



M AND N SERIES

Single and Dual Output

- Low Noise
- Pi Input Filter
- Triple Fault Protection
- Linear Regulation
- Efficiency to 71%
- Six-Sided Shield

The M and N Series consist of 15 single output and 10 dual output DC/DC converters that provide 10 watts total output power. Both series operate at efficiencies up to 71% with 500 VDC isolation and only 1 mV RMS (40 mV P-P) output ripple and noise. All models are encapsulated in a compact $3.0 \times 2.56 \times 0.75$ inch cases. Designed for maximum noise containment, the units feature a six-sided continuous package shield and transformer shield for EMI/RFI suppression, plus a Pi input filter to minimize reflected input ripple current. All models offer a number of fault protection features, including an internal thermal shutdown circuit designed to limit output current when case temperature exceeds a predetermined point. An internal overvoltage clamp is also standard on M Series units.



(617) 268-1170

SPECIFICATIONS

All Specifications Typical at Nominal Line, Full Load,
and 25°C Unless Otherwise Noted.

OUTPUT SPECIFICATIONS

Voltage Accuracy	±1.0%, max.
Voltage Balance, N Series	±1.0%, max.
Ripple and Noise, 20 MHz BW	1 mV RMS, max. 40 mV P-P, max.
Temperature Coefficient	±0.01%/°C, max.
Voltage Stability, 24 hrs.	±0.05%, max.
Transient Recovery Time, ±0.5% Error Band	
FL-NL, M Series	250 μsec., max.
FL-NL, N Series	150 μsec., max.
Short Circuit Protection	
M Series	Output to Common
N Series	Either Output to Output Common
Overvoltage Protection, M Series	See Table

INPUT SPECIFICATIONS

Input Voltage Range	See Table
Input Filter	Pi Network

GENERAL SPECIFICATIONS

Efficiency	See Table
Isolation Voltage	500 VDC, min.
Isolation Resistance	10 ⁹ ohms, min.
Switching Frequency	20 kHz

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature Range . . .	-25°C to +71°C
Derating	None
Storage Temperature Range . . .	-40°C to +100°C
Case Temp. Rise Above Ambient . . .	5°C/watt Diss.
Overtemperature Protection	
Thermal Shutdown	Automatic Restart
Cooling	Free-Air Convection
EMI/RFI	Six-Sided Continuous Shield
	Transformer Shield

PHYSICAL SPECIFICATIONS

Weight	12 oz. (336 grams)
Case Material	Black Coated Copper with Non-Conductive Base
Mating Socket.....	MS-X

Input Voltage Ranges		
Nominal	Range	Case Connections
5V	4.5- 5.5V	Output Common
12V	10-14.5V	Minus Input
24V	21-28V	Minus Input
28V	24-32V	Minus Input
48V	42-56V	Plus Input

Overvoltage Ranges (M Series)	
Output	OVP Setting
5 V	6.8 V
12 V	15 V
15 V	18 V

TWO-YEAR WARRANTY



10 Watt DC/DC Converters

T-57-11

INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		% EFF	REGULATION ¹		CASE	MODEL NUMBER
			NO LOAD	FULL LOAD		LINE ²	LOAD ³		
SINGLE OUTPUT									
5 VDC	5 VDC	2000 mA	400 mA	3100 mA	65	± 0.2%	± 0.2%	X	M05S05/2000X
5 VDC	12 VDC	1000 mA	400 mA	3700 mA	65	± 0.2%	± 0.2%	X	M05S12/1000X
5 VDC	15 VDC	670 mA	350 mA	3100 mA	65	± 0.2%	± 0.2%	X	M05S15/670X
12 VDC	5 VDC	2000 mA	80 mA	1350 mA	62	± 0.2%	± 0.2%	X	M12S05/2000X
12 VDC	12 VDC	1000 mA	76 mA	1490 mA	67	± 0.2%	± 0.2%	X	M12S12/1000X
12 VDC	15 VDC	670 mA	75 mA	1250 mA	67	± 0.2%	± 0.2%	X	M12S15/670X
24 VDC	5 VDC	2000 mA	35 mA	650 mA	64	± 0.2%	± 0.2%	X	M24S05/2000X
24 VDC	12 VDC	1000 mA	35 mA	700 mA	71	± 0.2%	± 0.2%	X	M24S12/1000X
24 VDC	15 VDC	670 mA	31 mA	600 mA	70	± 0.2%	± 0.2%	X	M24S15/670X
28 VDC	5 VDC	2000 mA	30 mA	530 mA	67	± 0.2%	± 0.2%	X	M28S05/2000X
28 VDC	12 VDC	1000 mA	31 mA	635 mA	78	± 0.2%	± 0.2%	X	M28S12/1000X
28 VDC	15 VDC	670 mA	30 mA	505 mA	71	± 0.2%	± 0.2%	X	M28S15/670X
48 VDC	5 VDC	2000 mA	25 mA	300 mA	69	± 0.2%	± 0.2%	X	M48S05/2000X
48 VDC	12 VDC	1000 mA	25 mA	355 mA	70	± 0.2%	± 0.2%	X	M48S12/1000X
48 VDC	15 VDC	670 mA	25 mA	300 mA	70	± 0.2%	± 0.2%	X	M48S15/670X
DUAL OUTPUT									
5 VDC	± 12 VDC	± 330 mA	500 mA	2700 mA	59	± 0.1%	± 0.1%	X	N05D12/330X
5 VDC	± 15 VDC	± 330 mA	500 mA	3200 mA	62	± 0.1%	± 0.1%	X	N05D15/330X
12 VDC	± 12 VDC	± 330 mA	85 mA	1100 mA	60	± 0.1%	± 0.1%	X	N12D12/330X
12 VDC	± 15 VDC	± 330 mA	85 mA	1300 mA	63	± 0.1%	± 0.1%	X	N12D15/330X
24 VDC	± 12 VDC	± 330 mA	37 mA	510 mA	65	± 0.1%	± 0.1%	X	N24D12/330X
24 VDC	± 15 VDC	± 330 mA	35 mA	600 mA	69	± 0.1%	± 0.1%	X	N24D15/330X
28 VDC	± 12 VDC	± 330 mA	35 mA	450 mA	63	± 0.1%	± 0.1%	X	N28D12/330X
28 VDC	± 15 VDC	± 330 mA	35 mA	525 mA	67	± 0.1%	± 0.1%	X	N28D15/330X
48 VDC	± 12 VDC	± 330 mA	20 mA	255 mA	65	± 0.1%	± 0.1%	X	N48D12/330X
48 VDC	± 15 VDC	± 330 mA	25 mA	290 mA	71	± 0.1%	± 0.1%	X	N48D15/330X

NOTES: 1. Maximum.

2. Measured from High Line to Low Line.

3. Measured from Full Load to No Load.

Other Input/Output Combinations Available. Consult Factory.

CASE X

Pin Connections		
Pin	M Series	N Series
1	+ Input	+ Input
2	- Input	- Input
3	No Connection	+ Output
4	No Connection	Output Common
5	No Connection	- Output
6	+ Output	No Connection
7	- Output	No Connection

Tolerance .xx = ± 0.04
 .xxx = ± 0.005

ALL DIMENSIONS IN INCHES (mm)

