



electronicpowersolutions

NA3W Series

3W 4:1 Regulated Single & Dual output

Features

- Highest Power Density : 3W in DIP8 Package
- Wide 4:1 Input Range
- 1600 VDC Isolation
- Continuous Short Circuit Protection
- Under Voltage Lock-Out Circuit
- Remote ON/OFF Control
- Efficiency up to 84%
- Operation Temperature Range -40 ~ 90°C max.



PART NUMBER STRUCTURE

NA3W - 24 05 S
(1) (2) (3) (4)

(1) Series

(2) Input Voltage Range

12 - 4.5-18 V

24 - 9-36 V

48 - 18-75 V

(4) Output Type

S - Single Output

D - Dual Output

(3) Output Voltage

3R3 - 3.3 V

05 - 5.0 V

12 - 12 V

15 - 15 V

ALL SPECIFICATIONS ARE TYPICAL AT 25°C, NOMINAL INPUT AND FULL LOAD UNLESS OTHERWISE NOTED

Model Number	Input Voltage Range (VDC)	Input Current		Output Voltage (VDC)	Output Current		Efficiency @FL (% , typ.)	Capacitive Load (μF, max.)
		No-Load (mA, max.)	Full Load (mA, typ.)		Min. load (mA)	Full load (mA)		
NA3W-123R3S	4.5-18	30	260	3.3	0	700	74	3300
NA3W-1205S	4.5-18	45	309	5	0	600	81	1680
NA3W-1212S	4.5-18	55	305	12	0	250	82	470
NA3W-1215S	4.5-18	60	301	15	0	200	83	330
NA3W-1205D	4.5-18	30	313	±5	0	±300	80	±1000
NA3W-1212D	4.5-18	55	301	±12	0	±125	83	±220
NA3W-1215D	4.5-18	60	305	±15	0	±100	82	±220
NA3W-243R3S	9-36	25	128	3.3	0	700	75	3300
NA3W-2405S	9-36	20	152	5	0	600	82	1680
NA3W-2412S	9-36	30	149	12	0	250	84	470
NA3W-2415S	9-36	35	149	15	0	200	84	330
NA3W-2405D	9-36	25	154	±5	0	±300	81	±1000
NA3W-2412D	9-36	30	151	±12	0	±125	83	±220
NA3W-2415D	9-36	35	151	±15	0	±100	83	±220
NA3W-483R3S	18-75	10	65	3.3	0	700	74	3300
NA3W-4805S	18-75	10	78	5	0	600	80	1680
NA3W-4812S	18-75	15	76	12	0	250	82	470
NA3W-4815S	18-75	15	77	15	0	200	81	330
NA3W-4805D	18-75	20	79	±5	0	±300	79	±1000
NA3W-4812D	18-75	20	77	±12	0	±125	81	±220
NA3W-4815D	18-75	25	77	±15	0	±100	81	±220

INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	12V Input		4.5	12	18	VDC
	24V Input		9	24	36	
	48V Input		18	48	75	
Under Voltage Protection	12V Input	Module ON		4.2		VDC
		Module OFF		3.5		
	24V Input	Module ON		8.5		
		Module OFF		7.0		
	48V Input	Module ON		17.5		
		Module OFF		15.5		
Input Filter			Capacitor			
Input Reflected Ripple Current (1)				20		mApk-pk
Remote ON/OFF	Module ON (Open Circuit)		open or high impedance			
	Module OFF (Short circuit pin 2 and pin 3)		2-4mA input current (via 1kΩ)			
	OFF idle current				2.5	mA
Start up Time	Nominal Vin and constant resistive load			30		ms
Recommended input fuse (slow blow)	12V Input		1.5			A
	24V Input		0.8			
	48V Input		0.4			
Note :						
1. Measured Input reflected ripple current with a simulated source inductance of 27μH and a source capacitor Cin (47μF, ESR<1.0Ω at 100kHz).						

OUTPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			-1.0		+1.0	%
Line Regulation			-0.2		+0.2	%
Load Regulation	From 0% to 100% Load		-1.0		+1.0	%
Cross Regulation	Asymmetrical Load 25% / 100% for Dual Output		-5		+5	%
Ripple & Noise (1)	20MHz bandwidth	Single Output			150	mVpk-pk
		Dual Output			100	
Short Circuit Protection			Indefinite (Automatic Recovery)			
Temperature Coefficient			-0.02		+0.02	%/°C
Maximum Capacitive Load	Minimum Vin and constant resistive load		See Table			
Transient Recovery Time	Nominal Vin and 25% load step change (75%-50%-25% of Io)	For All models		500		µs
Transient Response Deviation		3.3V & 5V Output	-5		+5	%
		Other Output	-3		+3	
Note :						
1. Measured with a 0.1µF MLCC and 10µF electrolytic capacitor.						

