NXI110 Series

Single output, 5 Bit Selectable (Non-Isolated)

ARTESYN TECHNOLOGIES

- **Meets VRM9.0 specification**
- **High efficiency: 84% typical @ Vin = 12V, Vout = 1.7V, Iout = 60A**
- **Multi-phase power conversion**
- **Microprocessor voltage identification input**
  - **5 Bit VID input**
  - **1.10V to 1.85V in 25mV steps**
- **Remote enable pin**
- **Power good signal**
- **True double ended differential remote sense**
- **Democratic current sharing, no need for master/slave configuration**
- **Up to 50A/µsec load transient no load to full load, recovery within 50µsec**
- **Overcurrent and short circuit protection**
- **Overvoltage protection with on board fuse**
- **Vertical plug-in to standard motherboard connector**
- **No minimum load requirement**

The NXI110 non-isolated DC/DC converters are 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 unneccesary complexity. **VRM9.0** specification compliant without the need for expensive external components. On board active current sharing circuit guarantees the current sharing specification is met both during both static and dynamic load conditions.

2 YEAR WARRANTY

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

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability		See table
Set point accuracy	Vout	±0.8%
Ripple and noise (See Note 1)	20MHz bandwidth	15mV pk-pk
Transient response peak dev. settling time	(See Note 2)	125mV 50µs
Short circuit protection		Continuous automatic recovery

INPUT SPECIFICATIONS

Input voltage range	12Vin nominal	11.0 to 13.2VDC
Input current	No load Remote OFF	300mA 40mA max.
UVLO turn ON voltage UVLO turn OFF voltage		10.8V typ. 9.5V typ.
Start-up time	Nominal line	10ms
Active high remote ON/OFF Logic compatibility ON OFF	 Open circuit voltage	 Ref. to -input 5.0VDC 0.8VDC max.

GENERAL SPECIFICATIONS

Efficiency	1V7, 1V85 output @ 60A 1V10 output @ 60A	84% 76%
Switching frequency	Fixed (See Note 3)	900kHz
Standards	94V-0 Flammability rating	
Weight		75g (2.64 oz)
MTBF	Bellcore TR-332	2,000,000 hours
Mating connector		(See Note 4)

ENVIRONMENTAL SPECIFICATIONS

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

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INPUT VOLTAGE	NOMINAL OUTPUT VOLTAGE	NOMINAL OUTPUT CURRENT	TYPICAL EFFICIENCY	MODEL NUMBER
12VDC	See Table 2	60A	84%	NXI110-12P1V8C

Notes

1. 15mV pk-pk ripple with no external output filtering. Vin = 12V, Vout = 1.6V, Iout = 60A.
2. 125mV peak deviation when slewing load from no load to full load at 50A/µsec. Oscon type low impedance caps required across output.
3. Each phase operates at a fixed 225kHz. Effective fundamental output frequency is 900kHz / 4 phases each at 225kHz interleaved.
4. Recommended mating connector is AMP 1364125-1 or equivalent.
5. From 5Hz to 20Hz, maintaining $0.02G^2$/Hz from 20Hz to 500Hz, all axes.
6. Initilization level; ESD event shall cause no out-of-regulation conditions.
7. Requires 400LFM forced air over the converter. Ensure the thermal reference point (see figure 2) is kept below 95°C to maintain the reliability of the converter.

