C&D TECHNOLOGIES
Power Solutions

NMT SERIES

Triple Output 3W DC-DC Converters

FEATURES

- Triple Outputs (–24V, –48V & –72V)
- Toroidal Magnetics
- Input/Output Isolation 1kVDC
- Power Sharing on Outputs
- Internal SMD Construction
- Industrial Temperature Range
- No External Components Required
- Power Density 1.41W/cm^3
- UL 94V-0 Package Material

DESCRIPTION

The NMT series is a range of DC-DC converters offering three output voltages of –24V, –48V and –72V from a single isolated 5V or 12V input voltage. The product is designed for use with telecommunications circuits requiring an on board supply for the –72V RING-TIP connection service generated from a nominal 5V or 12V DC input supply rail. The device also offers battery level voltages of –24V and –48V for access control and data pump IC's. The product is packaged in an 8 pin SIP case for minimum PCB footprint. The rated power may be shared or drawn from any one output providing the total output load does not exceed 3W.

www.dc-dc.com

SELECTION GUIDE

	Nominal Input Voltage	Output	Rated Output Voltage	Output Current[2] MIN Load	Output Current[2] Full Load	Output Current[3] MIN Load	Output Current[3] Full Load	MTTF[1]
Order Code	(V)		V	(mA)	(mA)	(mA)	(mA)	kHrs
NMT0572S	5	VO1	–24	1.4	42	4.2	126	145
		VO2	–48	0.7	21	2.1	63	
		VO3	–72	0.5	14	1.4	42	
NMT1272S	12	VO1	–24	1.4	42	4.2	126	145
		VO2	–48	0.7	21	2.1	63	
		VO3	–72	0.5	14	1.4	42	

When operated **with** additional external load capacitance the rise time of the input voltage will determine the maximum external capacitance value for guaranteed start up. The slower the rise time of the input voltage the greater the maximum value of the additional external capacitance for reliable start up.

INPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Voltage Range (V_{IN})	NMT0572S	4.5	5.0	5.5	V
	NMT1272S	10.8	12	13.2	
Ripple Current (I_{RIPPLE})	NMT0572S		85		mA
	NMT1272S		66		
Zero Load Input Current (I_{CCZL})	NMT0572S, 0% output load		50	80	mA
	NMT1272S, 0% output load		27.5	50	

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Total Rated Power (P_{OUT})	Total of all outputs or any single output	0.1		3.0	W
Single Channel Voltage Setpoint Accuracy	P_{OUT} = 100mW	0		10	%
	P_{OUT} = 3W	–7.5		2.5	
Output Voltage - VO1 (V_{OUT})	P_{OUT} = 100mW	24.0		26.4	V
	P_{OUT} = 3W	22.2		24.6	
Output Voltage - VO2 (V_{OUT})	P_{OUT} = 100mW	48.0		52.8	V
	P_{OUT} = 3W	44.4		49.2	
Output Voltage - VO3 (V_{OUT})	P_{OUT} = 100mW	72.0		79.2	V
	P_{OUT} = 3W	66.6		73.8	
Line Regulation	VIN = 90% to 110% of nominal		1.01	1.2	%
Load Regulation	P_{OUT} = 100mW to 3W		8	15	%
Ripple & Noise	DC to 20MHz single channel (24V)	0	220	400	mV

ABSOLUTE MAXIMUM RATINGS

Short-circuit duration[4]	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V_{IN}, NMT0572S	7V
Input voltage V_{IN}, NMT1272S	15V

ISOLATION CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Voltage (V_{ISOL})	Flash tested for 1 second	1000			VDC
Isolation Capacitance (C_{ISOL})	NMT0572S, 1MHz, 1V		65		pF
	NMT1272S, 1MHz, 1V		130		
Insulation Resistance	1000VDC test	1	10		GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Efficiency	All channels or any single channel	75	85		%
Switching Frequency (f_{OSC})			85		kHz

1 Calculated using MIL-HDBK-217F with nominal input voltage at full load.
2 Assuming all 3 channels are equally loaded.
3 Assuming only 1 channel is loaded.
4 Supply voltage must be discontinued at the end of the short circuit duration.
All specifications typical at T_A=25°C, nominal input voltage and rated output current unless otherwise specified.

NMT SERIES

Triple Output 3W DC-DC Converters

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Operating Temperature (T_A)		-40		85	°C
Storage		-50		125	°C
Case Temperature Rise Above Ambient	1 litre static air chamber		27		°C

OUTPUT VOLTAGE CONFIGURATION

Although the output is described for negative rails, the input and output circuits are internally isolated hence positive rails can also be generated, or a mixture of positive and negative. The output 0V rail reference can be taken from any of the output terminals to give the range of outputs as described in **Output Voltage Configurations** table below.