ABSOLUTE MAXIMUM RATINGS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (100 ms)	12V Input			25	VDC
	24V Input			50	
	48V Input			100	
Soldering Temperature	1.5mm from case 10sec max.			260	°C
Note : These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.					

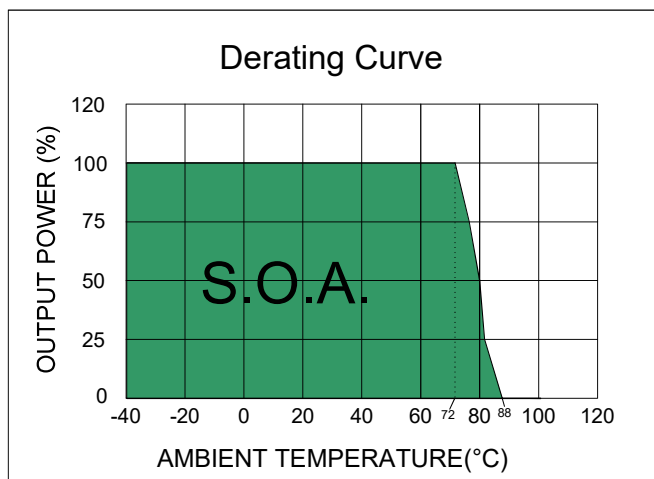
GENERAL SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, and rated for 60sec	1600			VDC
Isolation Resistance	Input-output	1000			MΩ
Isolation Capacitance	Input-output		2000		pF
Switching Frequency		100			kHz
MTBF	MIL-HDBK-217 F @ 25°C	820			k hours
Safety Standard	IEC / EN / UL 62368-1	Designed to meet			
Environmental compliance		RoHS			

ENVIRONMENT SPECIFICATIONS					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating Ambient Temperature	See the Derating Curve	-40		90	°C
Maximum Case Temperature				100	°C
Thermal Impedance		34.44			°C/W
Storage Humidity				95	% rel. H
Storage Temperature		-55		125	°C
Cooling	Natural Convection	30-65 LFM			

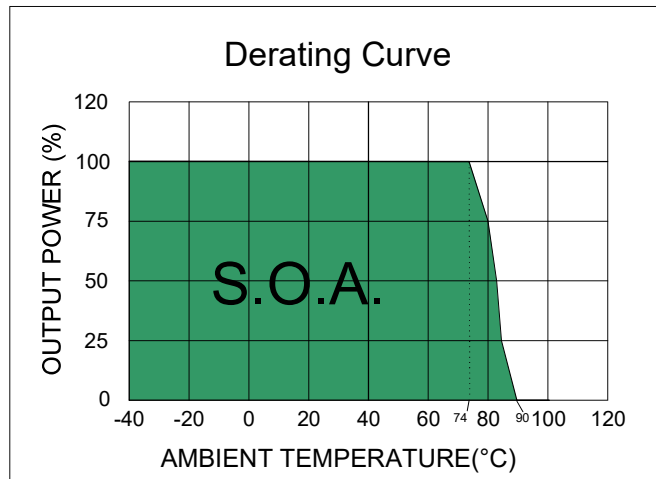
EMC SPECIFICATIONS			
Parameter	Standard	Condition	Criterion
Conducted Emissions	EN55032	with an external components	A
Radiated Emissions	EN55032		A
ESD	IEC 61000-4-2	Air: ±8kV / Indirect: ±6kV	A
RS	IEC 61000-4-3	10V/m	A
EFT	IEC 61000-4-4	±2kV with external components	A
Surge	IEC 61000-4-5	±2kV with external components	A
CS	IEC 61000-4-6	10Vrms	A
PFMF	IEC 61000-4-8	100A/m	A

PHYSICAL SPECIFICATIONS	
Parameter	Value
Case Material	Nonconductive Black Plastic (UL94V-0 rated)
Base Material	Nonconductive Black Plastic (UL94V-0 rated)
Pin Material	Ø0.5mm Brass Solder-coated
Potting Material	Silicone (UL94V-0 rated)
Weight	3.6 g , typ.
Dimensions	0.55" x 0.55" x 0.32"

