

SNW Series

15W 4:1 Regulated Single & Dual output

SCHMID-M
DC/DC - Converter



Features

- Ultra Wide 4:1 Input Range
- Soft Start
- 1600 VDC Isolation
- Efficiency up to 89%
- Extended Operating Temperature Range -40 ~ 85°C max.
- Adjustable Output Voltage
- Remote On/Off Control (CTRL)
- Over Current Protection
- Over Voltage Protection
- No Minimum Load Required
- 50% Volume than traditional products

The SNW series is a family of high performance 15W single & dual output DC-DC converters. These converters are built in nickel-coated copper package in a 1"x1" case with non conductive base - precise controlling and protection provide : tight line / load regulation , soft start , over current and over voltage protection . Input voltages of 24 and 48 with output voltage of 3.3 , 5, 12, 15, ± 5 , ± 12 , ± 15 Vdc. maximum. Positive and negative logic ON/OFF control optional . Products are built in a case which is only half size of conventional 2"X1" package .

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

OUTPUT SPECIFICATIONS		
Output Voltage Accuracy	$\pm 1\%$	
Output Voltage Adjustability(Trim)	Single output: $\pm 10\%$, max	
Maximum Output Current	See table	
Line Regulation	$\pm 0.2\%$, max	
Load Regulation($I_o=0\%$ to 100%)	Single: $\pm 0.5\%$, max Dual: $\pm 1\%$, max(balanced load)	
Cross Regulation (Dual Output) (1)	$\pm 5\%$	
Ripple&Noise(20MHz bandwidth) (2)	100mVp-p, max	
Over Voltage Protection (Zener diode clamp)	3.3V output	3.9V
	5V output	6.2V
	12V output	15V
	15V output	18V
	± 5 V output	± 6.2 V
Over Current Protection	± 12 V output	± 15 V
	± 15 V output	± 18 V
Short Circuit Protection	170% of FL, typ Indefinite(hiccup) (Automatic Recovery)	
Temperature Coefficient	$\pm 0.02\%/^{\circ}\text{C}$	
Capacitive Load (3)	See table	
Transient Recovery Time (4)	250us, typ	
Transient Response Deviation(4)	$\pm 3\%$, max	

INPUT SPECIFICATIONS	
Input Voltage Range	See table
Under Voltage Lockout	
24V Modes	Module ON / OFF
48V Modes	Module ON / OFF
Start up Time (Nominal V_{in} and constant resistive load)	20mS, typ
Input Filter	Pi Type
Input Current(No-Load)	See table, typ
Input Current(Full-Load)	See table, max
Input Reflected Ripple Current(5)	20mA _{p-p} , typ
Remote On/Off (Positive logic)(6)	
ON:	3.0 ... 12Vdc or open circuit
OFF:	0 ... 1.2Vdc or Short circuit pin2 and pin 3
OFF idle current:	5 mA, typ

ENVIRONMENTAL SPECIFICATIONS	
Operating Ambient Temperature	-40°C ~ +85°C(See Derating Curve) -40°C ~ +66°C(For 100% load)
Maximum Case Temperature	105°C
Storage Temperature	-40°C ~ +125°C
Cooling	Nature Convection

GENERAL SPECIFICATIONS	
Efficiency	See table, typ
I/O Isolation Voltage(3 sec)	
Input/Output	1600Vdc
Case/Input & Output	1600Vdc
Isolation Resistance	1000 M Ω , min
Isolation Capacitance	1200 pF, max
Switching frequency	375kHz, typ
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>560 khrs
Safety Standard (designed to meet)	IEC/EN 60950-1

EMC CHARACTERISTICS		
Radiated Emissions	EN55022	CLASS A
Conducted Emissions(7)	EN55022	CLASS A
ESD	EN61000-4-2	Perf. Criteria A
RS	EN61000-4-3	Perf. Criteria A
EFT(8)	EN61000-4-4	Perf. Criteria A
Surge (8)	EN61000-4-5	Perf. Criteria A
CS	EN61000-4-6	Perf. Criteria A
PFMF	EN61000-4-8	Perf. Criteria A

PHYSICAL SPECIFICATIONS	
Case Material	Nickel-coated Copper
Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	$\varnothing 1.0$ mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	18.0g
Dimensions	1.00"x1.00"x0.40"

