

Features

- 7PIN SIP Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 87%
- Unregulated Output Types
- 1.5KVDC ~ 6KVDC Isolation
- Operating Temperature:- 40°C to +105°C
- Industry Standard Pinout
- UL/cUL/IEC/EN 62368-1 approved, CB-Report



4112DC-1W AC-DC PSU Series

1W Encapsulated DC/DC SIP PCB Mount Power Supply



The 4112DC-1W Series is a high-efficiency and standards-compliant Internal Power Supply (PSU) > PCB Mount Power Supplies. Designed for use in applications such as industrial control and automation systems. This series is supplied with a Pin Connection input connection and supports input voltages of 3.3~24 ~V DC.

Models

Model	Voltage (V) DC	Rated Current (mA)	% Efficiency	Ripple and Noise mVp-
4112DC-03S03NP-Hx	3.3	303	76.0%	2400
4112DC-05S03NP-Hx	3.3	303	76.0%	2400
4112DC-09S03NP-Hx	3.3	303	76.0%	2400
4112DC-03S05NP-Hx	5	200	82.0%	2400
4112DC-05S05NP-Hx	5	200	82.0%	2400
4112DC-09S05NP-Hx	5	200	82.0%	2400
4112DC-03S09NP-Hx	9	112	83.0%	1000
4112DC-05S09NP-Hx	9	112	83.0%	1000
4112DC-09S09NP-Hx	9	112	83.0%	1000
4112DC-03S12NP-Hx	12	84	84.0%	470
4112DC-05S12NP-Hx	12	84	84.0%	470
4112DC-09S12NP-Hx	12	84	84.0%	470

4112DC-03S15NP-Hx	15	67	84.0%	330
4112DC-05S15NP-Hx	15	67	84.0%	330
4112DC-09S15NP-Hx	15	67	84.0%	330
4112DC-03S24NP-Hx	24	42	85.0%	100
4112DC-05S24NP-Hx	24	42	85.0%	100
4112DC-09S24NP-Hx	24	42	85.0%	100
4112DC-03D03NP-Hx	±3.3	±151	76.0%	±1200
4112DC-05D03NP-Hx	±3.3	±151	76.0%	±1200
4112DC-09D03NP-Hx	±3.3	±151	76.0%	±1200
4112DC-03D05NP-Hx	±5	±100	82.0%	±1200
4112DC-05D05NP-Hx	±5	±100	82.0%	±1200
4112DC-09D05NP-Hx	±5	±100	82.0%	±1200
4112DC-03D09NP-Hx	±9	±56	83.0%	±470
4112DC-05D09NP-Hx	±9	±56	83.0%	±470
4112DC-09D09NP-Hx	±9	±56	83.0%	±470
4112DC-03D12NP-Hx	±12	±42	84.0%	±220
4112DC-05D12NP-Hx	±12	±42	84.0%	±220
4112DC-09D12NP-Hx	±12	±42	84.0%	±220
4112DC-03D15NP-Hx	±15	±34	84.0%	±220
4112DC-05D15NP-Hx	±15	±34	84.0%	±220
4112DC-09D15NP-Hx	±15	±34	84.0%	±220
4112DC-03D24NP-Hx	±24	±21	85.0%	±47
4112DC-05D24NP-Hx	±24	±21	85.0%	±47
4112DC-09D24NP-Hx	±24	±21	85.0%	±47
4112DC-12S03NP-Hx	3.3	303	78.0%	2400
4112DC-15S03NP-Hx	3.3	303	78.0%	2400
4112DC-24S03NP-Hx	3.3	303	78.0%	2400
4112DC-12S05NP-Hx	5	200	82.0%	2400
4112DC-15S05NP-Hx	5	200	82.0%	2400
4112DC-24S05NP-Hx	5	200	82.0%	2400
4112DC-12S09NP-Hx	9	112	85.0%	1000
4112DC-15S09NP-Hx	9	112	85.0%	1000
4112DC-24S09NP-Hx	9	112	85.0%	1000
4112DC-12S12NP-Hx	12	84	85.0%	680
4112DC-15S12NP-Hx	12	84	85.0%	680
4112DC-24S12NP-Hx	12	84	85.0%	680
4112DC-12S15NP-Hx	15	67	87.0%	330
4112DC-15S15NP-Hx	15	67	87.0%	330
4112DC-24S15NP-Hx	15	67	87.0%	330
4112DC-12S24NP-Hx	24	42	85.0%	220
4112DC-15S24NP-Hx	24	42	85.0%	220
4112DC-24S24NP-Hx	24	42	85.0%	220
4112DC-12D03NP-Hx	3.3	±151	78.0%	±1200
4112DC-15D03NP-Hx	3.3	±151	78.0%	±1200
4112DC-24D03NP-Hx	3.3	±151	78.0%	±1200
4112DC-12D05NP-Hx	5	±100	82.0%	±1200
4112DC-15D05NP-Hx	5	±100	82.0%	±1200
4112DC-24D05NP-Hx	5	±100	82.0%	±1200
4112DC-12D09NP-Hx	9	±56	85.0%	±680
4112DC-15D09NP-Hx	9	±56	85.0%	±680