Channel Name	Standard Ref	Option 1	Option 2	Option 3
0V	0V	+24V	+48V	+72V
V01	–24V	0V	+24V	+48V
V02	–48V	–24V	0V	+24V
V03	–72V	–48V	–24V	0V

PIN CONNECTIONS

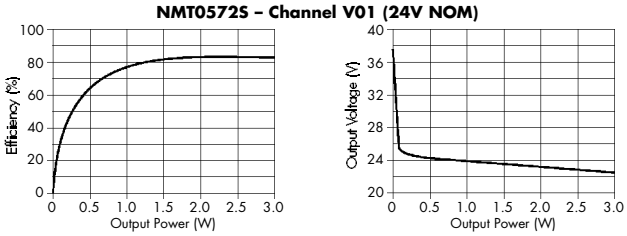
PIN	
1	V_{IN}
2	GND
5	0V
6	V01
7	V02
8	V03

POWER SHARING

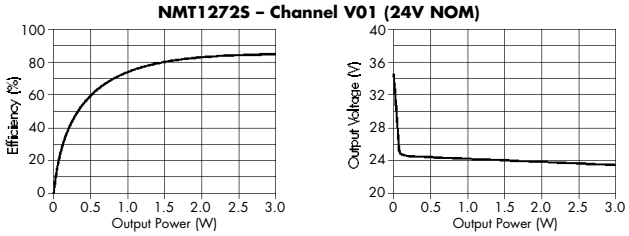
The 3W total power delivery can be taken from either a single channel, or from any combination of all three channels. This allows an enormous amount of flexibility, especially when combined with the selectable output 0V reference. For example, using the option 2 output configuration; –24V at 0.5W, +24V at 1W and +48V at 1.5W power supplies are available from a single NMT device.

PERFORMANCE CHARACTERISTICS

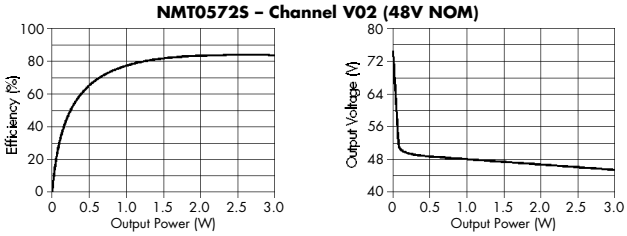
NMT0572S – Channel V01 (24V NOM)



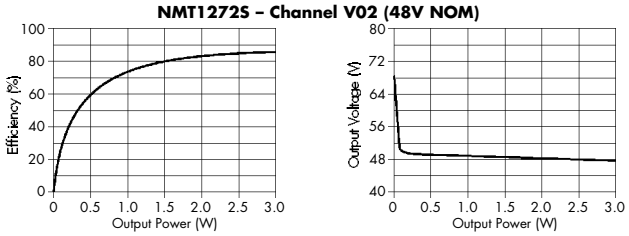
NMT1272S – Channel V01 (24V NOM)



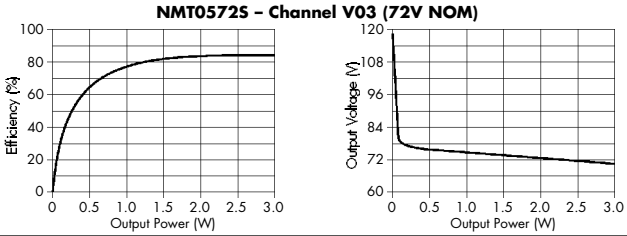
NMT0572S – Channel V02 (48V NOM)



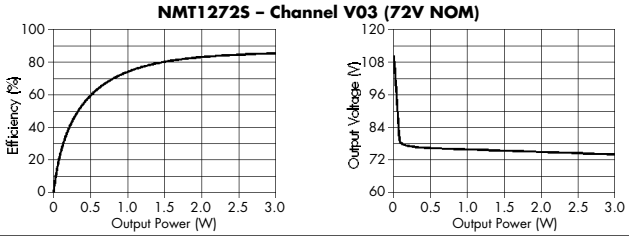
NMT1272S – Channel V02 (48V NOM)



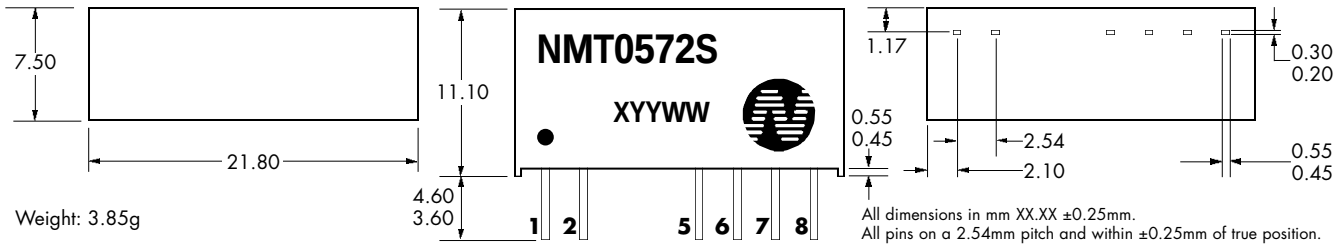
NMT0572S – Channel V03 (72V NOM)



NMT1272S – Channel V03 (72V NOM)



MECHANICAL DIMENSIONS



Weight: 3.85g

All dimensions in mm XX.XX ±0.25mm.
All pins on a 2.54mm pitch and within ±0.25mm of true position.

Instructions for use are available from www.dc-dc.com

C&D Technologies (NCL) Ltd
Tanners Drive, Blakelands North
Milton Keynes MK14 5BU, England
Tel: +44 (0)1908 615232
Fax:+44 (0)1908 617545
email: info@cdtechno-ncl.com

C&D Technologies (NCL), Inc.
5816 Creedmoor Road, Raleigh
NC 27612, USA
Tel: +1 (919) 571-9405
Fax: +1 (919) 571-9262
email: info@us.cdtechno-ncl.com

www: http://www.dc-dc.com

C&D TECHNOLOGIES
Power Solutions