

CNW-20W Series

20W 4:1 Regulated Single & Dual output



Features

- Ultra Wide 4:1 Input Range
- 1600 VDC Isolation
- Efficiency up to 89%
- Operating Temperature Range -40 ~ 100°C max.
- Adjustable Output Voltage
- Remote ON/OFF Control (CTRL)
- Continuous Short Circuit Protection
- Over Current Protection
- Over Voltage Protection
- Soft Start
- Built-in EMI filter meets EN55032 classA without external components



PART NUMBER STRUCTURE

CNW - **24** **12** **S** **20**
(1) (2) (3) (4) (5)

(1) Series

(2) Input Voltage Range

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

(5) Watt

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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 @FL (μF, max.)
		No-Load (mA, max.)	Full Load (mA, typ.)		Min. load (mA)	Full load (mA)		
CNW-243R3S20	9-36	60	695	3.3	0	4500	89	10000
CNW-2405S20	9-36	60	936	5	0	4000	89	5000
CNW-2412S20	9-36	20	947	12	0	1670	88	850
CNW-2415S20	9-36	20	947	15	0	1330	88	700
CNW-483R3S20	18-75	30	356	3.3	0	4500	87	10000
CNW-4805S20	18-75	30	468	5	0	4000	89	5000
CNW-4812S20	18-75	15	468	12	0	1670	89	850
CNW-4815S20	18-75	15	468	15	0	1330	89	700
CNW-2412D20	9-36	20	936	±12	0	±833	89	±470
CNW-2415D20	9-36	20	936	±15	0	±667	89	±330
CNW-4812D20	18-75	15	468	±12	0	±833	89	±470
CNW-4815D20	18-75	15	468	±15	0	±667	89	±330

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INPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	24V Input		9	24	36	VDC
	48V Input		18	48	75	
Under Voltage Protection	24V Input	Module ON		8.6		VDC
		Module OFF		7.9		
	48V Input	Module ON		17.8		
		Module OFF		15.5		
Input Filter			Pi Type			
Input Reflected Ripple Current (1)				30		mApk-pk
Start up Time	Nominal Vin and constant resistive load			30		ms
Remote ON/OFF Control (2)	Module ON (Open Circuit)		3.0		12	VDC
	Module OFF (Short circuit pin 2 and pin 3)		0		1.2	
	OFF idle current			5.0		mA
Recommended input fuse (slow blow)	24V Input		3			A
	48V Input		1.5			
Note :						
1. Measured with a simulated source inductance of 12μH and a source capacitor Cin (47μF, ESR<1.0Ω at 100kHz).						
2. The remote ON/OFF control pin is referenced to –Vin (pin2).						

OUTPUT SPECIFICATIONS						
Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			-1.0		+1.0	%
Output Voltage Adjustability (Trim)	For Single output		-10		+10	%
Line Regulation			-0.5		+0.5	%
Load Regulation	From 0% to 100% Load	Single Output	-0.5		+0.5	%
		Dual Output (balanced load)	-1.0		+1.0	
Cross Regulation	Asymmetrical Load 25% / 100% for Dual Output		-5		+5	%
Ripple & Noise (1)	20MHz bandwidth	3.3 & 5 V Output			75	mVpk-pk
		Other Output			100	
Over Voltage Protection (Zener diode clamp)	3.3V Output			3.9		VDC
	5V Output			6.2		
	12V Output			15		
	15V Output			18		
Over Current Protection				140		% of FL
Short Circuit Protection			Indefinite (hiccup) (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			250		µs
Transient Response Deviation	(75%-50%-25% of Io)		-3		+3	%
Note :						
1. Measured with a 1.0uF MLCC and 10uF electrolytic capacitor.						

