable the transfer of stresses and loads to the reinforcements.

MEGAHERTZ (MHz) One million cycles per second.

METALS Substances classified as metals have characteristics and physical properties that include high electrical and thermal conductivity, great opacity, high reflectivity, malleability, ductility and toughness. Metals in their normal state are crystalline.

METALLIZATION A film pattern (single or multilayer) of conductive material deposited on a substrate to interconnect electronic components, or the metal film on the bonding area of a substrate that becomes a part of the bond and performs both an electrical and a mechanical function.

MICROSECTIONING The preparation of a specimen for the microscopic examination of a material, usually by cutting out a cross-section, followed by encapsulation, polishing, etching, staining, etc.

MICROWAVE FREQUENCY The frequency of a microwave, usually above 1 gigahertz.

MIGRATION The movements of some metals notably silver, from one location to another. It is felt that this results from a plating action in the presence of moisture and an electrical potential.

MIL A unit used in measuring. One one-thousandth of an inch (.001).

MINIMUM ANNULAR RING The minimum width of metal, at the narrowest point, between the edge of the hole and the outer edge of the terminal area.

MINOR DEFECT A defect that is not likely to reduce the usability of the unit for its intended purpose. It may be a departure from established standards having- no significant bearing on the effective use or operation of the unit.

MISMATCHED CONNECTOR IMPEDANCE Terminal or connector having a different impedance than that for which the circuit or cable is designed.

MODULAR A connector that can be assembled according to the requirements of a particular application. Modular connectors contain similar or identical sections that are fitted together to provide the required connector size and type.

MODULUS OF ELASTICITY The ratio of unidirectional stress to the corresponding strain (slope of the line) in the linear stress-strain region below the proportional limit. For materials with no linear range a second line from the origin to a specified point on the stress-strain curve or a line tangent to the curve at a specified point may be used.

MOISTURE ABSORPTION The amount of moisture, in percentage, that a material will absorb under specified conditions.

MOISTURE RESISTANCE The ability of a material to resist absorbing moisture when immersed in water

MOLD, POTTING See POTTING MOLD.

MOLD RELEASE A substance applied to a mold cavity to ease the removal of material after molding.

MOLDED PLUG A connector molded on either end of a cord or cable.

MOLECULE See definition under ATOM.

MOTHERBOARD A printed board used for interconnecting arrays of plug-in electronic modules. Also see BACKPLANE PANEL.

MULTILAYER PRINTED CIRCUITS Electric circuits made on thin copper-clad laminates, stacked together with intermediate prepreg sheets and bonded together with heat and pressure. Subsequent drilling and electroplating through the layers result in a three-dimensional circuit.

MULTIPLE CONDUCTOR CABLE A combination of two or more conductors cabled together and insulated from one another and from the sheath or armor where used.
MUTUAL CAPACITANCE Capacitance between two conductors when all other conductors are connected together and regarded as an ignored ground.

N

NEMA Abbreviation for the National Electrical Manufacturers Association, a private, membership organization dedicated to developing and publishing standards for the electrical manufacturing industry.
NEST See ANVIL.
NICK - A nick is a small cut or notch in the conductor strands or insulation.
NICKEL (Ni) A hard, malleable, ductile, silvery-white metal with Atomic Number 28. It combines corrosion resistance and formability with tough physical properties. It is used for alloying and also as plating or coating. Sometimes used in place of copper where high temperatures are likely.
NOISE The undesirable emission of signals resulting from poorly shielded, grounded or connected electrical equipment. Also caused by unstable electrical contact.
NON-REMOVABLE CONTACT See CONTACT, FIXED.
NONWETTING Nonwetting is a condition whereby a surface has contacted molten solder, but has had none of the solder adhere to it. Base metal may be visible.
NORMAL FORCE, NORMAL CONTACT FORCE The force perpendicular to the contact interface. See also CONTACT FORCE.
NOTCH See NICK.

O

"O" RING A doughnut-shaped ring of an elastomeric material used as a seal around the periphery of the mating insulator interface of connectors where some moisture resistance is desired at the interface.
OFHC Abbreviation for Oxygen-Free Conductive Copper has no residual oxidant, a 99.95% minimum copper content and an average annealed conductivity of 101%.
OHM A unit of electrical resistance. It is equal to the resistance of a circuit in which a potential difference of one volt produces a current of one ampere; or the resistance in which one watt of power is dissipated when one ampere flows through it.
OHMIC CONTACT See CONTACT, OHMIC.
OPEN CRIMP BARREL See CRIMP BARREL, OPEN.
OPEN ENTRY CONTACT See CONTACT, OPEN ENTRY.
OPERATING FREQUENCY The maximum frequency at which a connector will function and yield satisfactory electrical performance.
OPERATING TEMPERATURE The maximum internal temperature-resistant capabilities of a connector in continuous service.
OPERATING VOLTAGE The maximum voltage at which a connector is rated to operate. The operating voltage of a connector is generally established as one-third of the Dielectric Withstanding Voltage.
ORGANIC WATER-SOLUBLE FLUX A solder flux containing potentially corrosive and conductive salts (hence, the circuit board assembly must be designed for water cleaning).
OUTGASSING De-aeration or other gaseous emission from a printed board assembly component or connector when exposed to a reduced pressure or heat or both.
OXIDATION (1) The addition of oxygen to a metal, e.g., the addition of atmospheric oxygen to iron to produce rust. (2) Any process where a metal loses electrons and is converted from a metal of zero electrical charge to a metallic ion with a positive charge.
OXIDE A substance resulting from the combination of metal and oxygen which, though most common on metal surfaces, is also capable of penetrating the subsurface of the metal. This substance forms at room temperature and its development is greatly accelerated at elevated temperatures.
OZONE TEST Exposure of material to a high concentration of ozone to give an accelerated indication of degradation expected in normal environments.

