LEDs – Interconnectors vs. Soldering

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Connecting light-emitting diodes (LEDs) to circuit boards is a matter of some question if you ask the experts. There are those who swear by the age-old method of soldering with lead because of its simplicity and commonality. But VCC’s products are far from ordinary and our new techniques have created several alternatives that come with significant advantages not only for the manufacturing process, but also for the end user.

Problems with Traditional Soldering Techniques

Traditionally, LEDs have been constructed using time-tested soldering techniques. This type of construction method is especially popular for through-hole LEDs where the leads pass through the circuit board, as opposed to surface-mount LEDs that sit on the surface of the board. When LEDs are connected to circuit boards using this method, care must be taken to connect the LED in the correct direction with respect to the anode (a) or + and the cathode (k) or -.

Soldering works by melting an alloy – usually tin and lead in a 60% to 40% ratio – tinning the surface with the alloy and connecting the two components. But herein lies the first problem: lead is a heavy metal and is considered highly poisonous to humans and damaging to the environment as well. The second problem with this process is the potential for damage to the LED as a result of the high heat (200°C).

Damage can also occur when errors are made during the connection process. If an LED is incorrectly connected using soldering or otherwise needs to be removed from the board (a process called desoldering), the removal can often damage the LED.

Superior Interconnectors for LEDs

VCC uses state-of-the-art alternative techniques for connecting LEDs: either panel mount assemblies or locking header connectors. Panel mounting assemblies used by VCC are fast, simple, and highly advantageous. Not only is panel mounting a tool-free technique, but by using press-fit or threaded connections, VCC is able to provide a variety of LED connections to power source circuitry.

VCC’s locking header connectors are designed to provide positive locking for securing connectors to a printed circuit board using a male pin header design. Using existing friction header designs, VCC incorporated a finger release lever with a detent which creates a polarized positive locking header – our “click, it’s locked” feature. Removing the ramp connector from the locking header involves inserting a fingertip between connector and header lever to disengage the lock, which allows the connector to be extracted. This locking header also provides polarity protection by preventing the header connector from being inserted in the reverse position.

By choosing alternative interconnections to the standard soldering methodology, VCC is a leader in the field with simpler, easier mechanisms and a more environmentally-friendly outcome.