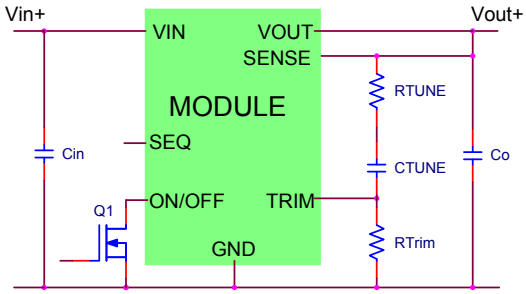
Data Sheet
April 7, 2011

# TLynx™: Non-Isolated DC-DC Power Modules:
## 2.4Vdc –5.5Vdc input; 0.6Vdc to 3.63Vdc output; 20A Output Current

**RoHS Compliant** **EZ-SEQUENCE™**

## Applications

- Distributed power architectures
- Intermediate bus voltage applications
- Telecommunications equipment
- Servers and storage applications
- Networking equipment
- Industrial equipment




## Features

- Compliant to RoHS EU Directive 2002/95/EC (Z versions)
- Compatible in a Pb-free or SnPb reflow environment (Z versions)
- Wide Input voltage range (2.4Vdc-5.5Vdc)
- Output voltage programmable from 0.6Vdc to 3.63 Vdc via external resistor
- Tunable Loop™ to optimize dynamic output voltage response
- Flexible output voltage sequencing EZ-SEQUENCE – APTH versions
- Remote sense
- Fixed switching frequency
- Output overcurrent protection (non-latching)
- Overtemperature protection
- Remote On/Off
- Ability to sink and source current
- Cost efficient open frame design
- Small size: 13.5 mm x 33.0 mm x 8.5 mm (0.53 in x 1.3 in x 0.334 in)
- Wide operating temperature range (-40°C to 85°C)
- US and Canadian Recognized to *UL** 60950-1 and *CSA*† C22.2 No. 60950-1-03 and *VDE*‡ licensed to 0805:2004-09 (EN60950-1)
- ISO** 9001 and ISO 14001 certified manufacturing facilities

## Description

The TLynx™ series of power modules are non-isolated dc-dc converters that can deliver up to 20A of output current. These modules operate over a wide range of input voltage ($V_{IN}$ = 2.4Vdc-5.5Vdc) and provide a precisely regulated output voltage from 0.6Vdc to 3.63Vdc, programmable via an external resistor. Features include remote On/Off, adjustable output voltage, over current and overtemperature protection, and output voltage sequencing (APTH versions). A new feature, the Tunable Loop™, allows the user to optimize the dynamic response of the converter to match the load with reduced amount of output capacitance leading to savings on cost and PWB area.

* *UL* is a registered trademark of Underwriters Laboratories, Inc.
† *CSA* is a registered trademark of Canadian Standards Association.
‡ *VDE* is a trademark of Verband Deutscher Elektrotechniker e.V.
** ISO is a registered trademark of the International Organization of Standards

## Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only, functional operation of the device is not implied at these or any other conditions in excess of those given in the operations sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect the device reliability.

| Parameter | Device | Symbol | Min | Max | Unit |
|---|---|---|---|---|---|
| Input Voltage<br>Continuous | All | $V_{IN}$ | -0.3 | 6 | Vdc |
| Sequencing Voltage | APTH | $V_{SEQ}$ | -0.3 | $V_{iN, Max}$ | Vdc |
| Operating Ambient Temperature<br>(see Thermal Considerations section) | All | $T_A$ | -40 | 85 | °C |
| Storage Temperature | All | $T_{stg}$ | -55 | 125 | °C |

## Electrical Specifications

Unless otherwise indicated, specifications apply over all operating input voltage, resistive load, and temperature conditions.

| Parameter | Device | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Operating Input Voltage | All | $V_{IN}$ | 2.4 | — | 5.5 | Vdc |
| Maximum Input Current<br>($V_{IN}$=2.4V to 5.5V, $I_O$=$I_{O, max}$ ) | All | $I_{IN,max}$ | | | 19.5 | Adc |
| Input No Load Current<br>($V_{IN}$ = 5.0Vdc, $I_O$ = 0, module enabled) | $V_{O,set}$ = 0.6 Vdc<br>$V_{O,set}$ = 3.3Vdc | $I_{IN,No\ load}$<br>$I_{IN,No\ load}$ | | 47<br>52 | | mA<br>mA |
| Input Stand-by Current<br>($V_{IN}$ = 5.0Vdc, module disabled) | All | $I_{IN,stand\text{-}by}$ | | 5 | | mA |
| Inrush Transient | All | $I^2t$ | | | 1 | $A^2s$ |
| Input Reflected Ripple Current, peak-to-peak (5Hz to 20MHz, 1μH source impedance; $V_{IN}$ =0 to 5.5V, $I_O$= $I_{Omax}$ ; See Test Configurations) | All | | | 12 | | mAp-p |
| Input Ripple Rejection (120Hz) | All | | | 43 | | dB |

**CAUTION: This power module is not internally fused. An input line fuse must always be used.**

This power module can be used in a wide variety of applications, ranging from simple standalone operation to an integrated part of sophisticated power architecture. To preserve maximum flexibility, internal fusing is not included; however, to achieve maximum safety and system protection, always use an input line fuse. The safety agencies require a fast-acting fuse with a maximum rating of 20A (see Safety Considerations section). Based on the information provided in this data sheet on inrush energy and maximum dc input current, the same type of fuse with a lower rating can be used. Refer to the fuse manufacturer's data sheet for further information.