P

PACKAGING The process of physically locating, connecting and protecting devices or components.
PACKAGING DENSITY Quantity of functions (components, interconnection devices, and mechanical devices) per unit volume usually expressed in qualitative terms, such as high, medium or low.
PAD The portion of the conductive pattern on printed circuits designated for the mounting or attachment of components. Also called Land.
PANEL The side or front of a piece of equipment, usually metal, on which connectors are mounted
PANEL MOUNT (1) Method of fixing a connector half to a board, panel or frame. Usually, the female portion of the connector is mounted, and the male half is removable. (2) A connector designed to be fixed to a panel by means of screws or mounting nuts.
PARALLEL SPLICE See LAP JOINT.
PASSIVATE The chemical treatment of certain metals such as stainless steel, to increase their resistance to corrosion.
PATCH CABLE A cable with plugs or terminals on each end of the conductors) used to temporarily connect circuits of equipment together.
PATH That portion of a printed circuit pattern that carries current between two pads or between a pad and the terminal area (printed contact, edge pad).

PEEL STRENGTH The force-per-unit area required to separate two adjacent bonded materials by applying a tensile load to an edge of the bond line.

PENDANT The type of plug and /or receptacle that is not mounted in a fixed position or attached to a panel or side of equipment.

PERCENT CONDUCTIVITY The conductivity of a material expressed as the percentage of copper conductivity. .

PERIPHERAL SEAL A seal provided around the periphery of connector inserts to prevent the ingress of fluids or contaminants at the perimeter of the mated connectors.

PERMITTIVITY That property of a dielectric that determines the electrostatic energy stored per unit volume for a unit potential gradient.

pH The measure of acidity or alkalinity of a solution. A pH of 7 is considered neutral, that is, neither acidic nor basic. Solutions having pH's below 7 are acid and those greater than 7 are basic. The further the pH measurement is from 7, the stronger the acid or basic solution.

PHENOLIC RESINS A synthetic resin produced by the condensation of phenol with formaldehyde. The thermosetting material is compatible with many fillers and modifiers to achieve high temperature and shock resistance. This resin has many applications in molded parts, impregnation, coating, encapsulation, etc.

PHOSPHOR BRONZE An alloy of copper, tin, and phosphorous that is relatively hard, strong and resistant to corrosion. It is used for contacts, springs and other metal parts.

PHYSICAL PROPERTIES The properties, other than mechanical, that pertain to the physics of a material. For example, density, electrical conductivity, heat conductivity, thermal expansion, etc.

PIGTAIL (1) A short wire extending, from an electric or electronic device to serve as a jumper or ground connection. (2) Any wire leads exiting a connector, i.e., pigtail wires.

PIN CONTACT See CONTACT, PIN.

PIN HOLES Small holes visible on the surface of soldered joints that generally indicate the presence of a larger void within the joint. Typically caused by the generation of gas during soldering due to the presence of salts and water.

PITCH The nominal distance between the centers of adjacent features or contacts of a PC or connector.

PLASTIC DEFORMATION Change in dimensions under load that is not recovered when the load is removed.

PLASTICS High polymeric substances, including both natural and synthetic products (but excluding the rubbers), that are capable of flowing under heat and pressure at one time or another.

PLATED THROUGH-HOLE A hole formed by deposition of metal on the sides of the hole and on both sides of the base to provide electrical connection from the conductive pattern on one side to that on the opposite side of the PC board.

PLATING The overlaying of a thin coating of metal on metallic components to improve conductivity, provide for easy soldering and/or prevent rusting or corrosion.

PLATING ANODE See ANODE.

PLATING CATHODE See CATHODE.

PLATING, ELECTROLESS A method of metal deposition employing a chemical reducing agent present in a processing solution. The process is further characterized by the catalytic nature of the surface, which enables the metal to be plated to any thickness. Copper, gold and nickel are the metals most commonly electrolessly plated.

PLATING, ELECTROLYTIC A method of metal deposition employing the work of a cathode, an Anode, an electrolyte, a solution containing dissolved salts of the metal to be plated and a source of direct current. Copper, nickel, chromium, zinc, brass, cadmium, tin, gold and silver are the metals *most* commonly electro-deposited.

PLATING VOID The area of absence of the plated metal from a cross-sectional area.

PLATINUM (Pt) A malleable, ductile, silvery-white metal identified by the Atomic No. 78.One of the noble metals, it does not oxidize in air at any temperature and is sometimes used to replace gold in plating components. Platinum is also sometimes used as a contact material that provides low and consistent surface resistances. It is used in the moving contacts of ultrasensitive relays, thermostats and potentiometers. Other elements are added to this precious metal to create alloys with higher mechanical wear resistance

PLUG CONNECTOR See CONNECTOR, PLUG.

