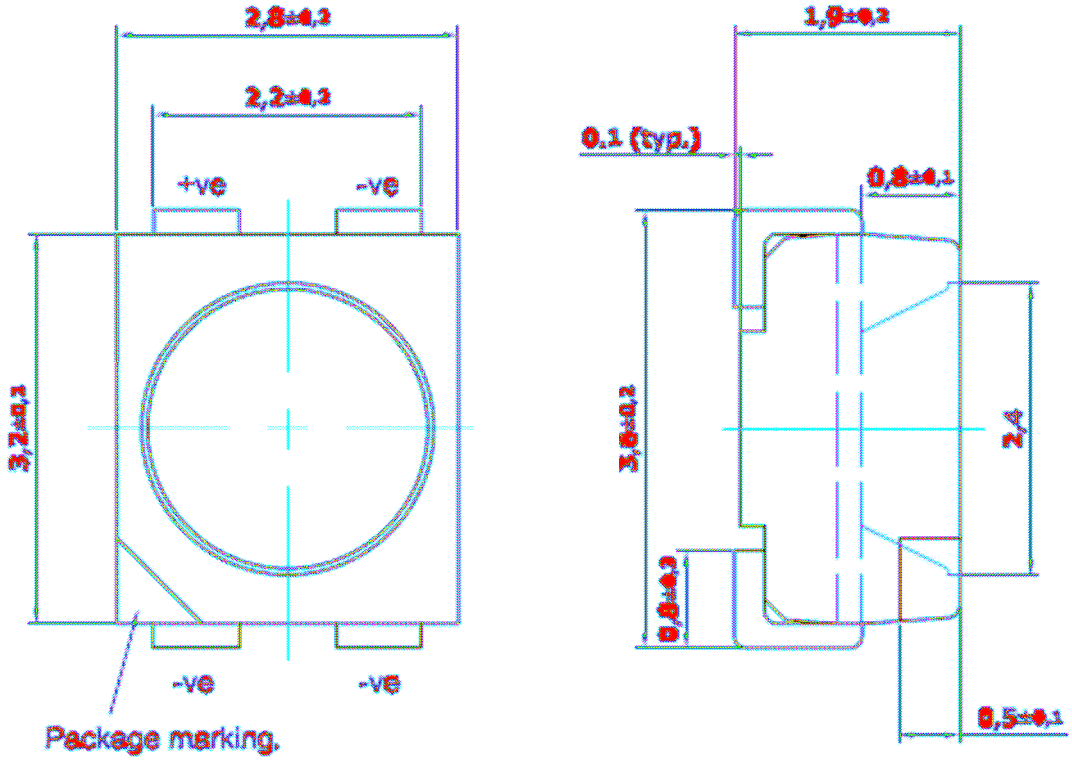
DOMINANT™
Opto Technologies
Innovating Illumination

APPLICATION NOTES:

Solder pad Design Guideline for Power DomiLED (PLCC4)

Introduction:

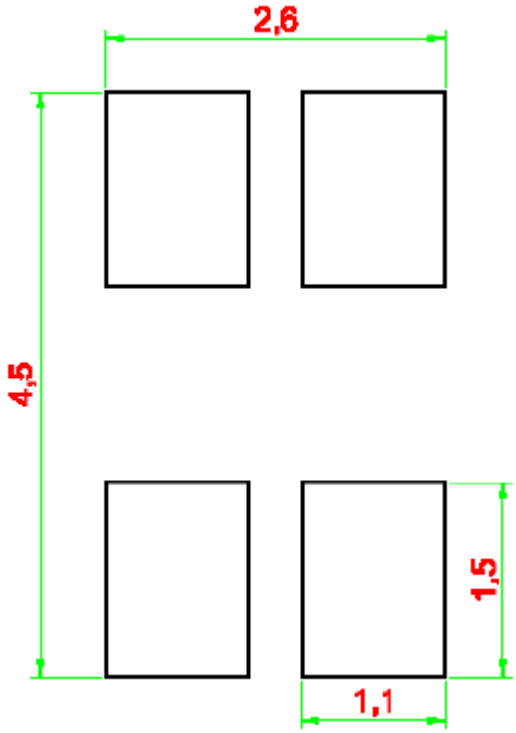
The Power DomiLED series of devices were designed for high current drive. Its high current drive capability is derived from the package's greater capability to dissipate heat. Heat dissipation is enhanced by the improved lead-frame design where four terminals are used for soldering. These additional terminals enable heat to dissipate more rapidly compared to the existing DomiLED devices where only two terminals are available.



