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GLOSSARY of Printed Circuit Design and Manufacturing

No.	GLOSSARY	Meanings
1	QFP	Quad Flat Pack, a fine-pitch SMT package that is rectangular or square with gull-wing shaped leads on all four sides. The lead pitch of a QFP is typically either 0.8mm or 0.65mm, although there are variations on this theme with smaller lead pitches: TQFP also 0.8mm; PQFP tooled at either 0.65mm (0.026") or 0.025" and SQFP at 0.5mm (0.020"). Any of these packages can have a wide variety of lead counts from 44 leads on up to 240 or more. Although these terms are descriptive, there are no industry- wide standards for sizes. Any printed circuit designer will need a spec sheet for the particular manufacturer's part, as a brief descrition like "PQFP-160" is inadequate to define the mechanical size and lead pitch of the part.
2	ratsnest	A bunch of straight lines (unrouted connections) between pins which represents graphically the connectivity of a PCB CAD database. [Derived from the pattern of the lines: as they crisscross the board, the lines form a seemingly haphazard and confusing mess similar to a rat 's nest.)
3	reference designator	(abbrv. "ref des"),The name of a component on a printed circuit by convention beginning with one or two letters followed by a numeric value. The letter designates the class of component; eg. "Q" is commonly used as a prefix for transistors. Reference designators appear as usually white or yellow epoxy ink (the "silkscreen") on a circuit board. They are placed close to their respective components but not underneath them, so that they are visible on the assembled board. By contrast, on an assembly drawing a reference designator is often placed within the boundaries of a footprint --a very useful technique for eliminating ambiguity on a crowded board where reference designators in the silkscreeen may be near more than one component.
4	register	In printed board manufacture, many terms are borrowed from the subject of printing. Register has the following specialized printing definition : In printed circuit design, the designer gets his photoplot files in register before he views them with his Gerber file viewer. The board manufacturer produces film from the Gerber files and uses them in register with respect to the panels of material from which he will build the boards. He is going to want the pads on both sides and on internal layers to be in register before he drills holes in the panel.
5	registration	See register
6	RF	Radio Frequency
7	Rise time	the time required for an output voltage of a digital cirucit to change from low voltage level (0) to high voltage leve (1), after the change has started. (For more defintions of the term, see Modern Dictionary of Electronics, by Rudolf F. Graf .) Very short rise times, not high clock speeds, are the primary cause of cross-talk in PCBs. Rise times are characterics tic of the technology being used in a circuit. Gallium Arsenide components can have rise times around 100-picoseconds (millionths of millionths of seconds), 30 to 50 times faster than some CMOS components.
8	route	1. n. A layout or wiring of a connection. 2. v. The action of creating such a wiring.