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ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (100 ms)	24V Input			50	VDC
	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
	Case-I/O, and rated for 60sec	1600			
Isolation Resistance	Input-output	1000			MΩ
Isolation Capacitance	Input-output		1500		pF
Switching Frequency			330		kHz
MTBF	MIL-HDBK-217 F @ 25°C	560			k hours
Safety Approval	IEC / EN / UL 62368-1	DK-59571-UL, E252573			
Environmental compliance		RoHS			

ENVIRONMENT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating Ambient Temperature	See the Derating Curve	-40		100	°C
Maximum Case Temperature				105	°C
Thermal Impedance	3.3V output	18.45			°C/W
	Others	17.48			
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		A
Radiated Emissions	EN55032		A
ESD	IEC 61000-4-2	Air: ±8kV / Contact: ±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	±1kV with external components	A
CS	IEC 61000-4-6	10Vrms	A
PFMF	IEC 61000-4-8	1A/m	A

PHYSICAL SPECIFICATIONS

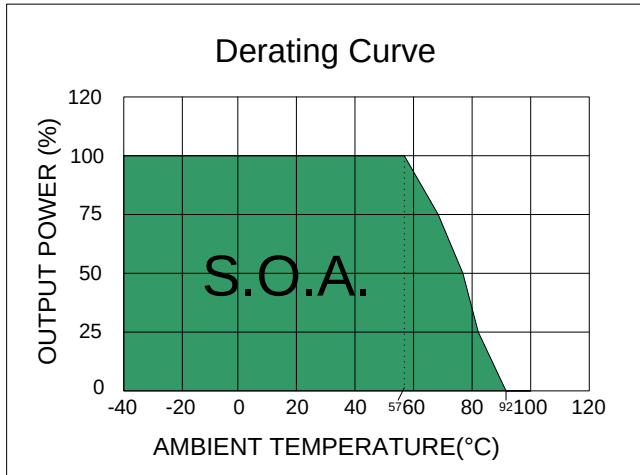
Parameter	Value
Case Material	Copper
Base Material	Nonconductive Black Plastic (UL94V-0 rated)
Pin Material	Ø1.0mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	19.0 g, typ.
Dimensions	1.00" x 1.00" x 0.41"

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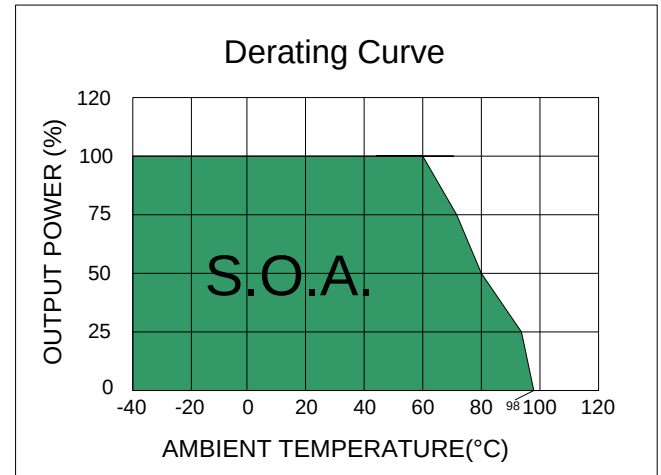
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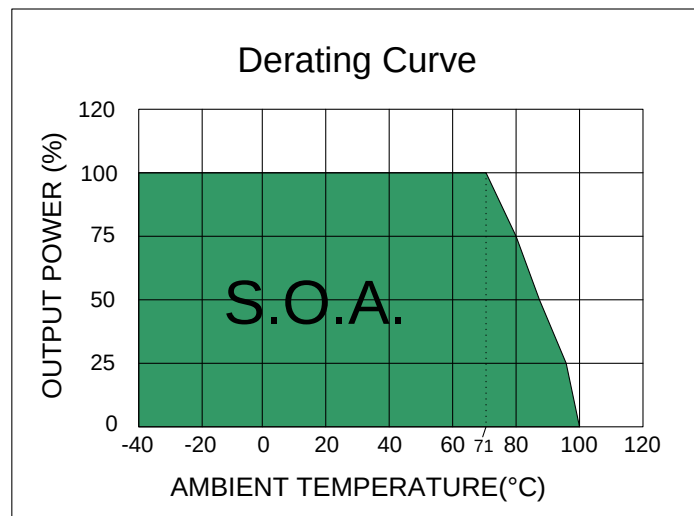
ELECTRICAL CHARACTERISTIC CURVES



Efficiency = 88%



CNW-483R3S20 · Efficiency = 89%



CNW-243R3S20

DESIGN & FEATURE CONFIGURATIONS

Over Current Protection

The module includes an internal over current protection circuit, which will endure current limiting for an unlimited duration during output over load condition. If the output current exceeds the OCP set point, the module will shut down automatically (hiccup). The module will try to restart after shut down. If the over load condition still exists, the module will shut down again.

