3S4A2_1.5UP series

3W - Single Output DC-DC converter - Isolated & Unregulated

DC-DC Converter 3 Watt

- SIP4 package
- Operating temperature range: -40°C to 105°C
- Isolation voltage 1500VDC
- Short circuit protection (SCP)
- High efficiency up to 82%
- International standard pin method
- Low ripple & noise

Introducing our new and compact 3S4A2_1.5UP series, designed in a convenient SIP4 package to meet the demands of various applications. Operating efficiently within a wide temperature range of -40°C to 105°C, this module ensures reliable performance even in challenging environments. With an isolation voltage of 1500VDC and built-in short circuit protection (SCP), it offers robust safety features to protect your systems. Achieving high efficiency of up to 82%, this module optimizes energy usage while minimizing losses. Engineered with an international standard pin method and delivering low ripple & noise, this module is the ideal choice for applications that require both precision and reliability in a compact form.

Common specifications

Short circuit protection	Continuous, self-recovery
Switching frequency	220kHz (Full load, nominal input voltage)
Operating temperature	-40°C - +105°C (with derating)
Storage temperature	-55°C - +125°C
Case temperature rise	+15°C (typ.) Ta = 25°C nominal input, output load
Pin withstand welding temp	300°C (max.) distance to case 1.5mm, 10 seconds
Relative humidity	95% RH (non-condensing)
Hot plug	Unavailable
MTBF (MIL-HDBK-217F@25°C)	> 3,500,000 Hours
Case material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Weight	1.6g (typ.)
Cooling method	Free air convection

Input specifications

Item	Operating condition	Min	Typ	Max	Units
Input current	5VDC input		370/3	390/15	mA
Reflected ripple current			15		mA
Impulse voltage	5VDC input	-0.7		9	VDC
Input filter	Capacitance Filter				

EMC specifications

EMI	CE	CISPR32/EN55032 CLASS A	
EMI	RE	CISPR32/EN55032 CLASS A	
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV	perf. Criteria B

Example:
3S4A2_0505S1.5UP
3 = 3Watt; S4 = SIP4; A2 = Series; 05 = 5Vin; 05 = 5Vout; S = Single Output; 1.5 = 1.5kVDC isolation; U = Unregulated Output; P = Short circuit protection.

Output specifications

Item	Operating condition	Min	Typ	Max	Units
Output voltage accuracy	See envelope curve figure				
Linear regulation rate	Input voltage variation +/-1%		±1.5		%
Load regulation rate	10% - 100% load		18		%
Ripple noise	20MHz Bandwidth (peak-peak)		60	120	mV
Temperature drift coefficient	Full Load		±0.03		%/°C

Isolation specifications

Item	Operating Conditions	Min	Typ	Max	Units
Isolation voltage	Input-output, test time 1 minute, leakage current less than 1mA	1500			VDC
Isolation resistance	Input-output, isolated voltage 500VDC	1000			MΩ
Isolation capacitance	Input-output, 100kHz/0.1V		20		pF

1. The input voltage should not exceed the specified range value, otherwise it may cause permanent and irreparable damage;
2. It is recommended to use at a load of over 5%. If the load is below 5%, the ripple index of the product may exceed the specifications, but it does not affect the reliability of the product;
3. The maximum capacitive load is tested within the input voltage range and under full load conditions;
4. Unless otherwise specified, all indicators in this manual are measured at Ta = 25°C, humidity <75% RH, nominal input voltage, and output rated load;
5. All indicator testing methods in this manual are based on our company's corporate standards;
6. Our company can provide product customization, and specific requirements can be directly contacted by our technical personnel;
7. Product specifications are subject to change without prior notice.

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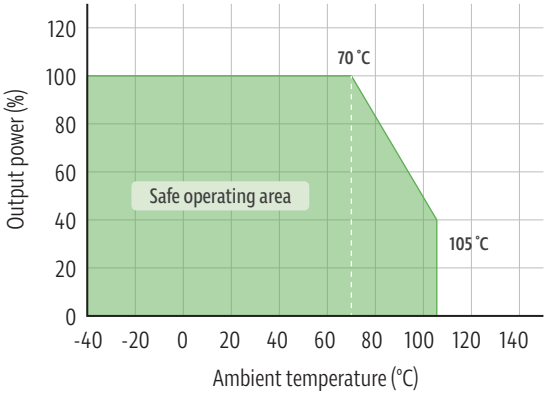
Product Selection Guide