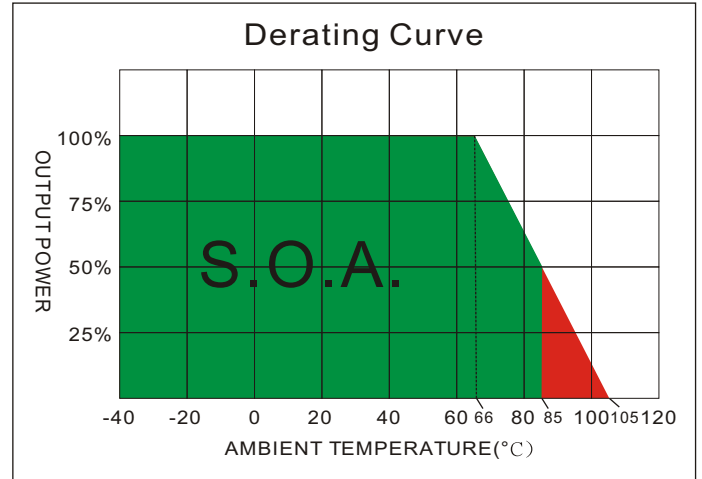
ABSOLUTE SPECIFICATIONS (9)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Voltage(100mS)	
24 Modes	-0.7~50 Vdc
48 Modes	-0.7~100 Vdc
Soldering Temperature (1.5mm from case 10 sec. Max.)	260°C max.

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PART NUMBER STRUCTURE

SNW - 24 12 S 15

Series Name
 Input Voltage Range
 24 - 9 ~ 36V
 48 - 18 ~ 75V
 Output Type
 S - Single output
 D - Dual Output
 Nominal Output Voltage
 3R3 - 3.3V
 5 - 5V
 12 - 12V
 15 - 15V
 Watt

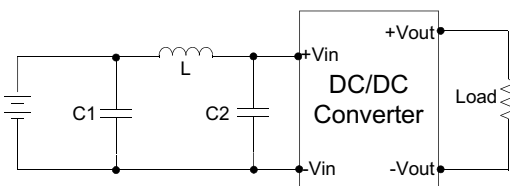


MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
SNW-243R3S15	9-36	15	647	3.3	0	4000	86	1000
SNW-2405S15	9-36	15	727	5	0	3000	87	1000
SNW-2412S15	9-36	15	747	12	0	1300	88	330
SNW-2415S15	9-36	15	710	15	0	1000	89	220
SNW-483R3S15	18-75	10	331	3.3	0	4000	84	1000
SNW-4805S15	18-75	10	368	5	0	3000	86	1000
SNW-4812S15	18-75	10	378	12	0	1300	87	330
SNW-4815S15	18-75	10	360	15	0	1000	88	220
SNW-2405D15	9-36	15	744	±5	0	±1500	85	±470
SNW-2412D15	9-36	15	718	±12	0	±625	88	±220
SNW-2415D15	9-36	15	710	±15	0	±500	89	±100
SNW-4805D15	18-75	10	376	±5	0	±1500	84	±470
SNW-4812D15	18-75	10	363	±12	0	±625	87	±220
SNW-4815D15	18-75	10	359	±15	0	±500	88	±100

