

Change to Moisture Handling Procedures for XLamp® ML & MX LEDs

PCN-CM033

Announcement Date: January 16, 2013

Implementation Date: Immediately

This notification applies to the following Cree order codes:

| | |
|-----------------------|---|
| MLxxxx-xx-xxxx-xxxxxx | XLamp ML LEDs (Parallel, Series; White, Blue, Green, Red) |
| MXxxxx-xx-xxxx-xxxxxx | XLamp MX LEDs (Parallel, Series; White) |

Cree recommends that customers modify their moisture handling procedures for XLamp ML & MX LEDs according to the guidelines in the updated product data sheets.

CHANGE DESCRIPTION

Cree is committed to continually update and review recommended procedures to ensure the highest possible LED reliability. In line with that commitment and test results on current production LEDs, Cree is changing the moisture handling procedures for the XLamp ML & MX family LEDs. The updated handling procedure is included on the next page for reference. All relevant product documentation, such as data sheets and Soldering & Handling documents, have also been updated with these new procedures.

In addition, Cree has already implemented recommended handling practices in the packaging of these LEDs, such as baking the LEDs before sealing in moisture-barrier bags and including desiccant and humidity indicator cards inside the bags.

IMPACT OF CHANGE

Effective immediately, Cree recommends that customers modify their moisture handling procedures for XLamp ML & MX LEDs according to the guidelines in the updated product data sheets.

Effective immediately, customers may begin receiving shipments of XLamp ML & MX family LEDs with moisture sensitive packaging. Customers may receive reels both with and without desiccant and humidity indicator cards until Cree's inventory of reels without desiccant and humidity indicator cards is depleted.

No action is required for distributors that carry inventory of XLamp ML & MX LEDs that are still sealed in the moisture-barrier bags.

UPDATED MOISTURE HANDLING PROCEDURE (FOR REFERENCE ONLY)

Moisture Sensitivity

XLamp ML & MX LEDs are shipped in sealed, moisture-barrier bags (MBB) designed for long shelf life. If XLamp ML & MX LEDs are exposed to moist environments after opening the MBB packaging but before soldering, damage to the LED may occur during the soldering operation. The derating table at right defines the maximum exposure time (in days) for XLamp ML & MX LEDs in the listed humidity and temperature conditions. LEDs with exposure time longer than the time specified below must be baked according to the baking conditions listed below.

| Temp. | Maximum Percent Relative Humidity | | | | | | |
|-------|-----------------------------------|-----|-----|-----|-----|-----|-----|
| | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| 35 °C | - | - | - | 17 | 1 | .5 | .5 |
| 30 °C | - | - | - | 28 | 1 | 1 | 1 |
| 25 °C | - | - | - | - | 2 | 1 | 1 |
| 20 °C | - | - | - | - | 2 | 1 | 1 |

Cree recommends keeping XLamp LEDs in their sealed moisture-barrier packaging until immediately prior to use. Cree also recommends returning any unused LEDs to the resealable moisture-barrier bag and closing the bag immediately after use.

Baking Conditions

It is not necessary to bake all XLamp ML & MX LEDs. Only the LEDs that meet all of the following criteria must be baked:

1. LEDs that have been removed from the original MBB packaging.
2. LEDs that have been exposed to a humid environment longer than listed in the Moisture Sensitivity section above.
3. LEDs that have not been soldered.

LEDs should be baked at 70 °C for 24 hours. LEDs may be baked on the original reels. Remove LEDs from MBB packaging before baking. Do not bake parts at temperatures higher than 70 °C. This baking operation resets the exposure time as defined in the Moisture Sensitivity section above.

Storage Conditions

XLamp ML & MX LEDs that have been removed from the original MBB packaging but not soldered should be stored in one of the following ways:

- Store the parts in a rigid metal container with a tight-fitting lid. Verify that the storage temperature is <30 °C, and place fresh desiccant and an RH indicator in the container to verify that the RH is no greater than 60%.
- Store the parts in a dry, nitrogen-purged cabinet or container that actively maintains the temperature at <30° and the RH at no greater than 60%.
- For short-term store only: LEDs can be resealed in the original MBB bag soon after opening. Fresh desiccant may be needed. Use the included humidity indicator card to verify <60% RH.

If an environment of <60% RH is not available for storage, XLamp ML & MX LEDs should be baked (described above) before reflow soldering.