2S4A1_3UP series

2W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

DC-DC Converter 2 Watt

- 4Pin SIP Package
- Continuous short-circuit protection
- No-load input current as low as 5mA
- Operating ambient temp. range: -40°C to +105°C
- High efficiency up to 89%
- I/O isolation test voltage 3000VDC
- Industry standard pin-out
- Meets IEC62368, UL62368, EN62368 approvals

Introducing our cutting-edge 2S4A1_3UP series with a SIP4 Package, designed to meet the demanding needs of modern electronic applications. This package offers continuous short-circuit protection, ensuring your devices remain safe and operational under any circumstances. With a no-load input current as low as 5mA, it maximizes efficiency even in standby mode. Our SIP Package operates within a wide ambient temperature range from -40°C to +105°C, making it suitable for various environments and conditions. It boasts an impressive high efficiency of up to 89%, ensuring optimal performance and energy savings.

The I/O isolation test voltage stands at a robust 3kVDC, providing reliable insulation and safety. Adhering to an industry-standard pin-out, our SIP Package integrates seamlessly into your existing designs. It is built to comply with international standards IEC62368, UL62368, and EN62368, ensuring high quality and safety.

UL62368 - E347551
Pending

Common specifications

Short circuit protection	Continuous
Operation temperature	-40°C ~ +105°C (with derating)
Storage temperature	-55°C ~ +125°C
Storage humidity	95% RH (non-condensing)
MTBF: (MIL-HDBK-217F@25°C)	>3,500,000 hours
Case Material	DAP
Dimensions	11.5 x 6.0 x 10.0 mm
Weight	1.5g (typ.)
Cooling	Free air convection

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range	Vo, Io Nom		±10		%
Filter	Capacitor				

Example:
2S4A1_1205S3UP
2 = 2 Watt; S4 = SIP4; A1 = Series; 12 = 12Vin; 05 = 5Vout;
S = Single output; 3 = 3kVDC; U = Unregulated output;
P = Short circuit protection

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy	100% load			±5	%
Line regulation	For 1.0% of Vin			1.2	%
Load regulation (10% to 100% load)	5V 9V 12V 15V 24V		8 6 5 4 3	15 10 10 10 10	% % % % %
Ripple & noise	BW = DC to 20MHz		75	150	mVp-p
Switching frequency	Full load, nominal input		250		KHz

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage		3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output capacitance 100KHz/0.1V		20		pF

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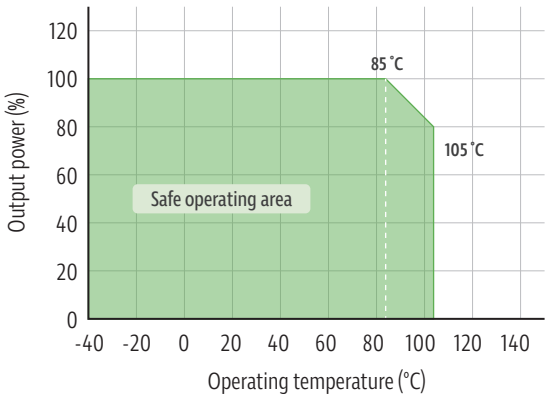
Product Selection Guide

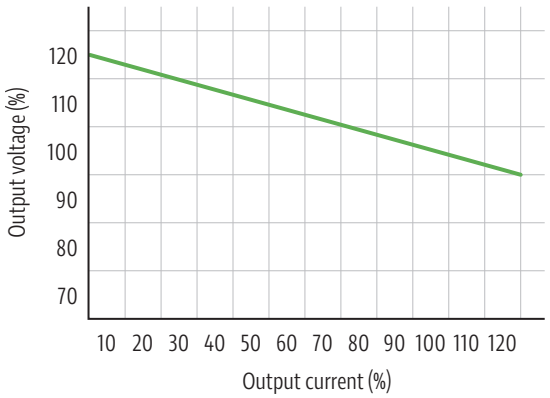
Model	Output		Full Load Efficiency (%) Typ.	Capacitive Load (µF) Max.
	Voltage (VDC)	Current (mA)		
2S4A1_0505S3UP	5	400	84	2400
2S4A1_0509S3UP	9	223	85	820
2S4A1_0512S3UP	12	167	85	470
2S4A1_0515S3UP	15	133	86	220
2S4A1_0524S3UP	24	84	87	100
2S4A1_1205S3UP	5	400	85	2400
2S4A1_1209S3UP	9	223	87	820
2S4A1_1212S3UP	12	167	87	470
2S4A1_1215S3UP	15	133	88	220
2S4A1_1224S3UP	24	84	89	100
2S4A1_1505S3UP	5	400	85	2400
2S4A1_1509S3UP	9	223	87	820
2S4A1_1512S3UP	12	167	87	470
2S4A1_1515S3UP	15	133	88	220
2S4A1_1524S3UP	24	84	89	100

Typical characteristics

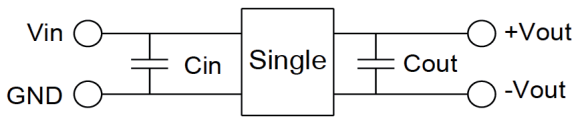
Temperature derating graph



Tolerance envelope graph



Recommended test circuit



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

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EMC (CLASS B) compliance circuit

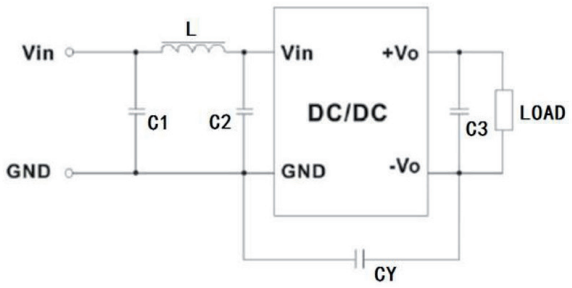
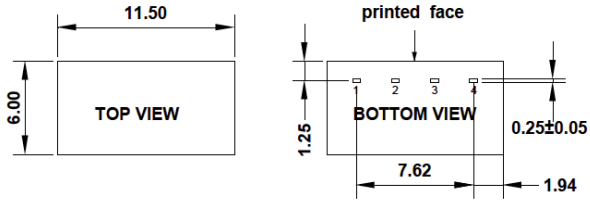


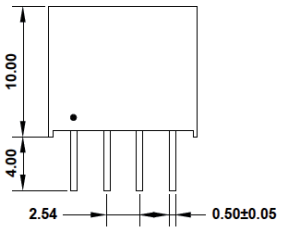
Fig. 1

EMC recommended circuit value table

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

Mechanical dimensions





Pin-Out	
Pin	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

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