POKE-HOME CONTACT See CONTACT, POKE-HOME.

POLARIZATION The arrangement of connector inserts, jackscrews, polarizing pins/sockets, keys/keyways or housing configurations to prevent the mismating or crossmating of connectors. Also called Clocking or Keying.

POLARIZE The arrangement or design of mating connectors so that the connectors can be mated in only one way.

POLARIZING PIN, SOCKET, KEY OR KEYWAY A device incorporated into a connector to accomplish polarization.

POLYESTER A molding resin that can be either thermoset or thermoplastic. Thermoplastic versions are injection moldable and are commonly used as connector insulators. They have good chemical resistance, excellent electrical properties, high melting points and heat deflection temperatures, low moisture absorption, desirable dimensional stability and low creep.

POLYETHERIMIDE (PEI) A thermoplastic resin that is injection moldable and is commonly used as connector inserts and bodies. It has high strength, favorable electrical properties and high temperature stability. The trade name is Ultem.

POLYPHENYLENE SULFIDE (PPS) A thermoplastic resin that is injection moldable and is commonly used as connector inserts and bodies. It has high strength, favorable electrical properties and high temperature stability. A trade name is Ryton.

POLYTETRAFLUOROETHYLENE (PTFE) A strong, tough, waxy, nonflammable organic fluoropolymer. It is distinguished by its complete indifference to attack by almost

all chemicals and by its slippery surface. It is extruded onto wire and cable as insulation. Trade name: Teflon.
POLYVINYL CHLORIDE (PVC) A common and widely used synthetic thermoplastic resin that can be converted by heat and pressure into colorless sheets or films. Used as insulation on a wide range of wires and cables.
POROSITY Fine holes or pores within a metal.
POSITIONER A device attached to the crimping, tool to position conductor barrel between the indentors.
POSITIVE LOCK A type of latch or locking mechanism used to hold a die set in an installation tool, or an insert in a connector shell, in such a way that the parts cannot be unlocked accidentally. Also described retention of certain wire terminating contacts (tabs) used with edge or printed circuit connectors.
POT LIFE The time required for a curing thermoset plastic composition to become unusable in the mass ordinarily mixed at one time.
POTTING Sealing of a component (e.g., the cable end of a multiple contact connector, contacts in an insert or body) with a plastic compound or material to exclude moisture, prevent short circuits, provide mechanical retention or support and provide strain relief.
POTTING CUP See POTTING MOLD.
POTTING MOLD An item, solid or split, designed to be used as a hollow form into which potting compound is injected and allowed to cure or set to seal the back of an electrical connector. Also see BACKSHELL MOLD.
POTTING WELL A feature of a connector shell, body or insert that is usually located at the rear of the connector and is designed to hold, direct and shape potting compound as it cures.
PRESS-FIT CONTACT See CONTACT, PRESS-FIT.
PRESSURE DIFFERENTIAL The difference in pressure between one side of a connector and the other as in a bulkhead mounting or the pressure difference between the inside and outside of a sealed connector.
PRESSURE TYPE CONNECTOR See CONNECTOR, PRESSURE TYPE.
PRE-TINNED Solder applied to either or both the contact and conductor prior to soldering them together.
PRE-TINNED SOLDER CUP Solder cups with inner surfaces that have been pre-coated with a small amount of tin lead solder.
PRIMARY INSULATION The first layer of non-conductive material applied over a conductor, the prime function of which is to act as electrical insulation.
PRINTED CIRCUIT This term is in common use with at least two meanings - (1) A generic term to describe a printed board produced by any of a number of techniques used to fabricate electrical interconnect systems. (2) A circuit obtained by printing and comprising printed components, printed wiring or a combination thereof, all formed in a predetermined design in or attached to a surface or surfaces of a common base.
PRINTED WIRING A conductive pattern within or bonded to the surface of a base material intended for point to point connection of separate components and not containing printed components.
PRINTED CIRCUIT BOARD (PCB) OR PRINTED WIRING BOARD (PWB) An insulating board serving as a base for printed wiring and consisting almost entirely of point-to-point connectors and shielding.
PROBE A thin metal pin or rod attached to the end of a cable and used to touch various points in a multiple contact connector or in an electrical circuit for checkout purposes.
PULL OUT See CRIMP TENSILE STRENGTH.
PULL STRENGTH Force necessary to break a piece of material when loaded or pulled in a straight line at a constant rate. Rate of pull is usually in inches per minute.

Q

QUALIFIED PRODUCTS LIST (QPL) A list of commercial products that have been pretested and found to meet the requirements of a specification, especially government specifications.
QUICK DISCONNECT A type of connector shell that permits rapid locking and unlocking of two connector halves.
QUICK DISCONNECT COUPLING A design feature, apparent in the quick disconnect connector; it permits relatively rapid joining and separation.

R

RACK AND PANEL CONNECTOR – See CONNECTOR, RACK AND PANEL.
RADIO FREQUENCY The range in which radio waves are transmitted from about 10 kilocycles/second to about 300,000 megacycles/second.
RADIO FREQUENCY INTERFERENCE (RFI) See ELECTROMAGNETIC INTERFERENCE.
RAM The moving portion in the head of a crimping tool.
RATCHET CONTROL A device to ensure the full crimping cycle of a crimping tool.
RATED TEMPERATURE The maximum temperature at which an electric component can operate for extended periods without loss of its basic properties.
RATED VOLTAGE The maximum voltage at which an electric component can operate for extended periods without undue degradation or safety hazard,
REACTANCE The opposition offered to the flow of alternating current by the inductance or capacitance of a component or circuit.
READOUT A term used with printed wiring boards and printed wiring board connectors meaning the ability to make contract with certain circuits.
REAR RELEASE CONTACT – See CONTACT, REAR RELEASE.

