

## NXI150 Series

### Single output

**Input Voltage:** 11 - 12.6VDC  
**# of Outputs:** Single

### Special Features

- Meets VRM9.1 specification
- Microprocessor voltage identification input
  - 5 Bit VID input
  - 1.10 Vdc to 1.85 Vdc in 25 mV steps
- Up to 50 A/ $\mu$ s load transient
- Democratic current sharing, no need for master/slave configuration
- Remote sense for improved load regulation
- Vertical plug-in to standard motherboard connector with or without retention latch
- Available RoHS compliant
- 2 year warranty



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The NXI150 non-isolated dc-dc converter is designed to meet the exceptionally fast transient response requirements of today's microprocessors and fast switching logic in a compact size at a very affordable price. Advanced circuit techniques, component selection and placement optimization, state-of-the-art thermal packaging, and Surface Mount Technologies provide a high power density, highly reliable, and very precise voltage regulation system for advanced microprocessors. Multi-phase power conversion techniques allow the NXI converters to lead the industry with regard to conversion efficiency without adding unnecessary complexity. On-board active current sharing circuit guarantees the current sharing specification is met during static and dynamic load conditions.

# Specifications

All specifications are typical at nominal input, full load at 25°C unless otherwise stated.

## OUTPUT SPECIFICATIONS

Voltage adjustability		1.10-1.85 Vdc
Output setpoint accuracy	Vout	±0.8%
Ripple and noise (See Notes 1 and 2)	20 MHz bandwidth	15 mV pk-pk
Transient response peak dev. settling time	See Note 3	50 mV 25 μs
Short-circuit protection		Continuous current limit, foldback automatic recovery

## INPUT SPECIFICATIONS

Input voltage range	12 Vin nominal	11.0-12.6 Vdc
Input current	Operation No load Remote OFF	16.2 A max. 250 mA 45 mA max.
UVLO turn ON voltage UVLO turn OFF Voltage		10.45 V typ. 8.55 V typ.
Start-up time	Nominal line	10 ms max.
OUTEN Logic compatibility ON OFF	Open circuit	Ref. to -input >1.8 Vdc <0.8 Vdc

## GENERAL CHARACTERISTICS

Efficiency	1.5 V output @ 65 A	85%
Switching frequency	Fixed (See Note 4)	1 MHz
Standards		94V-0 Flammability rating
Weight		70 g (2.46 oz)
MTBF	Telcordia SR-332	1,800,000 hours
Mating connector		(See Note 5)

## ENVIRONMENTAL SPECIFICATIONS

Maximum temperature shock	Operating	5 °C/10 min.
Temperature shock	Operating Non-operating	10 °C/hour 20 °C/hour
Humidity (Non-condensing)	Operating Storage	85% RH 95% RH
Altitude	Operating Storage	10,000 feet max. 50,000 feet max.
Shock	Operational and non-operational	50 G 11 ms, half sine wave
Vibration (See Note 6)	Operational and non-operational	0.02 G <sup>2</sup> /Hz max.
Electrostatic discharge IEC61000-4-2 (See Note 7)	Operating non-operating	ESD 15 kV ESD 25 kV
Thermal performance (See Note 8)	Operating ambient temperature non-operating	0 °C to +60 °C -40 °C to +100 °C

## Specifications Contd.

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INPUT VOLTAGE	OUTPUT VOLTAGE	OVP	OUTPUT CURRENT (MIN)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGULATION LOAD	MODEL NUMBER <sup>(9,10)</sup>
12 Vdc	1.10-1.85 Vdc	120% of VID setting	0 A	81 A	85%	0.95 mV/A	NXI150-12P1V8CY

TABLE 1: PIN CONNECTIONS

PIN NO.	FUNCTION	PIN NO.	FUNCTION
1	Vin+	62	Vin-
2	Vin+	61	Vin-
3	Vin+	60	Vin-
4	Vin+	59	Vin-
5	Reserved	58	VRM-pres
6	Key	57	VID4
7	VID3	56	VID2
8	VID1	55	VID0
9	Reserved	54	Ishare
10	PWRGD	53	OUTEN
11	Vo sen-	52	Vo sen+
12	Reserved	51	Reserved
13	Vo-	50	Vo+
14	Vo+	49	Vo+
15	Vo-	48	Vo-
16	Vo+	47	Vo+
17	Vo-	46	Vo-
18	Vo+	45	Vo+
19	Vo-	44	Vo-
20	Vo+	43	Vo+
21	Vo-	42	Vo-
22	Vo+	41	Vo+
23	Vo-	40	Vo-
24	Vo+	39	Vo+
25	Vo-	38	Vo-
26	Vo+	37	Vo+
27	Vo-	36	Vo-
28	Vo+	35	Vo+
29	Vo-	34	Vo-
30	Vo+	33	Vo+
31	Vo-	32	Vo-

