Application Guidelines for Non-isolated Converters

AN11-003 Interchangeable Soldering of Different Generation DOSA™ POL Modules (TLynx™ 3G ↔ DLynx™ 4G)

Introduction

OmniOn Critical Power offers 4th generation DLynx products which have higher power and digital capability. Many customers design their PWB to accommodate both 3G (3rd generation) Pico Lynx module and the 4G (4th generation) DLynx modules to ensure product flexibility. This application note details the assembly process to solder the 3rd generation Pico TLynx modules onto the 4th generation Pico DLynx footprint.

Current View

A. 3G Modules vs. 4G modules

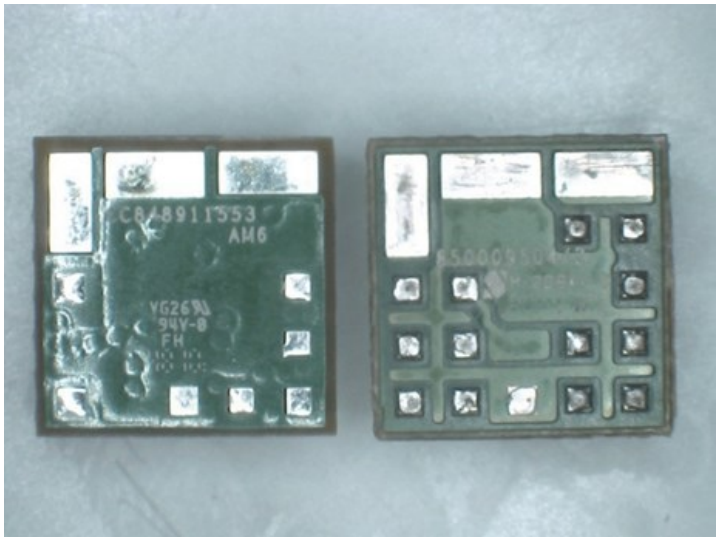


Figure 1. Bottom View of both modules

In general, the Pico Lynx products are designed such that the 3G product can be used with the 4G footprint. The pads of 3G are nested within the 4G footprint. The 3G module has 10 pads and the 4G module has 17 pads.

© 2023 OmniOn Power Inc. All rights reserved.