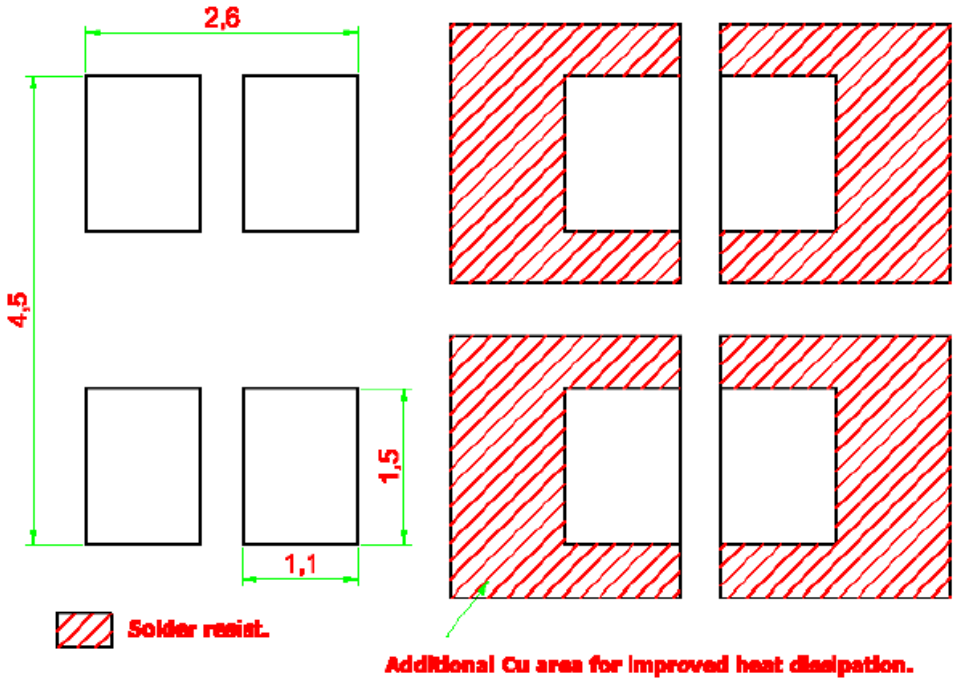
Solder pad design considerations

As for the polarity of the terminals, one of the terminals is connected to the anode of the LED chip while the other three are made the common cathode terminal. This configuration is as per depicted in the package outline above.

As for the solder-pad design, the data-sheet recommends the following design.