REAR SEAL That design feature that provides an environmental seal at the rear of plug or receptacle. Also see GROMMET.

RECEPTACLE CONNECTOR – See CONNECTOR, RECEPTACLE.

REFERENCE EDGE Edge of cable or conductor - sometimes indicated by a thread, identification stripe or printing - from which measurements are made. Conductors are usually identified by their sequential position from the reference edge, with number one conductor closest to this edge.

REFLECTION LOSS The part of the signal which is lost due to reflection of power at a line discontinuity.

REFLOW SOLDERING Method in which a solder joint is made by melting the solder coatings on the mating components.

REFLOWING The melting of an electrodeposit followed by solidification. The surface has the appearance and physical characteristics of being hot-dipped.

REINFORCEMENT One of the two component materials that make up a composite. The other is commonly referred to as the matrix. Reinforcement materials come in forms of continuous and discontinuous fibers, whiskers, particulates and wires. Principal reinforcement materials are graphite, boron, glass and silicon carbide. The material that carries the major stresses and loads.

RELAYS Electrically controlled devices that open and close electrical contacts to affect the operation of other devices in the same or another electrical circuit.

REMOVABLE CONTACT – See CONTACT, REMOVABLE.

REMOVAL TOOL A device used to remove contacts from a connector. See also INSERTION TOOL.

REPAIR Repeating one or more manufacturing processes to return a defective part to a usable condition but not completely meeting all specified.

RFI Abbreviation for Radio Frequency Interference.

RESIN High-molecular-weight organic material with no sharp melting point. For general purposes, the terms resin, polymer and plastic can be used interchangeably.

RESISTANCE Property of a conductor that determines the current produced by a given difference of potential. A measure of the difficulty of moving an electrical current through a material when a voltage is applied. The ohm is the practical unit of resistance and the symbol Ω designates resistance in ohms. The reciprocal of Conductance. Se also BULK RESISTANCE, CONTACT RESISTANCE, INSULATION RESISTANCE.

RESISTANCE SOLDERING A method of soldering whereby a current is passed through and heats the soldering area by contact with one or more electrodes.

RESISTOR An electrical component that opposes the flow of either direct or alternating current, employed to protect, operate or control the circuit.

RESISTIVITY The ability of a material to resist passage of electrical current either through its bulk or on a surface. The reciprocal of Conductivity.

REWORK Repeating one or more manufacturing processes to return a defective part to a condition where it meets all specified requirements and is indistinguishable from an unreworked part.

RIBBON CABLE Flat cable with conductors that have been individually insulated together. Structure is usually characterized by individual colors of insulation for each conductor, although a single color may be used for all conductors.

RMS Abbreviation for Root Mean Square.

ROCKWELL HARDNESS NUMBER A number derived from the net increase in depth of impression as the load on a penetrator is increased from a fixed minimum load to a higher load and then returned to minimum load. Penetrators include steel balls of several specified diameters and a diamond cone penetrator.

ROOT MEAN SQUARE (RMS) The RMS voltage of a sinusoidal source of alternating current is used to characterize the source. The value is approximately 0.707 (about 70%) of the peak voltage of the alternating current. Thus, the 120-volt alternating current available from most outlets is the root mean square voltage of the peak voltage available. This is 120V/0.707 = 170 volts is the peak voltage.

ROSIN FLUX The mildest, safest and least effective of solder fluxes. To increase rosin flux efficacy, small amounts of organic activating agents are commonly added. These are Rosin Mildly Activated (RMA) and Rosin Activated (RA) fluxes.

ROUND CONDUCTOR FLAT CABLE A cable made with parallel round conductors in the same plane.

RUBBERS See ELASTOMERS.

RYTON Polyphenylene Sulfide trade marked by Chevron Phillips.

S

SAE Abbreviation for the Society of Automotive Engineers, a private, membership organization dedicated in part to writing and publishing industry standards regarding all self-propelled vehicles for use on land or sea, in air or space.

SCHEMATIC DIAGRAM A drawing that shows by means of graphic symbols, the electrical connections, components and functions of a specific circuit arrangement.

SCOOP PROOF Design feature(s), such as long shrouds, so that connectors are firmly aligned before exposed contacts begin to engage, thus avoiding damaged or electrically shorted contacts

SEAL, PERIPHERAL See PERIPHERAL SEAL.

SEALING PLUG An accessory that is inserted to fill an unoccupied cavity in a grommet or connector insert to prevent the entry of moisture, fluids or contaminants into the connector.

SELECTIVE PLATING The application of plating material to a limited portion of a contact.

SELF-ALIGN Design of two mating connectors so that they will engage in the proper relative position.

SELF-EXTINGUISHING The characteristic of a material whose flame is extinguished after the igniting flame is removed.