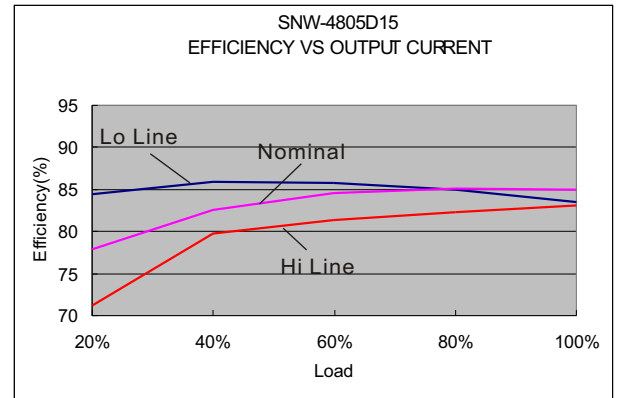
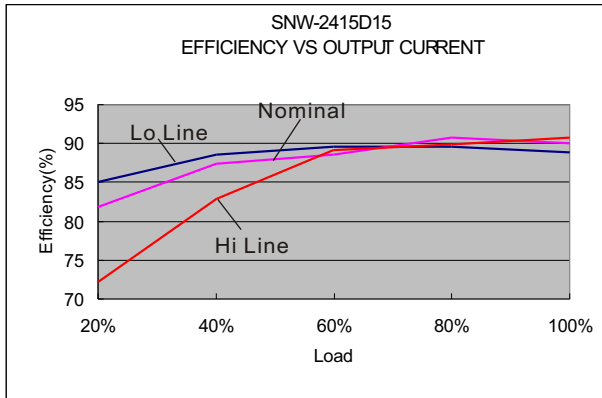
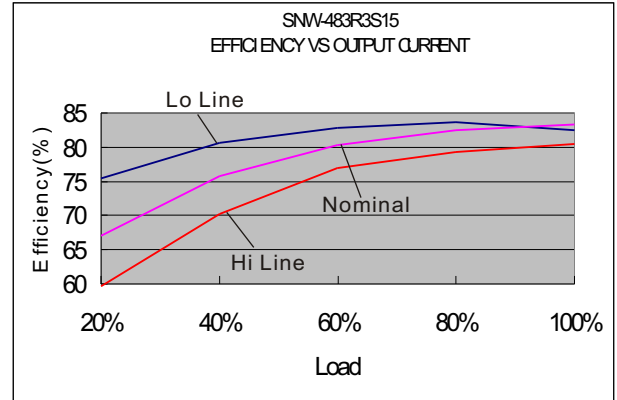
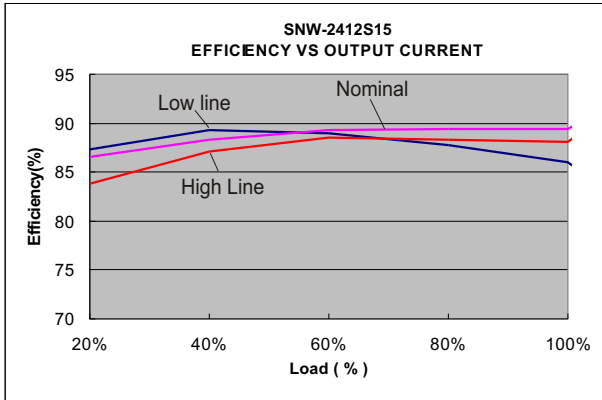
NOTE

- One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.
- Measured with a 1.0uF ceramic capacitor and 10uF tantalum capacitor.
- Tested by minimal Vin and constant resistive load.
- Tested by normal Vin and 25% load step change (75%-50%-25% of Io).
- Measured Input reflected ripple current with a simulated source inductance of 12uHand a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz).
- The remote on/off control pin is referenced to -Vin(pin2).
- Input filter components (C1, C2, L) are used to help meet conducted emissions requirement for the module.
These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.
- An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5.
The filter capacitor Motien suggest: Nippon chemi-con KY series, 220uF/100V.
- Exceeding the absolute ratings of the unit could cause damage.
It is not allowed for continuous operating.

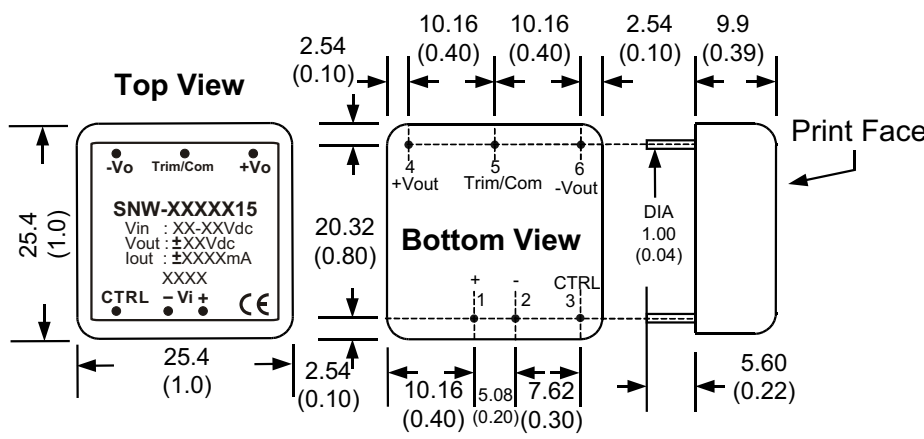


	C1	L	C2
SNW-24XXXXX	1210, 2.2uF/100V	12uH	1210, 2.2uF/100V
SNW-48XXXXX	1210, 2.2uF/100V	12uH	1210, 2.2uF/100V

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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

EXTERNAL OUTPUT TRIMMING

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

- All dimensions are typical in millimeters (inches).
1. Pin diameter: 1.0 ± 0.05 (0.04 ± 0.002)
 2. Pin pitch tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)



info@schmid-m.com
www.schmid-m.com

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