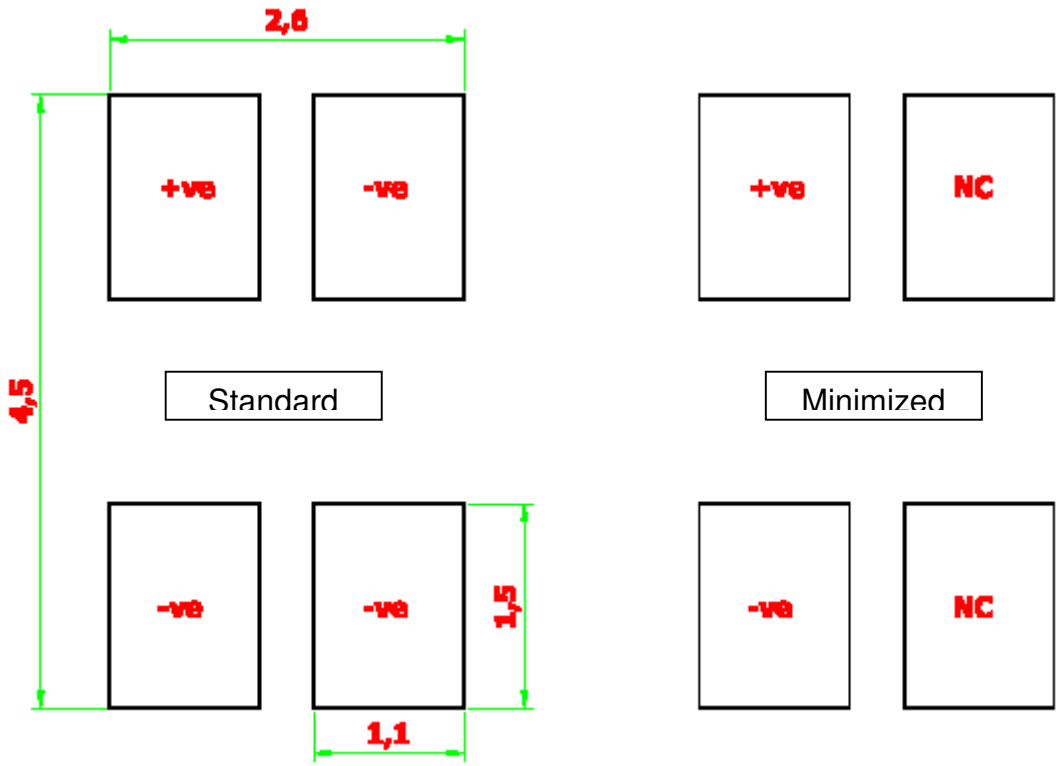


In cases where space is available, additional copper area with solder resist is recommended. This additional copper will improve the package's heat dissipation capability as depicted below.



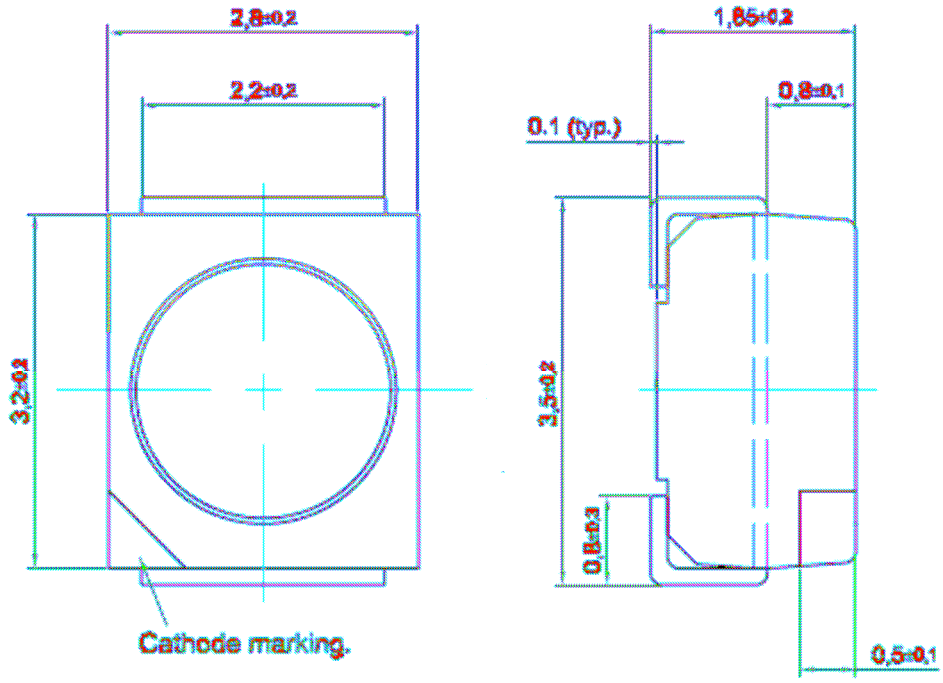
As for electrical connection, the polarity for each of the terminals should be as that described earlier. One anode terminal is defined and there are 3 possible cathode terminals for connections. All the three may be soldered or anyone of the three may be used. This gives flexibility during the lay-out of the part on the PCBs. All the three cathode terminals are common to each other.

However, in order to minimize the traces in compact applications, the recommended electrical connection is as shown below.

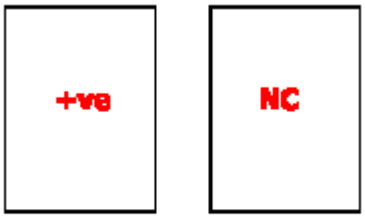


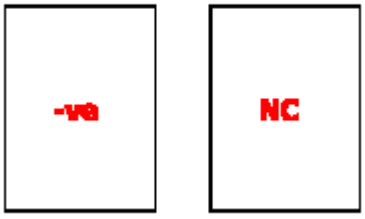
In the simplified connection scheme above, only two lead are electrically active while the other leads are left unconnected. Nevertheless, any of the other two non-connected pads may also be connected to the cathode polarity if desired.

Universal solder pads for both DomiLED (PLCC2) and Power DomiLED (PLCC4)



In other cases where a universal solder pad is required for both a PLCC2 (shown above) and PLCC4, the recommended solder pad design will be as follows:





As shown above, only two of the pads will be electrically connected. The other two remaining pads will be left not connected and will serve as a pure solder pad only.