

## FEATURES:

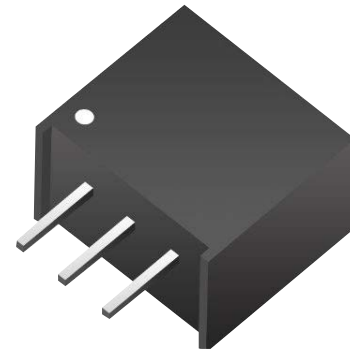
- 3 pin SIP package
- Pin-out compatible with LM78XX Linear
- Efficiency up to 97%, Non isolated, no need for heatsink
- Customized Solutions Available
- UL94V-0 Package Material
- Short circuit protection, thermal shutdown
- UL Recognized

## DC-DC Converter NL1-P5 Series

Non-Isolated  
Single Output  
0.45"×0.3"×0.4"

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Input Voltage Range	Output Voltage	Output Current	Efficiency	
	Vdc	Vdc	mA	Min.Vin(%)	Max.Vin(%)
NL1-3P3-P5	4.75~34	3.3	500	91	81
NL1-05-P5	6.5~34	5	500	94	86

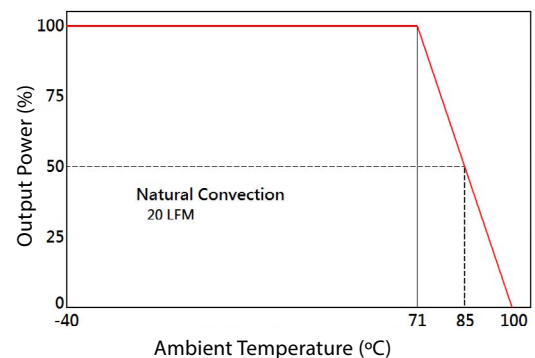


### Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance				±3	%
Short Circuit Protection	Hiccup, automatic recovery				
Line Regulation	1.5V to 6.5V			0.4	%
	9V to 15.5V			0.2	%
Load Regulation	1.5V to 6.5V (10% To 100% F.L.)			0.6	%
	9V to 15.5V (10% To 100% F.L.)			0.4	%
Ripple & Noise (Without Output Capacitor)	1.5V to 6.5V (BW=DC To 20MHz)			30	mVp-p
	9V to 15.5V (BW=DC To 20MHz)			40	mVp-p
Transient Response Setting Time	25% load step change		350		us



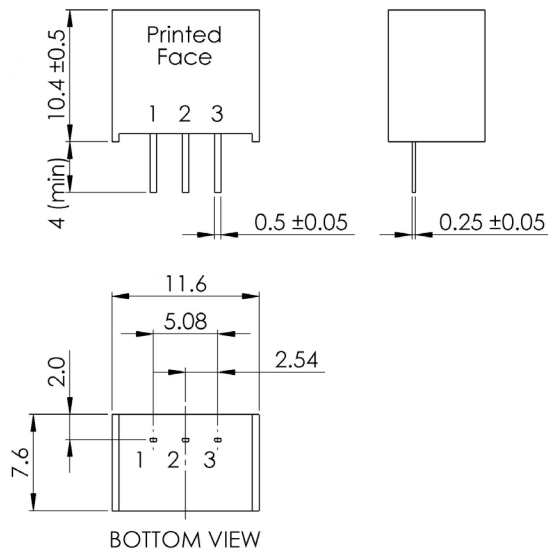
### Temperature Derating Graph



## General Specifications

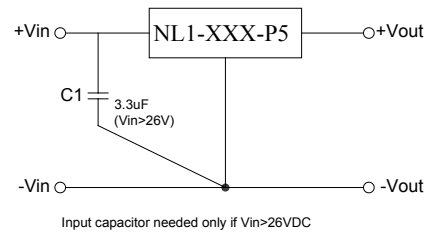
Parameters	Conditions	Min	Typ	Max	Units
Switching Frequency			330		KHz
Operation Temperature	With derating	-40		+85	°C
Humidity	Non Condensing			95	%
Cooling	Natural Convection (20LFM)				
Case material	Non-Conductive Black Plastic				
Weight			2.0		g
Dimensions			11.6x7.6x10.4		mm
MTBF(+25°C)	using MIL-HDBK 217F		21098x10 <sup>3</sup>		hours
MTBF(+71°C)	using MIL-HDBK 217F		4212x10 <sup>3</sup>		hours

## Markings and Dimensions



UNIT: mm  
Tolerance: XX.X ± 0.5, XX.XX ± 0.25,

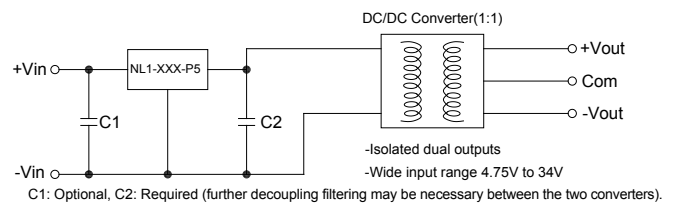
## Application Examples



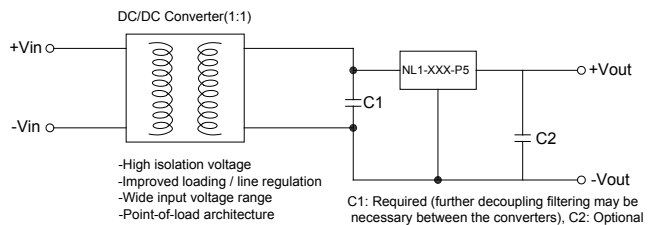
Add a blocking diode to Vout if current can flow backwards into the output, as this can damage the converter when it is powered down. See Application Examples for details.

## Application Examples

High efficiency, isolated, dual unregulated outputs



Isolated (up to 6KV), wide input range regulated output



## Part Number

$\frac{NL1}{A} - \frac{XXX}{B} - \frac{P5}{C}$

A: Series  
B: Output Voltage  
C: Output Current

## PIN Connection

PIN	1	2	3
Function	+Vin	GND	+Vout