TABLE 1 : PIN CONNECTIONS

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

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

Mechanical Notes

1 All dimensions in INCHES (mm).

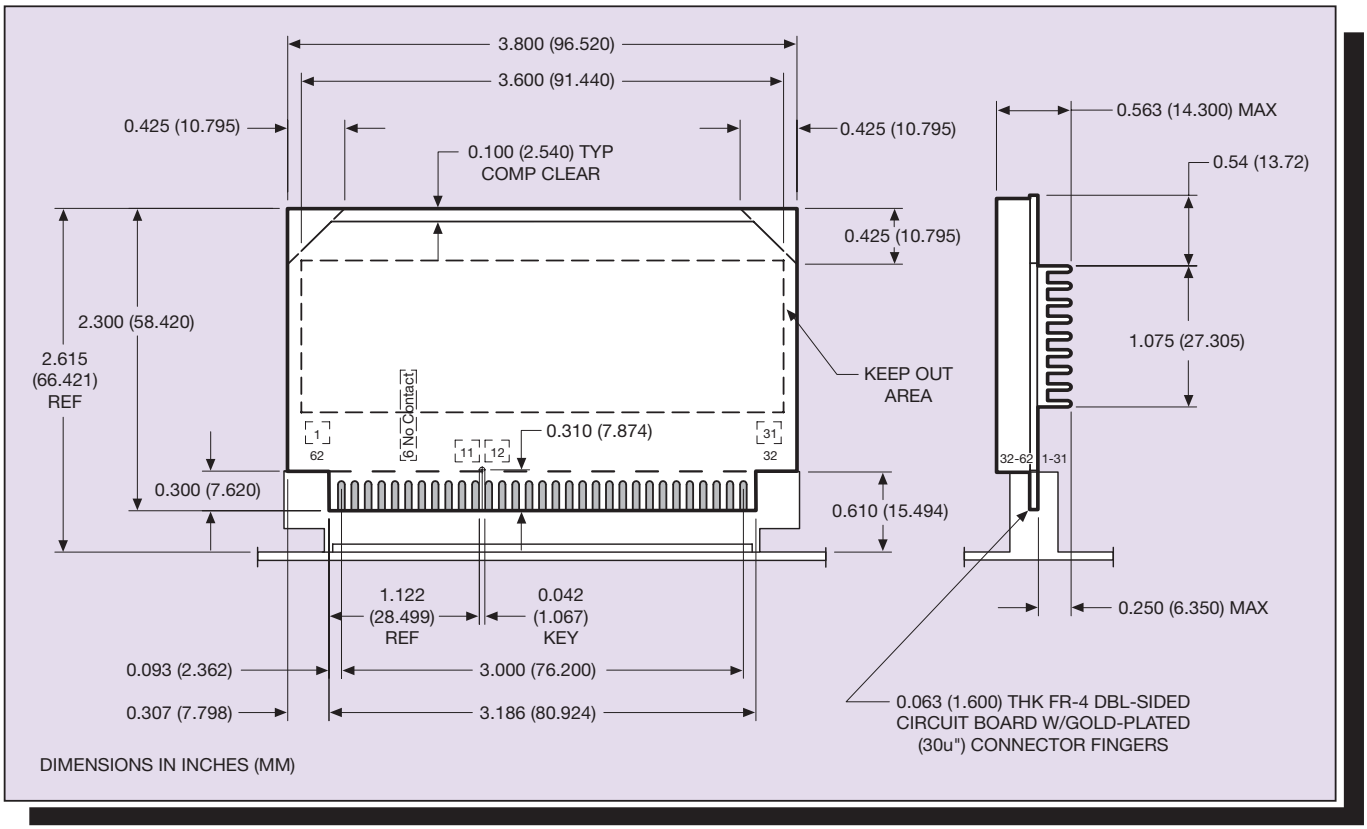

Figure 1: **Mechanical Drawing**

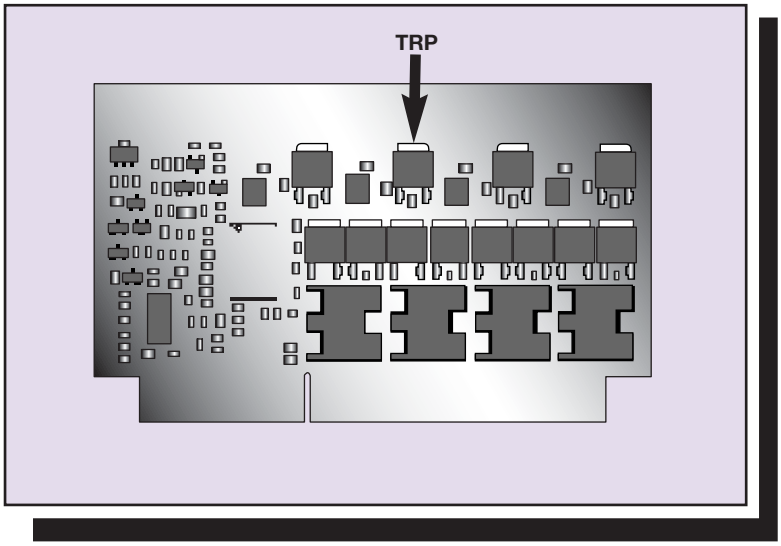

Figure 2:
Thermal Reference Point (TRP) - Monitor Tab Indicated

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