# Handling Manual Soldering 0.5W Power PLCC-4

# Application Note 5329

## Manual Hand Soldering Application Brief

For prototype builds or small samples builds it is possible to place and solder the LED by hand.

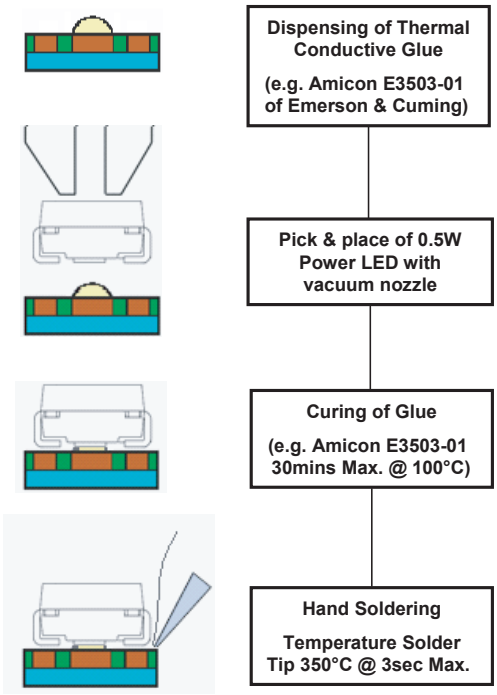
It is recommended to hand solder the leads with a solder tip temperature of 350°C for less than 3 seconds. For multiple soldering at same solder point, it is recommended to keep the LED cold down to room temperature before second soldering to avoiding any damage may happen to LED due to over heat.

In-order to achieve optimizes optical performance for 0.5W Power LED with 2 center lead as thermal path, the center lead of 0.5W Power LED must be glued to the PCB heat sinking pad with thermally conductive adhesive (e.g. Amicon E3503-01) to ensure a proper mechanical connection between PCB and the LED while providing a proper thermal path for heat transfer.

Since the thermal resistance of the glue layer will affect the overall performance of the array it must be optimized. For optimal thermal connection it is important that the 2 center lead area is wetted with thermal adhesive glue after the LED is placed on the PCB. The adhesive layer should be as thin as possible for good heat conductivity.

In general, it is recommended that the thermal adhesive glue be allowed to cure before manually soldering the LED. This considerably facilitates the handling of the soldering iron. This also helps to prevent difficulties due to sliding, tipping or standing of the LED. It is recommended to cure the thermal adhesive glue at least 30mins @ 100°C. Should not cured the thermal adhesive glue exist the MiPLED allowable storage temperature 110°C.

The processing steps for manual soldering as below:




Precautions:

1. Thermal adhesive glue volume control. Do not over dispend the thermal adhesive glue to avoid the thermal adhesive glue overflow.
2. Handling Moisture Sensitive Surface Mount LED. The package should only be opened immediately before use, and the time frame between package openings and soldering should be kept under the time frame within MSL 2a classification. If the device needs to be soldered twice, both soldering operations must be completed within the recommended time frame within MSL 2a classification.
3. Do not poke sharp objects into the silicone encapsulant. Sharp object like tweezers or syringes might pierce through the silicone and induce failures to the LED die or wire bond. Refer to Avago Application Note AN-5288 for additional details.

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