2S7B1_4UP series

2W - Single/Dual Output DC-DC Converter - Isolated & Unregulated

DC-DC Converter 2 Watt

- SIP7 package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- Up to 89%efficiency
- Unregulated output types
- 3kVDC isolation
- Operating temperature: 40°C to +105°C
- Industry standard pinout
- IEC62368, UL62368, EN62368 approved

Introducing our new compact power 2S7B1_4UP series in a SIP7 package, designed to deliver high performance and reliability in a small form factor. With no-load input current as low as 5mA, these modules ensure minimal energy consumption when idle, making them highly efficient. Our power modules offer continuous short-circuit protection, ensuring the safety and longevity of your devices. Achieving up to 89% efficiency, they provide optimal power conversion, reducing energy loss and maximizing performance. Featuring unregulated output types and a robust 3kVDC isolation, these modules offer versatile solutions for various applications. They operate reliably in extreme temperatures, from -40°C to +105°C, making them suitable for harsh environments. Designed with an industry-standard pinout, our power modules are easy to integrate into your existing systems. They are approved to the stringent IEC62368, UL62368, and EN62368 standards, ensuring compliance with international safety regulations.

SHORT CIRCUIT PROTECTED

100% RoHS compliant

c UL us
UL62368 - E347551

Common specifications

Short circuit protection	Continuous
Operation temperature	-40°C ~+105°C (with derating)
Storage temperature	-55°C ~+125°C
Humidity	95 %RH (non Condensing)
MTBF: (MIL-HDBK-217F@25°C)	3,500,000 Hours
Case material	DAP
Switching frequency	Full load, nominal input @5V Vin - 215 kHz Full load, nominal input @other Vin - 250 kHz
Dimensions	19.5 x 6.0 x 10.0 mm
Weight	2.1 g
Cooling	Free air convection

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage Range	Vo, Io Nom		±10		%
Input filter	Capacitor				

Example:
2S7B1_1205D4UP
2 = 2Watt; S7 = SIP7; B1 = Pinning; 12 = 12Vin; 05 = 5Vout; D = Dual Output; 4 = 4kVDC isolation; U = Unregulated Output; P = Short Circuit Protection

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage tolerance	100% full load			±5	%
Line regulation	For 1.0% of Vin			1.2	%
Load regulation 10% to 100%	5V		8	15	%
	9V		6	10	%
	12V		5	10	%
	15V		4	10	%
	24V		3	10	%
Ripple & noise	BW = DC to 20MHz		75	150	mVp-p

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Insulation resistance	500VDC	1000			MΩ
Isolation voltage			4000		VDC
Isolation capacitance	Input-output, 100kHz/0.1V		20		pF

EMC specifications

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

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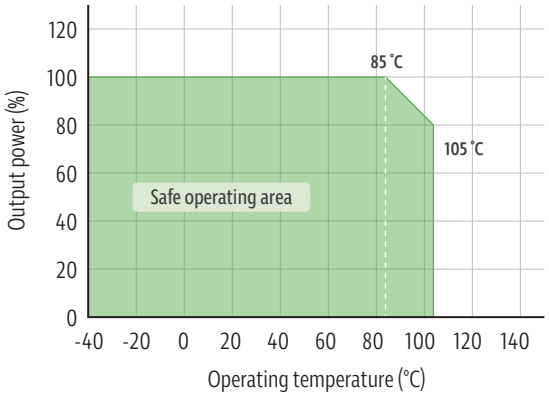
Product Selection Guide

Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%) typ.	Capacitive Load (µF)
UL	2S7B1_0505S4UP	5	5	400	84	2400
UL	2S7B1_0509S4UP	5	9	223	85	820
UL	2S7B1_0512S4UP	5	12	167	85	470
UL	2S7B1_0515S4UP	5	15	133	86	220
UL	2S7B1_0524S4UP	5	24	84	87	100
UL	2S7B1_1205S4UP	12	5	400	85	2400
UL	2S7B1_1209S4UP	12	9	223	87	820
UL	2S7B1_1212S4UP	12	12	167	87	470
UL	2S7B1_1215S4UP	12	15	133	88	220
UL	2S7B1_1224S4UP	12	24	84	89	100
UL	2S7B1_1505S4UP	15	5	400	85	2400
UL	2S7B1_1509S4UP	15	9	223	87	820
UL	2S7B1_1512S4UP	15	12	167	87	470
UL	2S7B1_1515S4UP	15	15	133	88	220
UL	2S7B1_1524S4UP	15	24	84	89	100
UL	2S7B1_2405S4UP	24	5	400	85	2400
UL	2S7B1_2409S4UP	24	9	223	87	820
UL	2S7B1_2412S4UP	24	12	167	87	470
UL	2S7B1_2415S4UP	24	15	133	88	220
UL	2S7B1_2424S4UP	24	24	84	89	100

