

2S7B1_3UP 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_3UP 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.



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_1205D3UP

2 = 2Watt; S7 = SIP7; B1 = Pinning; 12 = 12Vin; 05 = 5Vout; D = Dual Output; 3 = 3kVDC 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			3000		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

2S7B1_3UP series

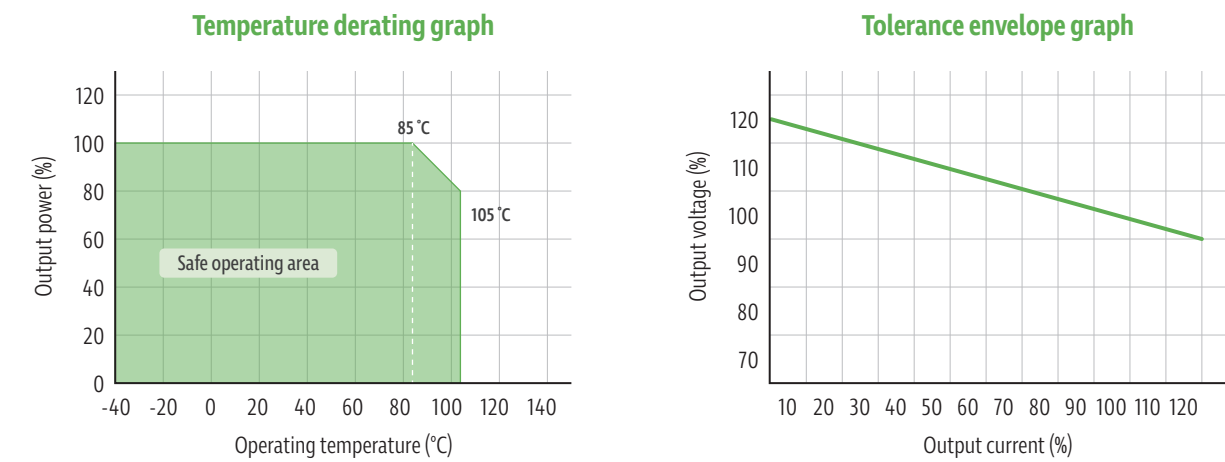
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Product Selection Guide

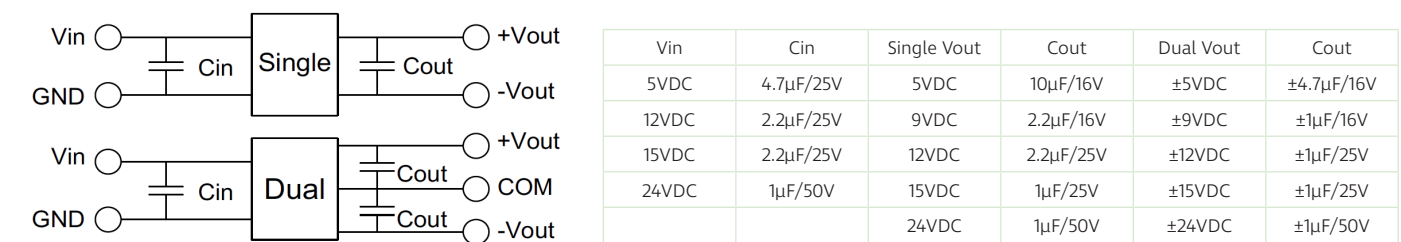
Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%) typ.	Capacitive Load (μF)
UL	2S7B1_0505S3UP	5	5	400	84	2400
UL	2S7B1_0509S3UP	5	9	223	85	820
UL	2S7B1_0512S3UP	5	12	167	85	470
UL	2S7B1_0515S3UP	5	15	133	86	220
UL	2S7B1_0524S3UP	5	24	84	87	100
UL	2S7B1_1205S3UP	12	5	400	85	2400
UL	2S7B1_1209S3UP	12	9	223	87	820
UL	2S7B1_1212S3UP	12	12	167	87	470
UL	2S7B1_1215S3UP	12	15	133	88	220
UL	2S7B1_1224S3UP	12	24	84	89	100
UL	2S7B1_1505S3UP	15	5	400	85	2400
UL	2S7B1_1509S3UP	15	9	223	87	820
UL	2S7B1_1512S3UP	15	12	167	87	470
UL	2S7B1_1515S3UP	15	15	133	88	220
UL	2S7B1_1524S3UP	15	24	84	89	100
UL	2S7B1_2405S3UP	24	5	400	85	2400
UL	2S7B1_2409S3UP	24	9	223	87	820
UL	2S7B1_2412S3UP	24	12	167	87	470
UL	2S7B1_2415S3UP	24	15	133	88	220
UL	2S7B1_2424S3UP	24	24	84	89	100

Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%) typ.	Capacitive Load (μF)
UL	2S7B1_0505D3UP	5	±5	±200	82	±1200
UL	2S7B1_0509D3UP	5	±9	±112	85	±330
UL	2S7B1_0512D3UP	5	±12	±84	85	±330
UL	2S7B1_0515D3UP	5	±15	±67	87	±220
UL	2S7B1_0524D3UP	5	±24	±42	88	±47
UL	2S7B1_1205D3UP	12	±5	±200	82	±1200
UL	2S7B1_1209D3UP	12	±9	±112	85	±330
UL	2S7B1_1212D3UP	12	±12	±84	87	±330
UL	2S7B1_1215D3UP	12	±15	±67	88	±100
UL	2S7B1_1224D3UP	12	±24	±42	89	±47
UL	2S7B1_1505D3UP	15	±5	±200	82	±1200
UL	2S7B1_1509D3UP	15	±9	±112	85	±330
UL	2S7B1_1512D3UP	15	±12	±84	87	±330
UL	2S7B1_1515D3UP	15	±15	±67	88	±100
UL	2S7B1_1524D3UP	15	±24	±42	89	±47
UL	2S7B1_2405D3UP	24	±5	±200	82	±1200
UL	2S7B1_2409D3UP	24	±9	±112	85	±330
UL	2S7B1_2412D3UP	24	±12	±84	87	±330
UL	2S7B1_2415D3UP	24	±15	±67	88	±100
UL	2S7B1_2424D3UP	24	±24	±42	89	±47

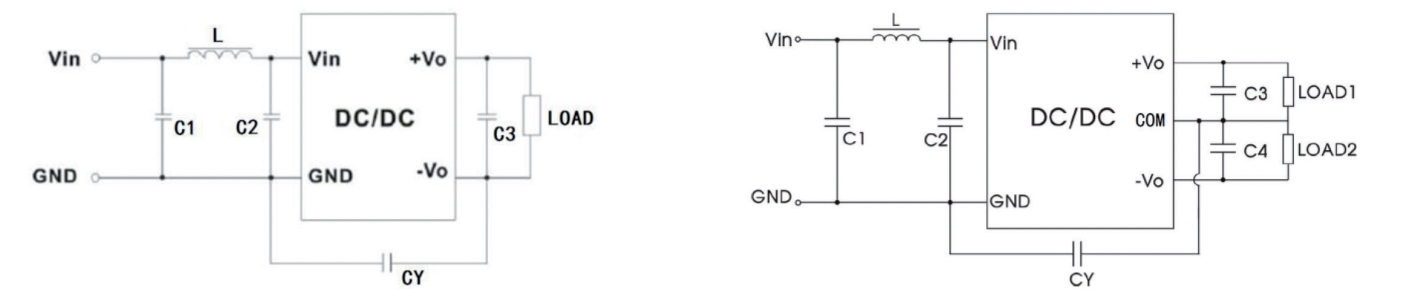
Typical characteristics



Recommended test circuit



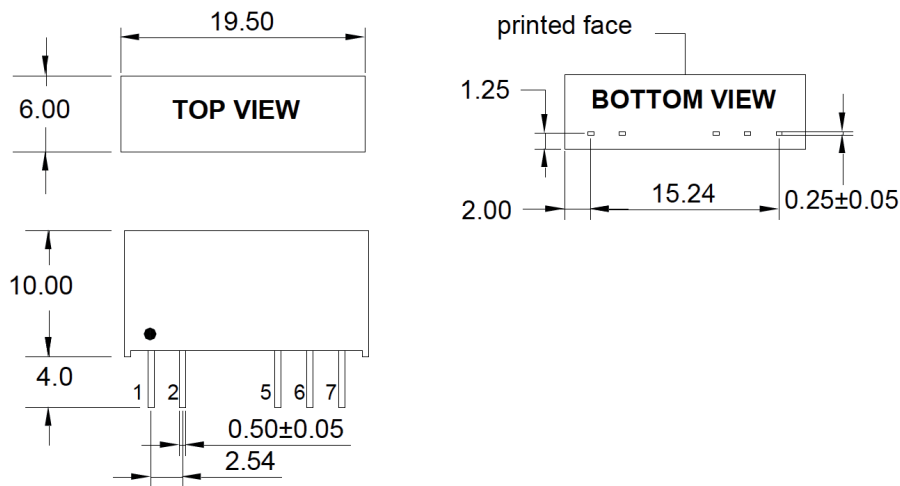
EMC (CLASS B) compliance circuit



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



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