SERIES: NDM2P-50H | DESCRIPTION: AUTO COMPENSATED, DIGITAL DC-DC POL CONVERTER

GENERAL CHARACTERISTICS

- 4.5~14 V input range
- 0.6~3.3 V programmable output
- voltage tracking
- voltage margining
- active current sharing
- real-time adaptive loop compensation
- voltage/current/temperature monitoring
- synchronization and phase spreading
- remote differential voltage sense
- programmable soft start and soft stop
- fault management

FEATURES

- compact package
  horizontal:
  30.85 x 20.0 x 11.2 mm
  (1.215 x 0.787 x 0.441 in)
  vertical (SIP):
  33.0 x 7.6 x 18.1 mm
  (1.30 x 0.30 x 0.713 in)
- 50 A output
- high efficiency
- auto compensation
- SMBus interface
- PMBus™ Compatible

RoHS PMBus

novum advanced power

MODEL

MODEL	input voltage (Vdc)	output voltage (Vdc)	output current max (A)	output wattage max (W)
NDM2P-50H	4.5~14	0.6~3.3	50	165

PART NUMBER KEY

NDM2P-50H **X** - **X** **X** - **XXX**

- Base Number
- Pin Style:
  S = surface-mount
  T = through-hole
- Pin Configuration:
  A = standard configuration
- Package Option:
  A = loose parts
  B = tape and reel
  C = tray
- Firmware Configuration:
  000~ZZZ

Example part number: **NDM2P-50HT-AA-002**

horizontal module
through-hole pins
standard pin configuration
loose parts package option
firmware configuration 002

CONTENTS

Recommended Operating Conditions.....2
Pin Descriptions.....3

RECOMMENDED OPERATING CONDITIONS

-30°C < T_{P1} < +95°C, 4.5 V < V_{in} < 14 V, typical measurements made at V_{in} = 12 V, V_{out} = 1.0 V, I_{out} = I_{MAX}, T_{P1} = 25°C, C_{in} = 470 µF/10 mΩ, Cout = 470 µF/8 mΩ

INPUT / OUTPUT

parameter	conditions/description	min	typ	max	units
V_{in}	input supply voltage	4.5		14	V
I_{out}	output current	0		50	A
V_{out}	adjustable via resistor or PMBus™ commands	0.6		3.3	V
V_{out} margin	adjustable via PMBus commands	0.6		3.63	V
voltage accuracy	over line, load and temperature measured at +S and -S	-1		1	%
voltage set-point resolution	when V_{out} set via PMBus commands		2.7		mV
voltage ripple and noise	V_{out} = 0.6 V V_{out} = 1.0 V V_{out} = 1.8 V V_{out} = 3.3 V		16 22 26 28		mVp-p
ramp-up rate	adjustable via PMBus commands	0.04		10	V/ms
on time delay	adjustable via PMBus commands	10		1,000	ms
load transient voltage deviation	I_{out}: 25%→75%→25% of I_{max}, dI/dt=2 A/µs V_{out} = 0.6 V V_{out} = 1.0 V V_{out} = 1.8 V V_{out} = 3.3 V		 80 80 85 105		mV
load transient recovery time[1]	I_{out}: 25%→75%→25% of I_{max}, dI/dt=2 A/µs V_{out} = 0.6 V V_{out} = 1.0 V V_{out} = 1.8 V V_{out} = 3.3 V		 30 25 20 20		µs

Notes: 1. settling to within 3% of V_{out}

POWER / EFFICIENCY

parameter	conditions/description		min	typ	max	units
output power	V_{out} = 3.3 V + 10% margin		0		181.5	W
efficiency	I_{out} = 50% of max	V_{out} = 0.6 V V_{out} = 1.0 V V_{out} = 1.8 V V_{out} = 3.3 V		86.5 90.7 93.1 94.5		%
	I_{out} = max	V_{out} = 0.6 V V_{out} = 1.0 V V_{out} = 1.8 V V_{out} = 3.3 V		81.5 87.1 90.1 92.3		%

POWER CONNECTIONS

symbol	pin	IO type	description
VOUT	1~3	Power	Output voltage
GND	4~7	Ground	Power ground
VIN	8~9	Power	Input voltage

COMMUNICATION CONNECTIONS

symbol	pin	IO type	description
SA1	10	Digital	SMBus address pinstrap 1
SA0	11	Digital	SMBus address pinstrap 0
DSS	12	Digital	Digital Stress Share
SYNC	13	Digital	Synchronization I/O
VTRK	14	Analog	Voltage tracking input
VSET	15	Digital	Output voltage pin-strap
CONFIG	16	Analog	Configuration table selector
-S	17	Analog	Output voltage negative sense input
+S	18	Analog	Output voltage positive sense input
PREF	19	Ground	Pin-strap ground
PG	20	Digital	Power Good
SYSG	21	Digital	System functioning properly
CTRL	22	Digital	Remote control or enable pin
SALERT	23	Digital	SMBus alert
SDA	24	Digital	SMBus data
SCL	25	Digital	SMBus clock

REVISION HISTORY

rev.	description	date
0.9	preliminary release	09/12/2012

The revision history provided is for informational purposes only and is believed to be accurate.

Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com