



3S7B1_3UP series

3W - Single/Dual Output DC-DC Converter - Isolated & Unregulated

DC-DC Converter

3 Watt

- ⊕ SIP7 package
- ⊕ No-load input current as low as 8mA
- ⊕ Continuous short-circuit protection
- ⊕ Up to 88% efficiency
- ⊕ Unregulated output types
- ⊕ 3000VDC isolation
- ⊕ Operating temperature: -40°C to +85°C
- ⊕ Industry standard pinout
- ⊕ IEC62368, UL62368, EN62368 approved

Introducing our new SIP7 3S7B1_3UP series, designed to deliver exceptional performance in a compact form. With a no-load input current as low as 8mA, this package ensures efficient energy usage even when idle. It features continuous short-circuit protection, providing reliable safeguarding for your devices against unexpected surges. Achieving up to 88% efficiency, this package is perfect for those seeking to optimize power usage. It offers unregulated output types, providing flexibility for various applications. With robust 3000VDC isolation, your circuits are well-protected from voltage spikes, ensuring durability and safety.

Engineered to operate seamlessly in temperatures ranging from -40°C to +85°C, this package meets the demands of harsh environments. Its industry-standard pinout guarantees easy integration with a wide range of systems. Additionally, it is IEC62368, UL62368, and EN62368 approved, adhering to stringent international safety standards.



UL62368 - E347551

Common specifications	
Short circuit protection	Continuous
Operation temperature	-40°C ~+100°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 250 kHz
Dimensions	19.5 x 7.1 x 10.0 mm
Weight	2.7g
Cooling	Free air convection

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

Example:

3S7B1_1205D3UP

3 = 3Watt; S7 = SIP7; B1 = Pinning; 12 = 12Vin; 05 = 5Vout; D = Dual Output; 3 = 3kVDC; 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		9	15	%
	12V		7	10	%
	15V		6	10	%
	24V		5	10	%
Ripple & Noise	BW = DC to 20MHz		100	150	mVp-p

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Insulation resistance	500VDC	1000			MΩ
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	Series	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA) Max./Min.	Full Load Efficiency (%) Typ.	Capacitive Load (μF) Max.
UL	3S7B1_1205S3UP	12	5	600	85	1000
UL	3S7B1_1212S3UP	12	12	250	87	220
UL	3S7B1_1215S3UP	12	15	200	88	220
UL	3S7B1_1224S3UP	12	24	125	88	47
UL	3S7B1_1505S3UP	15	5	600	85	1000
UL	3S7B1_1512S3UP	15	12	250	87	220
UL	3S7B1_1515S3UP	15	15	200	88	220
UL	3S7B1_1524S3UP	15	24	125	88	47
UL	3S7B1_2405S3UP	24	5	600	85	1000
UL	3S7B1_2412S3UP	24	12	250	87	220
UL	3S7B1_2415S3UP	24	15	200	88	220
UL	3S7B1_2424S3UP	24	24	125	88	47

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UL	3S7B1_1205D3UP	12	±5	±300	86	±560
UL	3S7B1_1212D3UP	12	±12	±125	86	±100
UL	3S7B1_1215D3UP	12	±15	±100	88	±100
UL	3S7B1_1224D3UP	12	±24	±63	88	±22
UL	3S7B1_1505D3UP	15	±5	±300	86	±560
UL	3S7B1_1512D3UP	15	±12	±125	86	±100
UL	3S7B1_1515D3UP	15	±15	±100	88	±100
UL	3S7B1_1524D3UP	15	±24	±63	88	±22
UL	3S7B1_2405D3UP	24	±5	±300	86	±560
UL	3S7B1_2412D3UP	24	±12	±125	86	±100
UL	3S7B1_2415D3UP	24	±15	±100	88	±100
UL	3S7B1_2424D3UP	24	±24	±63	88	±22

