

12A Digital Pico DLynx™: Non-Isolated DC-DC Power Modules

3Vdc –14.4Vdc input; 0.45Vdc to 5.5Vdc output; 12A Output Current

TUNABLE
LOOP[™]
A LINEAGE POWER TRADEMARK

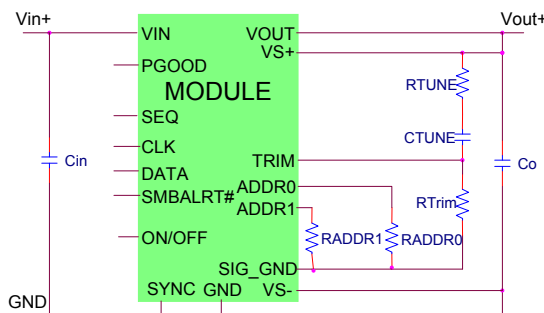
PMBus



RoHS Compliant

Applications

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



Description

The 12A Digital Pico DLynx™ power modules are non-isolated dc-dc converters that can deliver up to 12A of output current. These modules operate over a wide range of input voltage ($V_{IN} = 3Vdc-14.4Vdc$) and provide a precisely regulated output voltage from 0.45Vdc to 5.5Vdc, programmable via an external resistor and PMBus control. Features include a digital interface using the PMBus protocol, remote On/Off, adjustable output voltage, over current and overtemperature protection. The PMBus interface supports a range of commands to both control and monitor the module. The module also includes the Tunable Loop™ feature that 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

The PMBus name and logo are registered trademarks of the System Management Interface Forum (SMIF)

Features

- Compliant to RoHS EU Directive 2002/95/EC (Z versions)
- Compatible in a Pb-free or SnPb reflow environment (Z versions)
- Compliant to IPC-9592 (September 2008), Category 2, Class II
- DOSA based
- Wide Input voltage range (3Vdc-14.4Vdc)
- Output voltage programmable from 0.45Vdc to 5.5Vdc via external resistor and PMBus™#
- Digital interface through the PMBus™# protocol
- Tunable Loop™ to optimize dynamic output voltage response
- Flexible output voltage sequencing EZ-SEQUENCE
- Power Good signal
- Fixed switching frequency with capability of external synchronization
- Output overcurrent protection (non-latching)
- Overtemperature protection
- Remote On/Off
- Ability to sink and source current
- Cost efficient open frame design
- Small size: 12.2 mm x 12.2 mm x 8.5 mm (0.48 in x 0.48 in x 0.335 in)
- Wide operating temperature range [-40°C to 85°C]
- UL* 60950-1 Recognized, CSA† C22.2 No. 60950-1-03 Certified, and VDE‡ 0805:2001-12 (EN60950-1) Licensed
- ISO** 9001 and ISO 14001 certified manufacturing facilities

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 Continuous	All	V_{IN}	-0.3	15	V
SEQ, SYNC, VS+	All			7	V
CLK, DATA, SMBALERT	All			3.6	V
Operating Ambient Temperature (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}	3	—	14.4	Vdc
Maximum Input Current ($V_{IN}=3V$ to $14V$, $I_O=I_{O,max}$)	All	$I_{IN,max}$			9	Adc
Input No Load Current ($V_{IN} = 12Vdc$, $I_O = 0$, module enabled)	$V_{O,set} = 0.6 Vdc$	$I_{IN,No load}$		52		mA
	$V_{O,set} = 5Vdc$	$I_{IN,No load}$		85		mA
Input Stand-by Current ($V_{IN} = 12Vdc$, module disabled)	All	$I_{IN,stand-by}$		6.5		mA
Inrush Transient	All	I^2t			1	A ² s
Input Reflected Ripple Current, peak-to-peak (5Hz to 20MHz, 1 μ H source impedance; $V_{IN} = 0$ to 14V, $I_O = I_{O,max}$; See Test Configurations)	All			400		mAp-p
Input Ripple Rejection (120Hz)	All			-55		dB