4112DC-24D09NP-Hx	9	±56	85.0%	±680
4112DC-12D12NP-Hx	12	±42	85.0%	±330
4112DC-15D12NP-Hx	12	±42	85.0%	±330
4112DC-24D12NP-Hx	12	±42	85.0%	±330
4112DC-12D15NP-Hx	15	±34	87.0%	±220
4112DC-15D15NP-Hx	15	±34	87.0%	±220
4112DC-24D15NP-Hx	15	±34	87.0%	±220
4112DC-12D24NP-Hx	24	±21	85.0%	±100
4112DC-15D24NP-Hx	24	±21	85.0%	±100
4112DC-24D24NP-Hx	24	±21	85.0%	±100

Note:

1. No suffix is standard isolation (1.5KVDC) e.g, 12DC-05S05NP, *add suffix "H3" for 3KVDC isolation, *add suffix "H4" for 4KVDC isolation, *add suffix "H5" for 5.2KVDC isolation, *add suffix "H6" for 6KVDC isolation.
2. "YY" is input voltage : 03=3.3Vdc, 05=5Vdc, 09=9Vdc
e.g, 12DC-03S05NP, 12DC-05S12NPH3, 12DC-09S15NP
3. "XX" is input voltage : 12=12Vdc, 15=15Vdc, 24=24Vdc
e.g, 12DC-12S05NP, 12DC-15S12NPH3, 12DC-24S15NP

Input Specifications	
Voltage Range	Vo, Io Nom @Vin: 3.3V, 5V, 9V ±10% Vo, Io Nom @Vin: 12V, 15V, 24V ±20%
Filter	Capacitor

Output Specifications					
Parameters	Conditions	min	Typ	Max	Units
Voltage Tolerance	100% full load			±5	%
Short Circuit Protection	Continuous				
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	3.3V (10% To 100% F.L)		15	20	%
	5V (10% To 100% F.L)		10	15	%
	9V (10% To 100% F.L)		8	10	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Ripple & Noise	BW=DC To 20MHz @Vo: 3.3V, 5V, 9V, 12V, 15V		30	75	mVp-p
	BW=DC To 20MHz @ Vo: 24V		50	100	mVp-p

General Specifications	
Switching Frequency	Full load, nominal input @3.3V, 5V Vin 215/370 KHz Full load, nominal input @other Vin 250 KHz
Isolation Resistance	500Vdc, 1000 min, MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V 20 pF
Operation Temperature	-40 ~ +105 °C
Storage Temperature	-55 ~ +125 °C
Humidity	Non Condensing 95 %
Cooling	Free air Convection
Case material	DAP

MTBF	MIL-HDBK-217F@25°C 3500000 Hours
Weight	2.1g
Dimensions	19.5x6.0x10.0 mm

Electromagnetic Compatibility (EMC)

EMI CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMI RE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
EMS ESD	IEC/EN61000-4-2 Air ±8kV ,Contact ±6kV perf. Criteria B