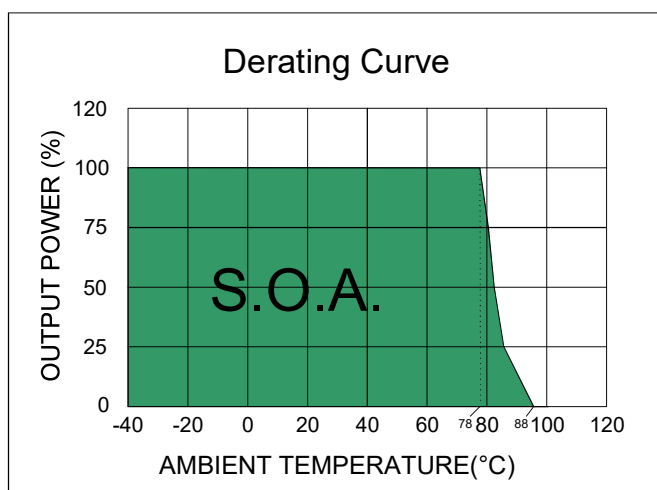
ELECTRICAL CHARACTERISTIC CURVES



Efficiency = 74% ~ 79%



Efficiency = 80% ~ 82%

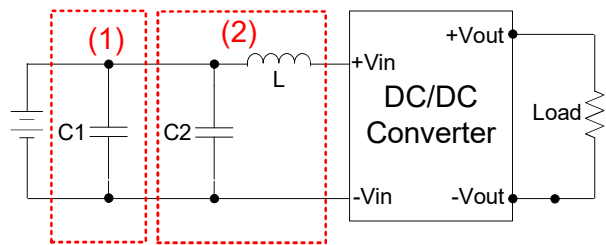


Efficiency = 83% ~ 84%

DESIGN & FEATURE CONFIGURATIONS

EMC Filter

The part (1) Circuit is used to meet Surge & EFT test, and the part (2) Circuit is used to meet EMI test.



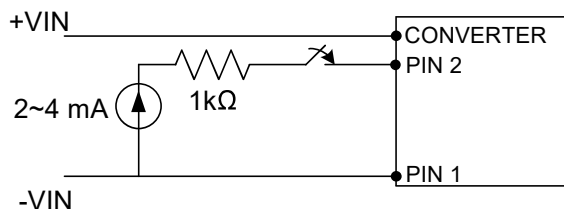
	C1	C2	L
NA3W-12XXXX	NIPPON Chemicon KY series 220μF, 100V	MLCC 10μF, 35V	2.2μH
NA3W-24XXXX		MLCC 2.2μF, 100V	
NA3W-48XXXX		MLCC 4.7μF, 100V	

DESIGN & FEATURE CONFIGURATIONS

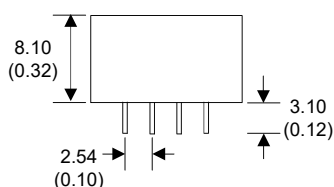
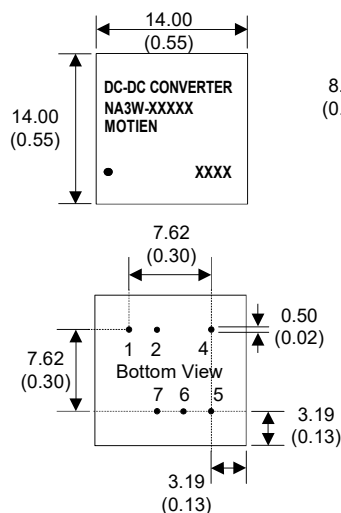
Remote Module ON / OFF

Input current (2~4mA) via 1k Ω to Pin2, converter OFF.

Open or high impedance, converter ON.



MECHANICAL SPECIFICATIONS



PIN NUMBER	SINGLE	DUAL
1	-Vin	-Vin
2	CTRL	CTRL
4	+Vin	+Vin
5	+Vout	+Vout
6	N.P.	COM
7	-Vout	-Vout

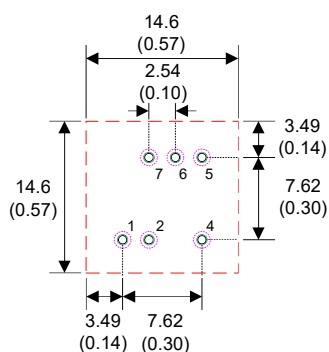
*N.P. : No PIN

DIP8 Package

Notes : All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 $\pm$ 0.05 (0.02 $\pm$ 0.002)
2. Pin pitch and length tolerance: $\pm$ 0.35 ($\pm$ 0.014)
3. Case Tolerance: $\pm$ 0.5 ($\pm$ 0.02)

RECOMMEND FOOTPRINT DETAILS



Notes : 1. All dimensions are typical in millimeters (inches).

Through hole (black) 1 ~ 7: $\varnothing$ 0.80 (0.031)

Top view pad (green) 1 ~ 7: $\varnothing$ 1.00 (0.039)

Bottom view pad (pink) 1 ~ 7: $\varnothing$ 1.60 (0.063)