Over Voltage Protection

The module includes an internal output over voltage protection circuit, which monitors the voltage on the output terminals. If this voltage exceeds the over voltage set point, the module will activate the control loop of internal circuit to clamp the output voltage.

Over Temperature Protection Test

The over temperature protection consists of circuitry that provides protection from thermal damage. If the temperature exceeds the over temperature threshold the module will shut down. The module will try to restart after shut down, if the over temperature condition still exists during restart, the module will shut down again. This restart trial will continue until the temperature is within specification.

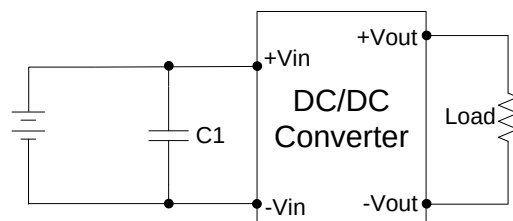
Remote Module ON / OFF

Positive logic turns on the module during high logic and off during low logic. Remote module ON/OFF can be controlled by an external switch between the CTRL terminal and -Vin terminal. For positive logic if the remote feature is not used, please leave the CTRL pin floating.

DESIGN & FEATURE CONFIGURATIONS

EMS Filter

The Circuit is used to meet Surge & EFT test.



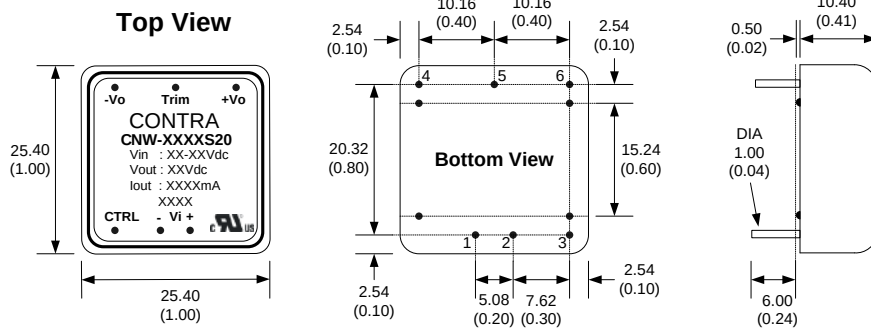
	C1
CNW-24XXX20	NIPPON Chemi-con KY series 220μF, 100V
CNW-48XXX20	

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MECHANICAL SPECIFICATIONS



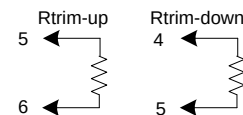
PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+Vin	+Vin
2	-Vin	-Vin
3	CTRL	CTRL
4	+Vout	+Vout
5	Trim	COM
6	-Vout	-Vout

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

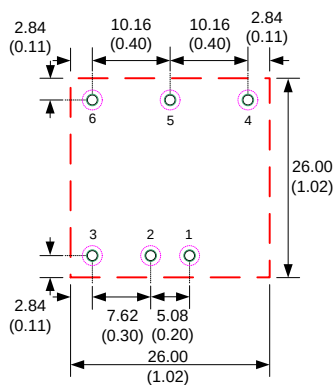
1. Pin diameter: 1.0 ± 0.05 (0.04 ± 0.002)
2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
3. Case tolerance: ± 0.5 (± 0.02)
4. Stand-off tolerance: ± 0.1 (± 0.004)

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method as below. (single output models only)



RECOMMENDED FOOTPRINT DETAILS



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

Through hole (black) 1~6: $\varnothing 1.3$ (0.051)

Top view pad (green) 1~6: $\varnothing 1.5$ (0.059)

Bottom view pad (pink) 1~6: $\varnothing 2.6$ (0.098)