SERRATIONS Small grooves or indentations on the inside of a conductor barrel to provide better gripping of the conductor, this increases the tensile strength and electrical conductivity of the crimped termination.

SERVICE LIFE A period of time during which a device is expected to perform within specification.

SERVICE RATING The maximum voltage or current that a connector is designed to carry continuously.

SEXLESS CONNECTOR – See CONNECTOR, HERMAPHRODITIC.

SHANK Cylindrical or rod-like portion of a connector or contact.

SHEATH See JACKET.

SHEAR STRENGTH The maximum shear stress a material is capable of sustaining. In testing, the shear stress is caused by a shear or torsion load and is calculated as the force-per-unit area.

SHELL The case that encloses the connector insert and contact assembly. Shells of mating connectors can protect projecting contacts and provide proper alignment. The shell may be of metal or plastic. Inserts may be integral with plastic shells. Also called Housing. See also BODY, INSERT and INSULATOR.

SHIELD Device surrounding that portion of a connector that is used for attaching wires or cables to shield against electromagnetic interference, and/or protect connector wires or cable from mechanical damage.

SHIELDED CONTACT See CONTACT, SHIELDED.

SHIELDED CABLE A cable in which each insulated conductor and/or the bundle of conductors is enclosed in a conductive shield to minimize the interference effects of internal or external circuits

SHIELDING A metallic covering one or more of the conductors in a wire circuit and used to prevent interference, interaction or current leakage between circuits.

SHIELDING EFFECTIVENESS (SE) The reduction in field strength resulting from interposing a metallic barrier between a source and receptor of electromagnetic energy. In terms of connectors, contacts can be either the source or receptor of electromagnetic interference.

SHORE HARDNESS A procedure for determining the indentation hardness of a material by means of a durometer. Shore designation is given to tests made with a specified durometer instrument. Also see ROCKWELL HARDNESS.

SHORT-TIME CURRENT RATING The designated rms current that a connector can carry for a specified time under specified conditions.

SHORTING PLUG See DUMMY CONNECTOR.

SHROUD A mechanical feature of a connector shell or body that surrounds and protects a particular part of the device (usually the mating face/contacts). It can be made of metal or plastic.

SHUNT A device used to divert part of an electric current.

SHUNT WIRE A conductor joining two parts of an electric circuit to divert part of the current.

SIGNAL An electrical impulse of a predetermined voltage, current, polarity and pulse width.

SIGNAL CONDUCTOR An individual conductor used to transmit a signal.

SIGNAL PLANE A conductor layer of a PCB intended to carry signals-, rather than serve as a ground or other fixed voltage function.

SILICONES Polymeric materials in which the recurring chemical group contains silicon and oxygen atoms as links in the main chain. These resins have good physical, chemical and electrical characteristics. They are used as insulation, insulators/inserts, elastomerics, etc.

SILVER (Ag) A highly conductive metal**,** Atomic No. 47. When applied as terminal plating, it provides a hard-oxide, soft-base finish that requires only moderate pressure for a metal-to-metal contact. Silver plating is normally used on metals that are relatively good conductors, such as copper and brass.

SLEEVE Covering over the terminal barrel. It can be insulated or metallic.

SNAP-ON Used to describe the easy removal or assembly of one part to another.

SOCKET CONTACT SEE CONTACT, SOCKET.

SOCKET CONTACT SLEEVE A sleeve that holds the contact spring in the correct position within the socket contact.

SOFT SOLDERING Process of joining two metals with a fusible alloy or solder that melts below 800º F (427º C). Also see HARD SOLDERING.

SOLDER A metal or metal alloy, usually having a low melting point, used to join other metals having higher melting points than the solder. The action of the solder is of an adhesive type; that is, wetting of the surfaces and forming the joint by molecular attraction between the solder and the base metals, or may involve some diffusion of the solder metal or visa versa. Solders are generally classified as soft and hard. Soft solders have melting points up to about 600º F. The most common of these are the tin/lead alloys.

SOLDER BRIDGING See BRIDGING, SOLDER.

SOLDER CONTACT See CONTACT, SOLDER.

SOLDER CONTACT TERMINAL A point at which the connector is soldered directly to the motherboard by hand, wave or dip methods.

SOLDER CUP Cup shaped end of a terminal or contact in which a conductor is inserted before being soldered in place.

SOLDER DIPPED See DIP SOLDERING.

SOLDER EXTRACTION Desoldering technique utilizing a continuous vacuum mode with controlled joint heating and cooling, a hot air jet and/or heat and air pressure.

SOLDER-EYE or EYELET A solder type terminal provided with a hole at its end through which a wire can be inserted prior to being soldered. A ring shaped contact termination of a printed circuit connector for the same purpose.

SOLDER FLUX See FLUX (2).

SOLDER JOINT Point of bonding between solder and component surfaces.

SOLDER LUGS Device to which wire is secured by soldering. Solder lugs are attached to a PC board, termination strip, chassis or electrical component.

SOLDER OILS Liquid compounds formulated for use as the oil in oil intermix wave-soldering equipment and as pot coverings on still solder pots.

SOLDER PROJECTION An undesirable protrusion of solder from a solidified solder joint or coating.

SOLDER SLEEVE A heat shrinkable tubing device containing a predetermined amount of solder and flux used for environmentally resistant solder connections and shield termination.

SOLDERABILITY The property of a metal to be wetted by solder.