TABLE 2 : VOLTAGE IDENTIFICATION (VID) CODES

VID4	VID3	VID2	VID1	VID0	VDAC
1	1	1	1	1	Off
1	1	1	1	0	1.100
1	1	1	0	1	1.125
1	1	1	0	0	1.150
1	1	0	1	1	1.175
1	1	0	1	0	1.200
1	1	0	0	1	1.225
1	1	0	0	0	1.250
1	0	1	1	1	1.275
1	0	1	1	0	1.300
1	0	1	0	1	1.325
1	0	1	0	0	1.350
1	0	0	1	1	1.375
1	0	0	1	0	1.400
1	0	0	0	1	1.425
1	0	0	0	0	1.450
0	1	1	1	1	1.475
0	1	1	1	0	1.500
0	1	1	0	1	1.525
0	1	1	0	0	1.550
0	1	0	1	1	1.575
0	1	0	1	0	1.600
0	1	0	0	1	1.625
0	1	0	0	0	1.650
0	0	1	1	1	1.675
0	0	1	1	0	1.700
0	0	1	0	1	1.725
0	0	1	0	0	1.750
0	0	0	1	1	1.775
0	0	0	1	0	1.800
0	0	0	0	1	1.825
0	0	0	0	0	1.850

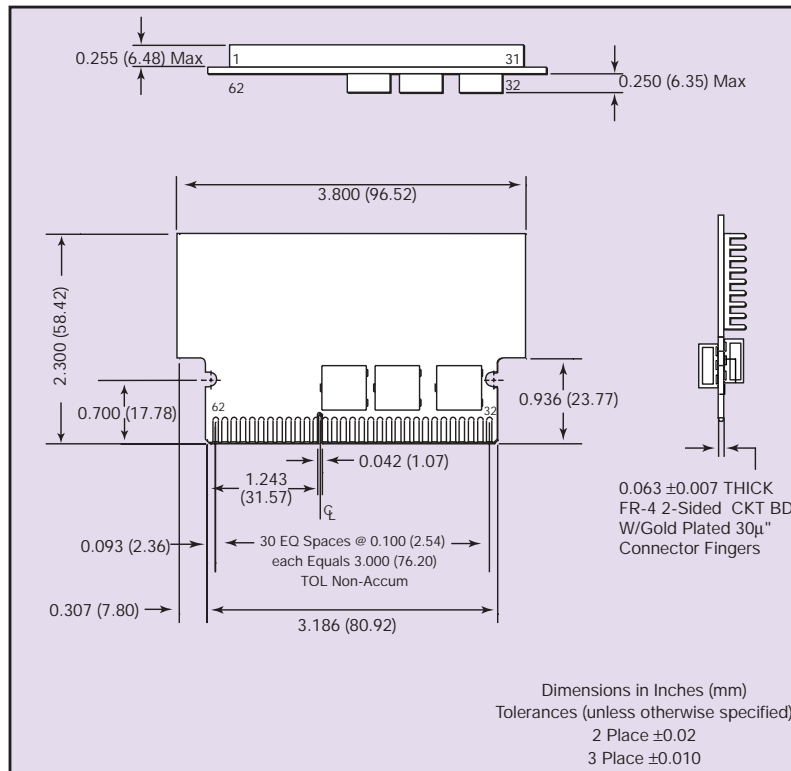


Figure 1: Mechanical Drawing

## Notes

- 1 Recommended output capacitance, 8 x 560  $\mu$ F/4 V OSCON and 10 x 4.7  $\mu$ F/6.3 V MLCC.
- 2 15 mV pk-pk ripple.  $V_{in}$  = 12 V,  $V_{out}$  = 1.5 V,  $I_{out}$  = 65 A.
- 3 125 mV peak deviation when slewing load from no load to full load at 50 A/ $\mu$ s. Recommended capacitors (per Note 1) required across output.
- 4 Each phase operates at a fixed 250 kHz. Effective fundamental output frequency is 1 MHz / 4 phases each at 250 kHz interleaved.
- 5 Recommended mating connector is AMP 1489162-1 or equivalent.
- 6 From 5 Hz to 20 Hz, maintaining 0.02 G<sup>2</sup>/Hz from 20 Hz to 500 Hz, all axes.
- 7 When included in the users system ESD event shall cause no out-of-regulation conditions.
- 8 Please consult your local application support for: Longform Datasheet and Application Note for the de-rating curves
- 9 The 'Y' suffix indicates that these parts are TSE RoHS 5/6 (non Pb-free) compliant.
- 10 NOTICE: Some models do not support all options. Please contact your local Artesyn representative or use the on-line model number search tool at <http://www.artesyn.com/powergroup/products.htm> to find a suitable alternative.

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