Part Number

4112DC - 15 S 05 N P -Hx

A B C D E F G

A:Series

B:Input Voltage

C:Single(S)/Dual(D)Output

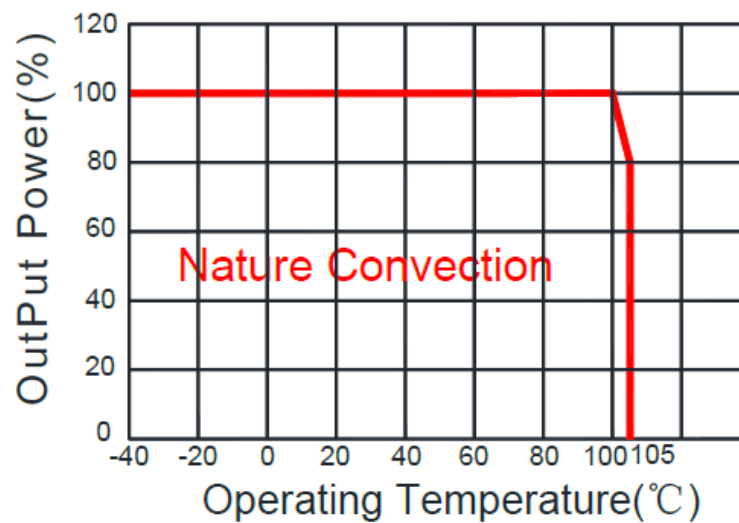
D:Output Voltage

E:Unregulated(N)