SOLDERABILITY TESTING A test that is utilized to screen lots of connectors, contacts or conductors to determine if their ability to be soldered is in compliance with agreed upon specifications. There are several available test standards to choose from.

SOLDERING Process of joining metallic surfaces with solder, without the melting of the base metals. Soldering is an economical, versatile and fast termination method. A soldered connection has metallic continuity and excellent long-term reliability.

SOLDERING FLUID A liquid used with wave solder systems that can be intermixed with solder to reduce the surface tension of solder, promote wetting and eliminate the formation of dross.

SOLDERING IRONS AND GUNS Category of soldering tools including - pistol grip guns, industrial grade irons, 12-volt field use irons, portable controlled output irons, controlled output soldering stations, etc.

SOLDERING IRON TIP A high purity copper substrate form, iron plated 0.006" to 0.030" thick, hot tin dipped in the working area and the remaining surface covered by nickel-chromium plating. The working area of the tip is usually fabricated for access and maximum heat transfer to the work point.

SOLDERLESS CONNECTION The joining of two metals by pressure means without the use of solder, braze or any method requiring heat.

SOLDERLESS CONTACT See CONTACT, CRIMP.

SOLDERLESS TERMINAL A wire connection in which metal parts are crimped to the wire with crimping tools**.** Solderless terminals vary in size and style to meet different applications and are said to surpass soldered joints in tensile strength

SOLDER-TYPE CONNECTOR – See CONNECTOR, SOLDER-TYPE.

SOLID CONDUCTOR A conductor consisting of a single wire. See also STRANDED CONDUCTOR.

SPACER Any material (conductive or non-conductive) designed to be placed between connectors, hardware, contacts, panels, etc. to establish and maintain position of components relative to each other.

SPADE CONTACT See CONTACT, SPADE.

SPECIFICATION A document prepared specifically to support acquisition that clearly and accurately describes essential technical requirements for purchased material.

SPLICE- A joint connecting conductors with good mechanical strength and good conductivity; a terminal that permanently joins two or more wires.

SPRING-FINGER ACTION Design of a contact, as used in a printed circuit connector or a socket contact, permitting easy, stress-free spring action to provide contact pressure and/or retention.

STACKING CONNECTOR See CONNECTOR, STACKING.

STAINLESS STEEL Ferrous alloys that contain a minimum of 12% chromium for corrosion resistance. Used extensively in electrical/electronics equipment and in connectors for shells and hardware.

STANDARD A document that establishes engineering and technical requirements for items, equipment, processes, procedures, practices and methods that have been adopted as standard. Standards may also establish requirements for selection, application and design criteria for a material.

STEEL Any of a variety of iron-based metallic alloys having less carbon content than cast iron, but more than wrought iron.

STOP PLATE Device attached to a crimping tool to properly locate a terminal, splice or contact in the tool prior to crimping. See Locator.

STRAIGHT CONNECTOR – See CONNECTOR, STRAIGHT.

STRAIN DAMAGE The disconnection of conductors from their termination points due to a sharp pull on the cord.

STRAIN RELIEF Technique involving methods of termination or installation, which reduces the transmission of mechanical stresses to the conductor termination.

STRAIN RELIEF CLAMP See CABLE CLAMP.

STRANDED CONDUCTOR A conductor composed of a group of wires or of any combination of groups of wires. The wires in a stranded conductor are usually twisted or braided together. See also SOLID CONDUCTOR.

STRESS RELIEF A predetermined amount of slack to relieve tension in component or lead wires. **STRESS-RUPTURE TESTS** Soldered joint tests that are performed under constant stress at the solder joint. They record the time to joint failure at a given load.

STRIKE See FLASH PLATING.

STRIP To remove insulation from a cable, wire or other conductor

STRIPPER A tool or chemical used to remove insulation from wire or cable.
STUD Threaded or serrated insert or post used for connecting wires or terminals.
STUD HOLE The hole or opening in the tongue of a terminal to accommodate screw or stud.
SURFACE CONDUCTANCE Conductance of electrons along the outer surface of a conductor.
SURFACE LEAKAGE The passage of current over the boundary surface of an insulator as distinguished from passage through its volume.
SURFACE MOUNT CONNECTOR – See CONNECTOR, SURFACE MOUNT.
SWAGED LEADS Component leads that extend through the printed board and are flattened or swaged so as to secure the component to the board during manufacturing operations.
SWAGING, SWEDGING The mechanical reshaping of a component.
SWITCHES Devices that make or break connections in an electrical or electronic circuit. In computing systems they are also used to make selections. They are usually manually operated but can also work by mechanical, thermal, electromechanical, barometric, hydraulic or gravitational means.
SWITCHING CURRENT RATING The designated rms current that a loadbreak connector can connect and disconnect for a specified number of times under specified conditions.