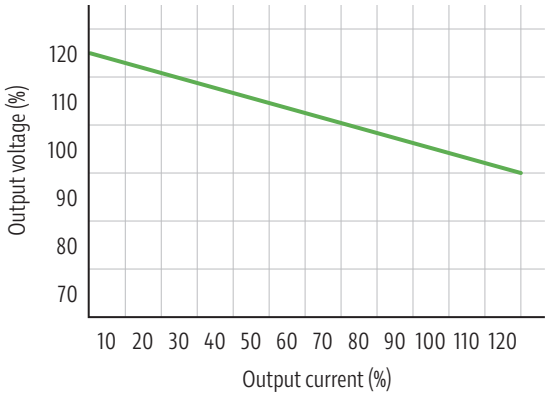
Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%) typ.	Capacitive Load (µF)
UL	2S7B1_0505D4UP	5	±5	±200	82	±1200
UL	2S7B1_0509D4UP	5	±9	±112	85	±330
UL	2S7B1_0512D4UP	5	±12	±84	85	±330
UL	2S7B1_0515D4UP	5	±15	±67	87	±220
UL	2S7B1_0524D4UP	5	±24	±42	88	±47
UL	2S7B1_1205D4UP	12	±5	±200	82	±1200
UL	2S7B1_1209D4UP	12	±9	±112	85	±330
UL	2S7B1_1212D4UP	12	±12	±84	87	±330
UL	2S7B1_1215D4UP	12	±15	±67	88	±100
UL	2S7B1_1224D4UP	12	±24	±42	89	±47
UL	2S7B1_1505D4UP	15	±5	±200	82	±1200
UL	2S7B1_1509D4UP	15	±9	±112	85	±330
UL	2S7B1_1512D4UP	15	±12	±84	87	±330
UL	2S7B1_1515D4UP	15	±15	±67	88	±100
UL	2S7B1_1524D4UP	15	±24	±42	89	±47
UL	2S7B1_2405D4UP	24	±5	±200	82	±1200
UL	2S7B1_2409D4UP	24	±9	±112	85	±330
UL	2S7B1_2412D4UP	24	±12	±84	87	±330
UL	2S7B1_2415D4UP	24	±15	±67	88	±100
UL	2S7B1_2424D4UP	24	±24	±42	89	±47

Typical characteristics

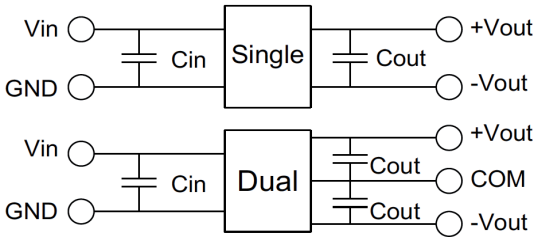
Temperature derating graph



Tolerance envelope graph



Recommended test circuit



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

EMC (CLASS B) compliance circuit

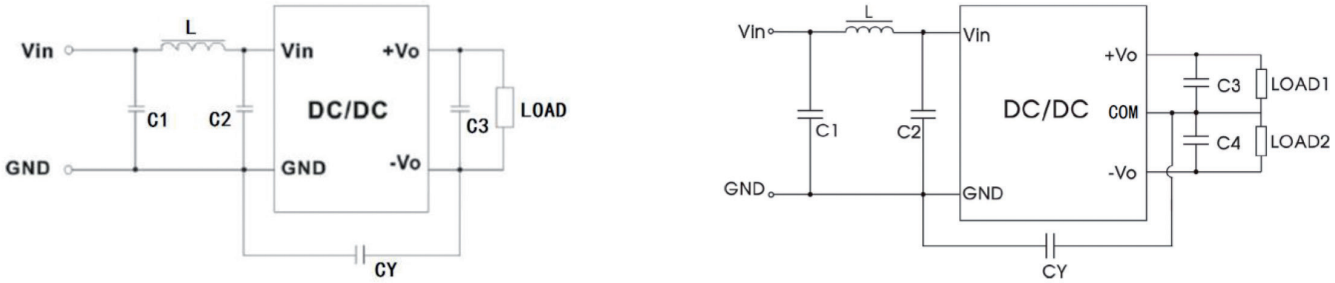


Fig. 1

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

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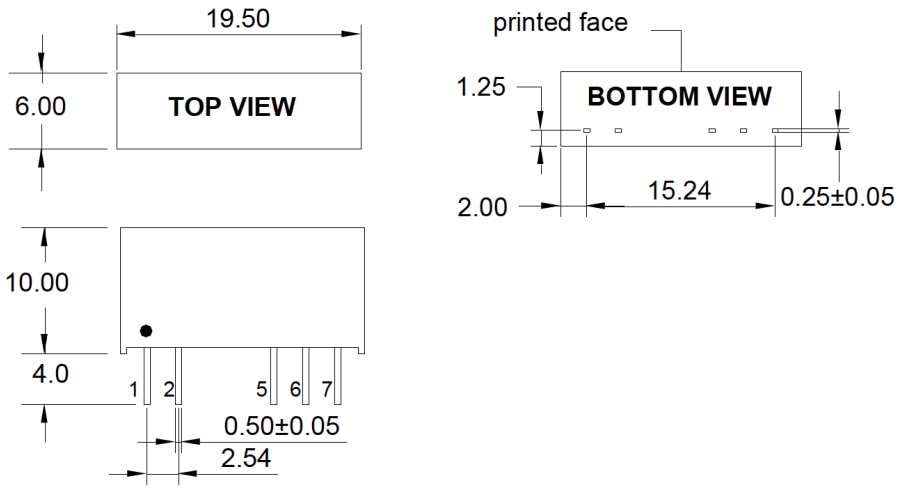
Mechanical dimensions



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