

20A Digital Micro DLynx™: Non-Isolated DC-DC Power Modules

3Vdc –14.4Vdc input; 0.45Vdc to 5.5Vdc output; 20A Output Current

TUNABLE
LOOP™
A LINEAGE POWER

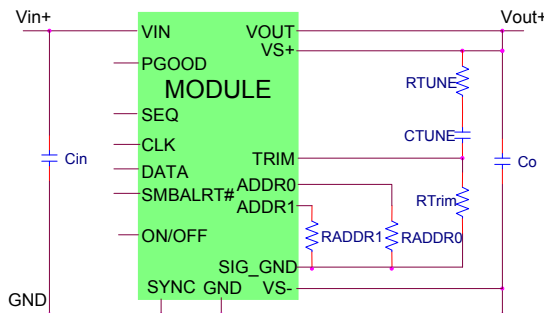
PMBus™



RoHS Compliant

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)
- 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 over current protection (non-latching)
- Over temperature protection
- Remote On/Off
- Ability to sink and source current
- Cost efficient open frame design
- Small size: 20.32 mm x 11.43 mm x 8.5 mm (0.8 in x 0.45 in x 0.334 in)
- Wide operating temperature range [-40°C to 85°C]
- UL* 60950-1 2nd Ed. Recognized, CSA† C22.2 No. 60950-1-07 Certified, and VDE‡ (EN60950-1 2nd Ed.) Licensed
- ISO** 9001 and ISO 14001 certified manufacturing facilities

Description

The 20A Digital Micro DLynx™ 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 ($V_{IN} = 3Vdc-14.4Vdc$) and provide a precisely regulated output voltage from 0.6Vdc 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 over temperature 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

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	$I_{IN,max}$			19	Adc
Input No Load Current ($V_{IN} = 12Vdc$, $I_O = 0$, module enabled)	$V_{O,set} = 0.6 Vdc$	$I_{IN,No load}$		69		mA
	$V_{O,set} = 5Vdc$	$I_{IN,No load}$		134		mA
Input Stand-by Current ($V_{IN} = 12Vdc$, module disabled)	All	$I_{IN,stand-by}$		16.4		mA
Inrush Transient	All	I^2t			1	A ² s
Input Reflected Ripple Current, peak-to-peak (5Hz to 20MHz, 1μH source impedance; $V_{IN} = 0$ to 14V, $I_O = I_{O,max}$; See Test Configurations)	All			50		mAp-p
Input Ripple Rejection (120Hz)	All			-64		dB