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A VCC PRODUCT FAMILY

Technical Overview - Bright★Pipes™ Optical Lightpipes

Product Line, Characteristics

Bright★Pipes™ Optical Lightpipes produce bright, even indication based on optical ray tracing. They conveniently and economically conduct light from SMT LEDs through angles and distances to a viewable front lens surface in order to provide an attractive, bright and even indication of equipment of function status with minimal attenuation of light output through the optical fibers that join the base, at the LED light source, to the lens front.

Where height restrictions are no problem, some units have 0.16" x 0.16" lenses for each port. If preferred, low-profile lenses with a 0.07" height and 0.16" width may be selected, resulting in a total Bright★Pipes™ height above the board of only 0.62".

Standard modules range from simulation of a T-1 LED up to 12 lights-wide, with custom applications sized for specific PC board and display requirements. Assemblies of 3 inches to 3 feet from the LED light source to lens are possible, using Bright★Pipes fiberoptics.

Typical light sources forBright★Pipes™ include Bright★Chips™ SMT LEDs. One, two, or three colors are easily blended with Bright★Pipes™ modules. SMT LEDs may be mixed and matched with optics, minimizing obsolescence. Most Bright★Pipes™ modules are available as standard off-the-shelf products providing optimum flexibility in the selection of the LED. Size and shape, changeable viewing options for both backlight and direct viewing, and vertical or horizontal formats are all possible.

Bright★Pipes™ Optical Lightpipes fit over SMT LED chips, avoiding the cost and complexity of daughter-board LED mounting. Precise alignment of SMT LEDs on a board becomes unnecessary because the optics compensate for misalignment, as when a chip "orients" during reflow, ensuring uniform panel illumination. With LED alignment no longer critical, ganged arrays of SMT LEDs and assemblies in multiple-unit

widths and heights become practical Bright★Pipes™ also eliminate the need for special handling equipment and simplify rework as well as allowing higher dendity.

Designed for PC-board installation only after soldering, Bright★Pipes™ do not interfere with solder joint inspection, rework or touch-up. Because they are installed when soldering is complete, Bright★Pipes™ eliminate the need for costly high-temperature materials.

Applications

Bright★Pipes™ Optical Lightpipes are well-suited for telecommunication and LAN towers in either backlighting or direct indication applications. Backlighting levels are highly consistent, as needed for overlay applications. When used with rectangular shaped "pipes" they are ideal for bar-graph displays. A specialized series of Bright★Pipes™ Optical Light-pipes feature a one-piece plastic design to meet the multi-functional and multi-status indication required of communications equipment, modems and other computer peripherals.

Custom engineered Bright★Pipes™ Optical Light pipes for specialized applications are in constant development. VCC encourages inquiries to the optical lightpipe design group. 1.800.522.5546