B. 3G Footprint versus 4G Footprint.

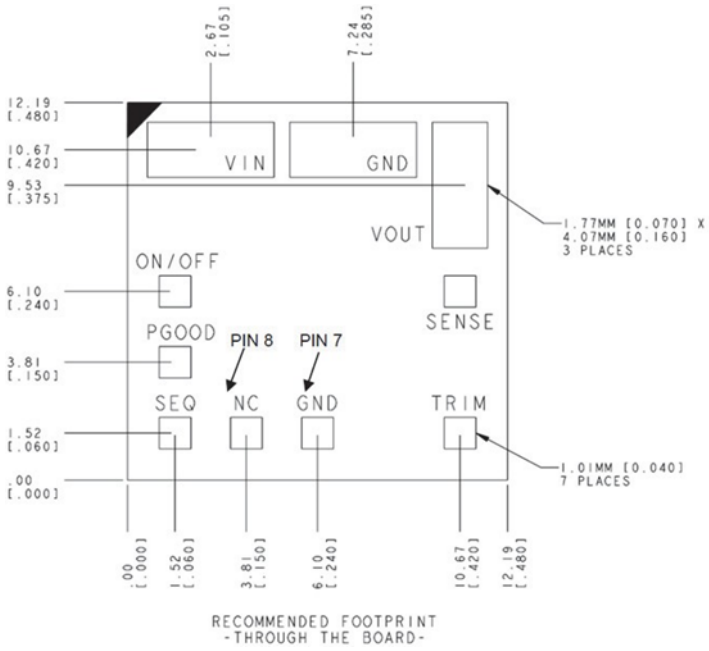


Figure 2. Footprint of 3G modules

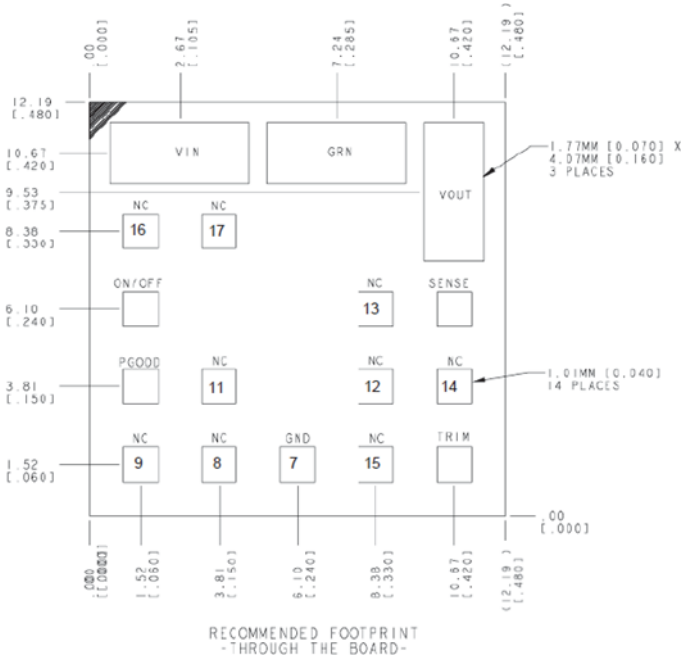


Figure 3. Footprint of 4G modules

All the output pads of 3G and 4G modules are matched with each other. All the signal pads are matched in size.

© 2023 OmniOn Power Inc. All rights reserved.

Soldering of 3G module onto 4G footprint

To assemble the 3G module on the 4G footprint, the customer only needs to design the stencil aperture opening based on the 3G footprint for the 3G module. This aperture opening will be at the PWB location where the 3G modules are employed in the customer PWB. It is preferred not to have any solder on the unused pads on the 4G footprint. Below is the recommended aperture opening for the 10 pads in the 3G module.

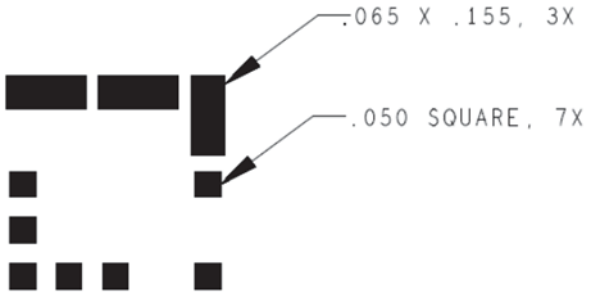


Figure 4. Recommended aperture opening for 3G module

Soldering of 4G module on to 4G footprint

To assemble 4G modules on to the 4G footprint, the customer only needs to design the stencil aperture opening based on the 4G footprint for that module. This aperture opening will be at the PWB location where the 4G modules are employed in the customer PWB. For 4G modules, the customer can use the same opening for the 3 large output pads (65 mils x 155 mils) and the 14 signal pads (50 mils square) as per Figure 4.

Soldering of 4G module on to 3G Footprint.

Because the 4G module of Pico Lynx has more pads than the current 3G footprint, the soldering of the 4G module onto 3G footprint shall be attempted after considering the following notes:

1. There shall not have any vias on the customer PWB which are corresponding to the modules pads. Otherwise, the modules can be shorted to these vias.
2. If there are no vias in the customer PWBs at the corresponding unused modules pad of the 4th generation module, the solder bumps at these unused pads of the module shall stay in place and not cause any solder joint reliability issues.

Contact Us

For more information, call us at

1-877-546-3243 (US)

1-972-244-9288 (Int'l)

© 2023 OmniOn Power Inc. All rights reserved.

OmniOn Power Inc.
601 Shiloh Rd.
Plano, TX USA

omnionpower.com

We reserve the right to make technical changes or modify the contents of this document without prior notice. OmniOn Power does not accept any responsibility for errors or lack of information in this document and makes no warranty with respect to and assumes no liability as a result of any use of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of OmniOn Power. This document does not convey license to any patent or any intellectual property right. Copyright© 2023 OmniOn Power Inc. All rights reserved.

© 2023 OmniOn Power Inc. All rights reserved.