

9-36V ProLynx™ 5A: Non-Isolated DC-DC Power Modules

9Vdc –36Vdc input; 3Vdc to 18Vdc output; 5A to 2.5A Scaled output current

9Vdc –24Vdc input; -3.3Vdc to -18Vdc output¹; 5A to 0.7A Scaled output current

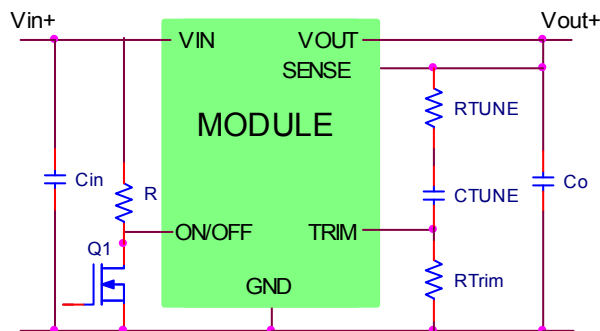
**TUNABLE
LOOP™**
A LINEAGE POWER TRADEMARK



RoHS Compliant

Applications

- Industrial equipment
- Distributed power architectures
- Intermediate bus voltage applications
- Telecommunications equipment



Description

The 9-36V ProLynx™ series of power modules are non-isolated dc-dc converters that can deliver up to 5A of output current. These modules operate over an extra wide range of input voltage ($V_{IN} = 9\text{Vdc} - 36\text{Vdc}$) and provide a precisely regulated output voltage from 3Vdc to 18Vdc, programmable via an external resistor. Two new features added with this family of products are the ability to externally tune the voltage control loop and a variable current limit inversely dependent on output voltage. Other features include remote On/Off, adjustable output voltage, over current and over temperature protection. The Ruggedized version (-D) is capable of operation up to 105°C and withstand high levels of shock and vibration. 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 and AutoLimit enables the module to deliver the max possible output power across the entire voltage range. The 9-36V ProLynx can also be used for negative output voltage loads through the use of a specific application schematic

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
- Extra Wide Input voltage range (9Vdc–36Vdc)
- Output voltage programmable from 3Vdc to 18 Vdc via external resistor
- Tunable Loop™ to optimize dynamic output voltage response
- Patent Pending AutoLimit automatic scaling of current limit with output voltage
- Output overcurrent protection (non-latching)
- Overtemperature protection
- Remote On/Off
- Remote Sense
- Small size: 20.3 mm x 11.4 mm x 8.5 mm (0.8 in x 0.45 in x 0.335 in)
- Wide operating temperature range [-40°C to 105°C(Ruggedized: -D), 85°C(Regular)]
- 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

* 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

¹ Output range linked to input voltage range see page 24

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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	37	V
Operating Ambient Temperature (see Thermal Considerations section)	All -D version	T_A T_A	-40 -40	85 105	°C °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}	9	—	36	Vdc
Maximum Input Current ($V_{IN}=9V$ to 36V, $I_o=I_{o,max}$)	All	$I_{IN,max}$			5	Adc
Input No Load Current ($V_{IN} = 28V$, $I_o = 0$, module enabled)	$V_{O,set} = 3Vdc$	$I_{IN,No\ load}$		26		mA
($V_{IN} = 28V$, $I_o = 0$, module enabled)	$V_{O,set} = 18Vdc$	$I_{IN,No\ load}$		50		mA
Input Stand-by Current ($V_{IN} = 28Vdc$, module disabled)	All	$I_{IN,stand-by}$		3		mA
Inrush Transient	All	I^2t			0.5	A ² s
Input Reflected Ripple Current, peak-to-peak (5Hz to 20MHz, 1 μ H source impedance; $V_{IN} = 0$ to 36V, $I_o = I_{o,max}$; See Test Configurations)	All				95	mAp-p
Input Ripple Rejection (120Hz)	All		-24	-45	-60	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 8 A (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.