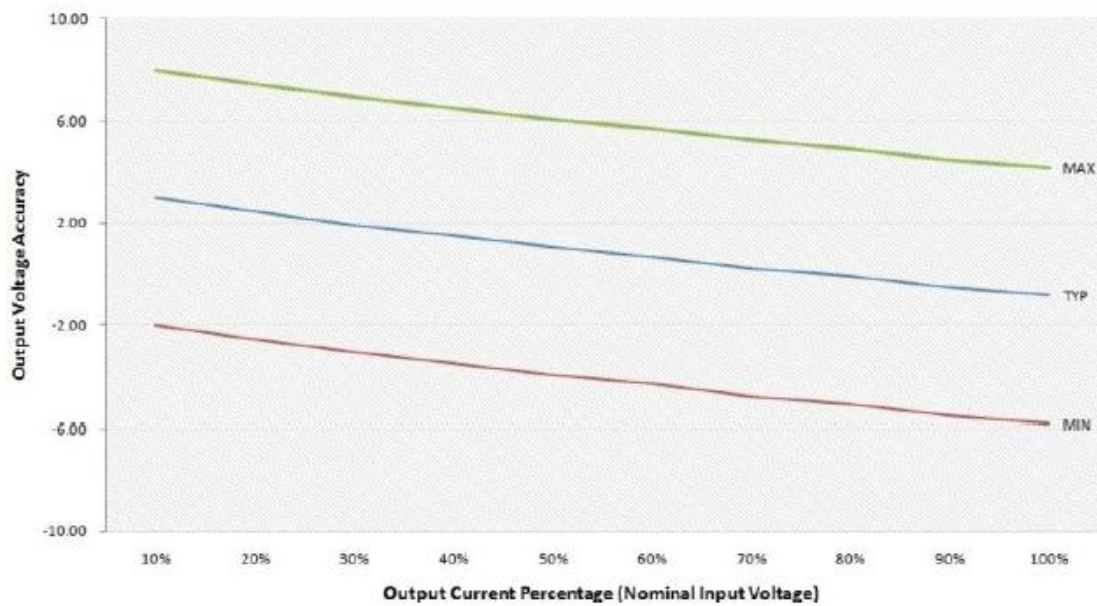
F:Protection

G:Isolation Voltage

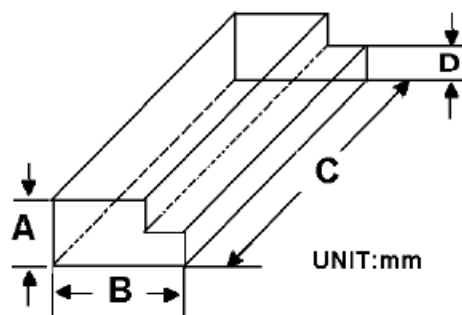
Temperature Derating Graph



Tolerance Envelope Graph



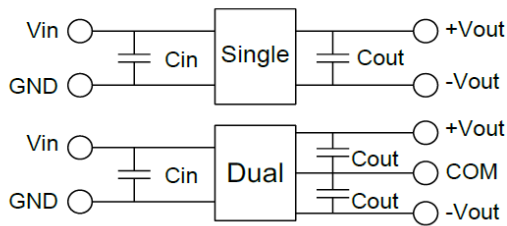
Packaging



TUBE-----25pcs

Size(mm)			
A	B	C	D
9.5	16.5	522	5.0

Recommended Test Circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
3.3Vdc	4.7μF/25V	3.3Vdc	10μF/16V	±3.3Vdc	±4.7μF/16V
5Vdc	4.7μF/25V	5Vdc	10μF/16V	±5Vdc	±4.7μF/16V
9Vdc	4.7μF/25V	9Vdc	2.2μF/16V	±9Vdc	±1μF/16V
12Vdc	2.2μF/25V	12Vdc	2.2μF/25V	±12Vdc	±1μF/25V
15Vdc	2.2μF/25V	15Vdc	1μF/25V	±15Vdc	±1μF/25V
24Vdc	1μF/50V	24Vdc	1μF/50V	±24Vdc	±1μF/50V

EMC (CLASS B) compliance circuit

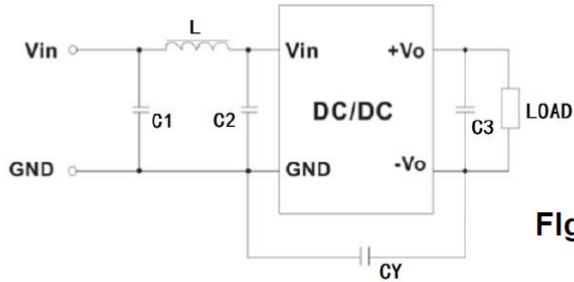
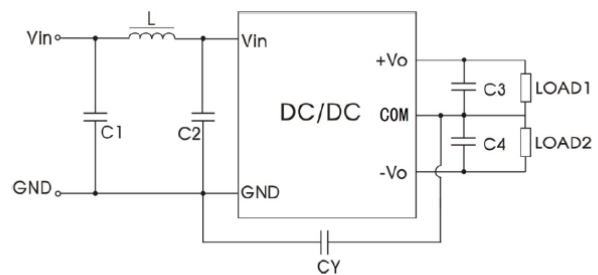


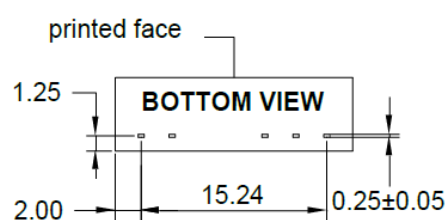
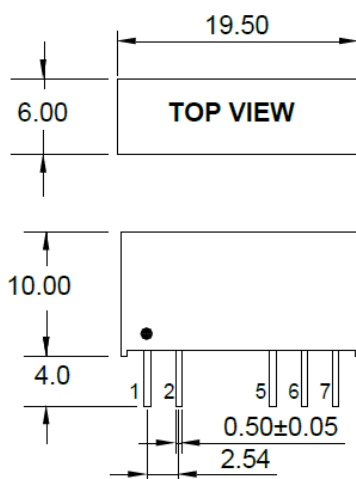
Fig.1



EMC recommended circuit value table

EMI	C1	4.7μF /50V
	C2	4.7μF /50V
	CY	1nF/4kV
	C3,C4	Recommended Test Circuit
	L	6.8μH

Markings and Dimensions



UNIT:mm Unless otherwise specified,all tolerances are ±0.25

PIN Connection					
PIN	1	2	5	6	7
Single	+Vin	-Vin	-Vout	No Pin	+Vout
Dual	+Vin	-Vin	-Vout	Com	+Vout