T

"T" CONNECTOR See CONNECTOR, "T..
"T" DIMENSION The dimension of the crimped portion of a contact measured between two opposite points on the crimped area.
"T" RISE See TEMPERATURE RISE.
TAB (1) The flat blade portion of certain terminals. (2) On strip terminals, the projection that results when the point-of-shear is not flush with the terminal body (i.e., cutoff tab**).** (3) Non-preferred term for printed contact.
TARNISH Surface discoloration of a metal caused by formation of a thin film of corrosion product.
TEAR TEST A test to determine the tear strength of an insulating material.
TEFLON The DuPont Corporation trade name for polytetrafluoroethylene.
See POLYTETRAFLUOROETHYLENE.
TEFZEL The DuPont Corporation trade name for ethylene-tetrafluoroethylene.
See ETHYLENE-TETRAFLUOROETHYLENE.
TEMPER (1) The hardness and strength produced by mechanical and/or thermal treatment and characterized by a certain structure, mechanical properties or reduction in an area during cold working. (2) A measurement of the degree of hardness or lack of ductility in a metal.
TEMPERATURE RATING The maximum temperature at which an insulating material may be used in continuous operation without loss of its basic properties.
TEMPERATURE RISE Temperature change of terminal from a no load condition to full current load. Also called "T" rise.
TENSILE STRENGTH Greatest longitudinal stress that a substance can bear without pulling apart.
TENSILE TESTING A controlled pull test on a material or a joint to determine the mechanical (tensile) strength. Often the amount of axial load required to break or pull wire from the crimped barrel of a terminal, splice or contact is measured. See also CRIMP TENSILE STRENGTH.
TERMINAL (1) A point to which electric connections can be made. (2) A device designed to terminate a conductor that is to be affixed to a post, stud, chassis, another conductor, etc., to establish an electrical connection. Some types of terminal include ring, tongue, spade, flag, hook, blade, quick-connect, offset and flanged.
TERMINAL BLOCK An assembly containing connection provisions to facilitate the connection of one or more conductors.
TERMINAL BOARD A board fabricated from an insulating material containing a single or multiple row or arrangement of termination points for the purpose of making connections.
TERMINAL LUG See TERMINAL (2).
TERMINAL PLATE A conductive busing bar or commoning bar, also called link or jumping bar.
TERMINATION (1) The process of connecting a conductor to a device or component by means of crimping, soldering, wire wrapping, etc. (2) The generic term for the device that the lead is connected to in (1), i.e., contacts, terminals, wrap posts, etc.
TEST LEAD A flexible, insulated lead wire that usually has a test prod on one end. It is ordinarily used for making tests, connecting instruments to a circuit temporarily or for making temporary electrical connections.
TEST POINT Test points are special points of access to an electrical circuit used for testing purposes.
THERMAL SHOCK Thermal shock is the effect of heat or cold applied at such a rate that nonuniform thermal expansion or contraction occur within a given material or combination of materials. In connectors, the effect can cause inserts and other insulation materials to pull away from metal parts.
THERMAL WIPE Thermal wipe is a slight movement of mated contacts caused by thermal expansion or contraction of parts, which can cause poor electrical performance.
THERMOCOUPLE CONTACT – See CONTACT, THERMOCOUPLE.
THERMOPLASTIC A type of material which softens when heated and becomes hard again after cooling. These materials can be reshaped and accept good chemical or thermal bonding with other materials.
THERMOSET A material that hardens or sets with heat when first cured but which reheating cannot resoften.

THERMOSETTING PLASTIC A type of plastic in which an irreversible chemical reaction takes place while it is being molded under heat and pressure. It cannot be resoftened by heat. Examples are diallyl phthalate and polyphenylene sulfide.

THREADED COUPLING A means of engaging mating connectors by means of threads.

THREADED SELF-LOCKING COUPLING A coupling mechanism that utilizes matching screw threads for mating and unmating of cylindrical connectors or devices incorporating an automatically actuated locking mechanism to prevent the coupling ring from becoming loose under vibration conditions.

THROUGH CONNECTION See FEED THROUGH (2).

TIN (Sn) Tin, or stannum, an element with Atomic No. 50, is used primarily as a coating for other metals. It is resistant to corrosion and tarnish, nontoxic, soft, ductile and solderable. It is frequently alloyed with other metals (i.e. lead) to improve mechanical and physical properties. Tin can be plated from both an acid and an alkaline electrolytic although tin fluoborate is most common. The tin-nickel alloy deposit (63% tin and 37% nickel) can be soldered, has high hardness (650 Vickers), good conductivity and a low coefficient of friction. These properties are of special interest in printed circuit and allied electronic applications. See Tin-Lead.

TIN-LEAD An alloy used for the majority of soldering operations in the electronics industry. Usually an alloy close to the eutectic composition (62% Sn, 38% Pb) is chosen to permit usage of the lowest possible soldering temperature, thereby reducing- risk of damage to temperature-sensitive components.

TRACER STRIPE When more than one color-coding stripe is required, the first (widest) stripe is the base stripe, the others, usually narrower stripes, being termed tracer stripes.

TRACKING The formation of contaminants on the surface of insulating materials due to arcing. Tracking can be either a conducting or non-conducting path left after the arcing stops. See also COLOR CODING (1).

TRANSMISSION LOSS The decrease or loss of power during transmission of energy from one point to another. Usually expressed in decibels.

TRIAXIAL A connector or cable construction having three coincident axes such as conductor, first shield and second shield, each isolated from one another.

TUBING Piece of cylindrical insulating material that slips over the point of electrical connection.

TUNING FORK CONTACT See CONTACT, TUNING FORK.

TURRET HEAD A device that is attached to a crimping tool which contains more than one locator and allows the locators to be rotated to hold a contact in the correct position for crimping. It is usually interchangeable with other turret heads and head assemblies.