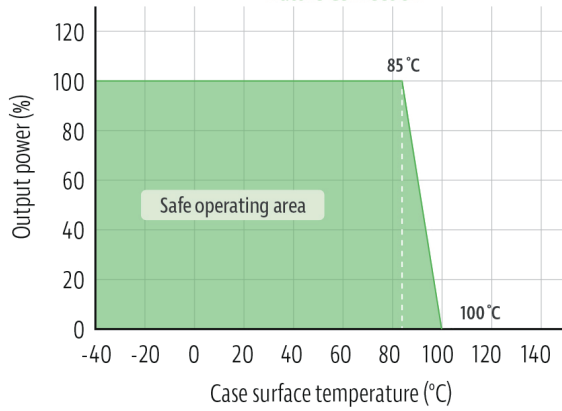
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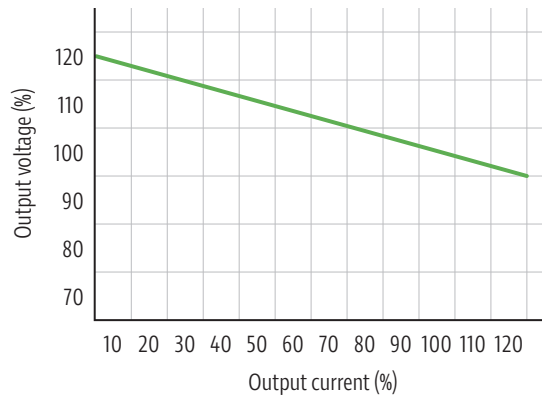
Typical characteristics

Temperature derating graph

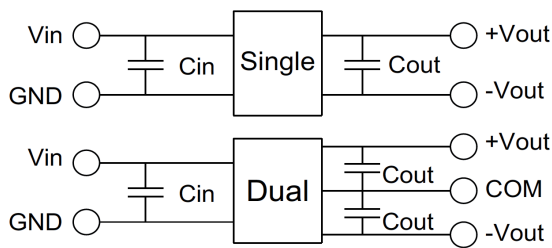
Nature Convection



Tolerance envelope graph



Recommended test circuit



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

EMC (CLASS B) compliance circuit

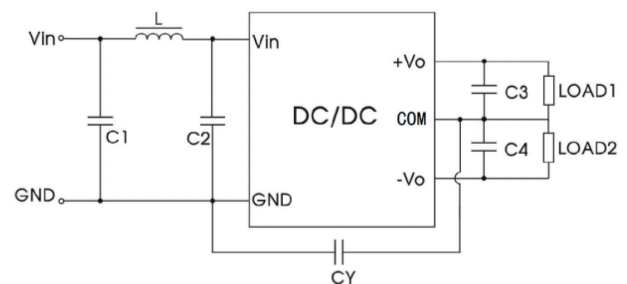
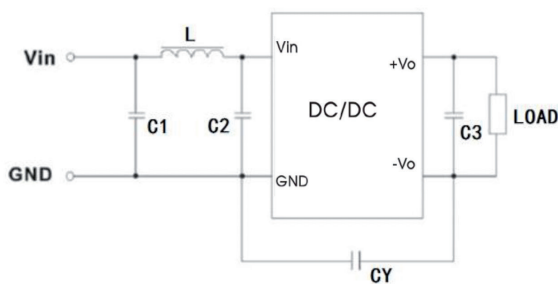


Fig. 1

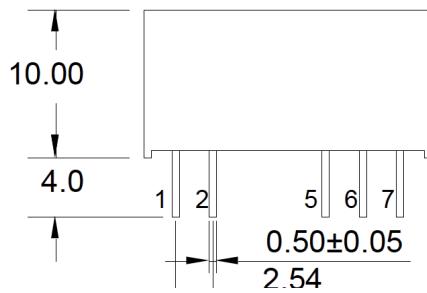
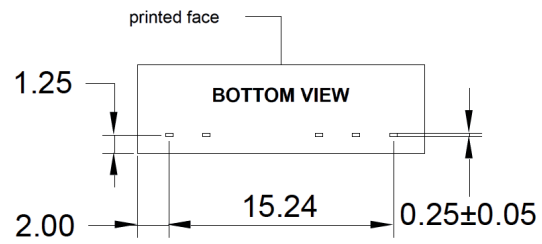
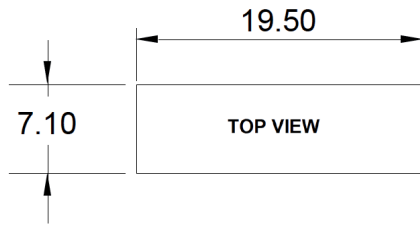
EMC recommended circuit value table

EMI	C1	10μF /50V
EMI	C2	10μF /50V
EMI	CY	1nF/4kV
EMI	C3, C4	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