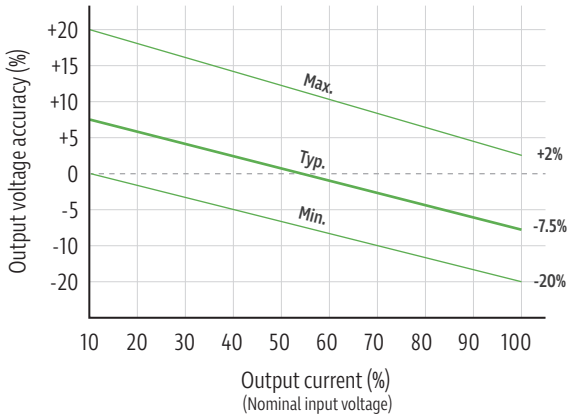
Approval	Part number	Input Voltage Nominal (VDC)	Output Voltage (VDC)	Output Current min (mA)	Output Current max (mA)	Full Load Efficiency% (typ.)	Max. Capacitive Load (uF)
	3S4A2_0505S1.5UP	5	5	60	600	82	2400

Product characteristic curve

Temperature derating graph



Output regulation curve



Typical circuit design and application

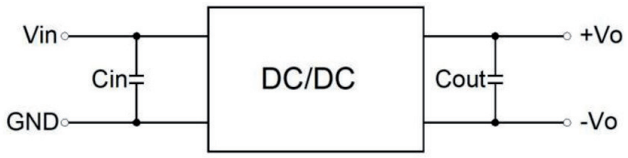


Figure 3

Recommended parameter table

Cin	Cout
10μF/16V	10μF/16V

EMI compliance circuit

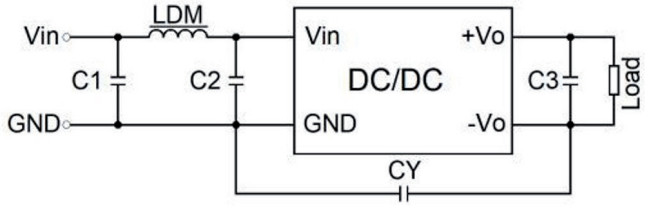


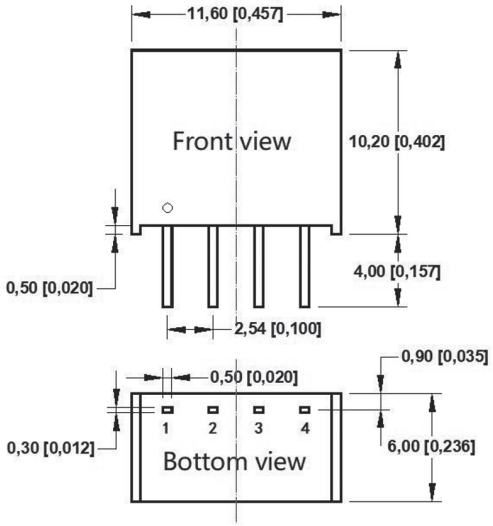
Figure 4

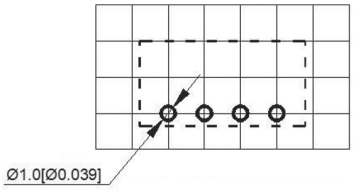
EMI recommended parameter table

C1/C2	CY	C3	LDM
10μF/16V	1nF/2KV	10μF/16V	6.8μH

1. Typical applications
If further reduction of input and output ripple is required, a capacitor filtering network can be connected at the input and output terminals, and the application circuit is shown in Figure 3.
However, attention should be paid to selecting appropriate filtering capacitors. If the capacitance is too large, it is likely to cause startup problems. For each output, while ensuring safe and reliable operation, the recommended capacitive load values are detailed in the table.
2. Typical recommended circuit: see Figure 4
3. Output load requirements
4. To ensure the efficient and reliable operation of the module, its minimum output load should not be less than 10% of the rated load when in use. If your required power is indeed small, please connect a resistor in parallel at the output end (the sum of the power consumed by the resistor and the actual power used is greater than or equal to 10% of the rated power).

Mechanical dimensions





The grid distance is 2.54mm x2.54mm

Note:
Unit: mm [inch]
Pin section tolerances: ±0.10 [±0.004]
General tolerances: ±0.50 [±0.020]

Pin Function	1	2	3	4
Single	GND	Vin	-Vo	+Vo