U

UG Symbol for coaxial connectors that are made to government specification.

UL Abbreviation for Underwriter's Laboratories, a non-profit, independent organization that, among other purposes, operates a listing service for electrical and electronic materials and equipment.

ULTEM Polyetherimide. Trade marked by GE Plastics.

ULTRASONIC Sound waves that vibrate at frequencies beyond the hearing range of humans (above 16,000 cycles). Commercial and military applications include ultrasonic cleaning, gaging, cutting, detection instruments and welding.

ULTRASONIC BOND Process of joining materials by the scrubbing action and energy transfer of a tool vibrating at an ultrasonic frequency.

ULTRASONIC CLEANING Immersion cleaning aided by ultrasonic waves that cause microagitation.

UMBILICAL CONNECTOR – See CONNECTOR, UMBILICAL.

UNDERPLATE The plating or platings between the base metal and the surface plating.

UNMATE The disengagement, disconnecting or uncoupling of mated connectors.

UNDERWRITERS' SYMBOL - A logotype authorized for placement on a product which has been recognized by Underwriters' Laboratories.

V

VAC Abbreviation for Voltage Alternating Current.

VDC Abbreviation for Voltage Direct Current.

VAPOR DEGREASING Degreasing work in vapor over a boiling liquid solvent, the vapor to be considerably heavier than air. At least one constituent of the dirt or contamination on the parts must be soluble in the solvent.

VAPOR PHASE Method of simultaneously soldering variously configured component parts. The process is carried out in a specially equipped chamber, and the high temperature vapor of a boiling fluorinated hydrocarbon is the heat transfer medium.

VERTICAL MOUNT CONNECTOR See CONNECTOR, VERTICAL MOUNT.

VIA, BLIND A via which extends from on*e* or more inner layers to the surface of a substrate or board.

VIA, BURIED A via that connects inner layers but does not extend to the surface of a substrate or board.

VIA HOLE A plated through-hole used as an interlayer connection**,** but in which there is no intention to insert a component lead or other reinforcing material.

VOLT The unit of electromotive force. It is the difference in potential required to make a current of one-ampere flow through a resistance of one ohm.

VOLTAGE RATING The highest voltage that may be continually applied to a conductor in conformance with standards or specifications.

W

WATER ABSORPTION A test to determine the water absorbed by a material after a given immersion period.

WATT A unit of electrical power. The power of one ampere of current pushed by 1 volt of electromotive force.

WAVELENGTH In a periodic wave, the distance between points of corresponding phase of two consecutive cycles.

WAVE SOLDERING A process wherein items to be soldered are brought in contact with a gently overflowing wave of liquid solder that is circulated by a pump in an appropriately designed solder pot reservoir.

WETTING A physical phenomenon of liquids, usually in contact with solids, wherein the surface tension of the liquid has been reduced so that the liquid flows and makes intimate contact in a very thin layer over the entire substrate surface. An example of this is the wetting of a metal surface by solder. Flux reduces the surface tension of the metal surface and the solder, with the result that the droplets of solder collapse into a very thin film.

WHISKER Single crystal growth resembling fine wire, which appears most frequently on components what have been electroplated with tin. Whisker growth requires no applied voltage**.**

WICKING (1) The longitudinal flow of a liquid in a multi-stranded wire, cable or lead due to capillary action. (2) Desoldering method utilizing prefluxed braid of stranded wire or braid used with flux. The wick material is placed on the solder joint and a heated iron tip is applied to the wick. Capillary action draws the solder up into the wick material.

WIPING ACTION The action that occurs when contacts are mated with a sliding action. Wiping has the effect of removing small amounts of contamination from the contact surfaces, thus establishing better conductivity. See also CONTACT WIPE.

WIRE BARREL See BARREL

WIRE HARNESS See HARNESS.

WIRE SIZE A numerical designation for a conductor, usually expressed in terms of American Wire Gage (AWG), based on the approximate circular mil area of the conductor.

WIRE STOP A stop at the end of a terminal wire barrel that prevents wire from passing completely through the barrel in such a way as to interfere with the function of the contact.

WIRE STRIPPING See a STRIP.

WIRE WRAP See WIRE WRAPPED CONNECTION.

WIRE WRAPPED CONNECTION A wire wrapped connection is a solderless connection made by wrapping bare wire around a square or rectangular terminal with a power or hand tool. Also called Solderless Wrapped Connection; Wrapped Connection or Wrap Post Connection.

WIRING DIAGRAM A drawing that shows by means of graphic symbols and lines, the electrical connections/terminations to connectors, lugs, etc and wire runs of a specific harness arrangement,

WITHDRAWAL FORCE See CONTACT ENGAGING AND SEPARATING FORCE.

WORK CURVE A graph that plots the pullout force, indent force and relative conductivity of a crimp joint as a function of various depths of crimping.

WORKING VOLTAGE Maximum voltage at which a connector is rated to operate. See also SERVICE RATING.

WRAP POST A connector termination specifically designed for solderless connections. See also WIRE WRAPPED CONNECTION.

Y

YIELD STRENGTH Yield strength is the minimum stress at which a material will start to physically deform without further increase of stress force.

Z

ZIF Abbreviation for Zero-Insertion-Force contact or connector.