



## 3S4A\_1UP series

3W Single Output - Fixed Input - Isolated & Unregulated  
SIP PACKAGE

## DC-DC Converter

3 Watt

- ⊕ Small Footprint
- ⊕ Ultra compact SIP package
- ⊕ Power density: 1.53W/cm<sup>3</sup>
- ⊕ Temperature range: -40°C ~ +85°C
- ⊕ Efficiency up to 81%
- ⊕ No external component required
- ⊕ 1kVDC isolation
- ⊕ Internal SMD construction
- ⊕ Industry standard pinout
- ⊕ RoHS compliance
- ⊕ Continuous short voltage protection (SCP)

The 3S4A\_1UP series contains miniature, isolated 3W DC-DC converters in a SIP package. They offer the ideal solution in many space critical applications for board level power distribution.

The internal SMD construction makes it possible to offer a product with high performance at low cost. The series offers smaller size, improved efficiency, lower output ripple noise and 1kVDC isolation.



### Common specifications

Short circuit protection*:	Continuous, auto-recovery
Casing temperature rise at full load:	5V output: 41°C MAX Other output: 32°C MAX
Cooling:	Free air convection
Operation temperature range:	-40°C – +85°C
Storage temperature range:	-55°C – +150°C
Lead temperature:	300°C (1.5mm from case for 10 sec.)
Storage humidity range:	< 95%
Case material:	Black flame-retardant heat-proof plastic [UL94-V0]
Potting material:	Epoxy [UL94-V0]
MTBF:	>3,500,000 hours
Weight:	1.3g

\* Supply voltage must be discontinued at the end of short circuit duration.

### Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	1000			VDC
Isolation resistance	Input-output, isolation voltage 500VDC	1000			MΩ

### EMC specifications

EMI	CE	CISPR22/EN55022	CLASS B	(see EMC solution-recommended circuit)	
EMI	RE	CISPR22/EN55022	CLASS B	(see EMC solution-recommended circuit)	
EMI	ESD	IEC 61000-4-2	Contact	±6KV	perf. Criteria B

### Example:

**3S4A\_0505S1UP**

3 = 3Watt; S4 = SIP4; A = Pinning; 5Vin; 5Vout; S = Single Output;  
1 = 1kVDC; U = Unregulated Output; P = Short circuit protection (SCP)

### Output specifications

Item	Test condition	Min	Typ	Max	Units	
Output voltage accuracy	See tolerance envelope					
Line regulation	For Vin change of ±1%	1	1.2		%	
Load regulation (10%-100% load)	• 5VDC output • 9VDC output • 12VDC output • 15VDC output • 24VDC output	14	15	9	10	%
		7.5	9.5	7	8.5	%
		5.5	7.5			%
Temperature drift	100% full load			±0.03	%/°C	
Ripple&Noise*	20MHz Bandwidth		100		mVp-p	
Switching frequency	• 5V input • 12V input	70	145	110	KHz	

\*Ripple and noise are measured by "parallel cable" method.

### Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range	• 5V input • 12V input	4.5	5	5.5	V
		10.8	12	13.2	V
Reflected ripple current			26	48	mA
Surge voltage	• 5V input • 12V input	-0.7		9	VDC
		-0.7		18	VDC
Input filter	Capacitor				
Hot plug	Unavailable				

### Note:

- If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
- The maximum capacitive load offered were tested at nominal input voltage and full load;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta = 25°C, humidity <75% with nominal input voltage and rated output load;
- All index testing methods in this datasheet are based on our Company's corporate standards;
- The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
- We can provide product customization service;
- Specifications are subject to change without prior notice.

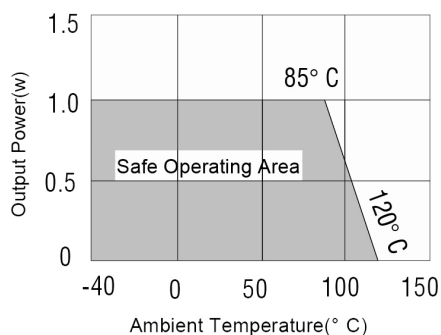
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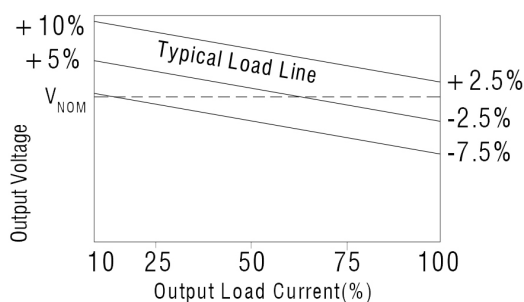
Part Number	Input Voltage [V]	Output Voltage [VDC]	Current [mA, max]	Efficiency [%, typ]	Capacitor load [ $\mu$ F]
3S4A_0505S1UP	5	5	600	77	220
3S4A_0509S1UP	5	9	333	80	220
3S4A_0512S1UP	5	12	250	82	220
3S4A_0515S1UP	5	15	200	80	220
3S4A_0524S1UP	5	24	125	79	220
3S4A_1205S1UP	12	5	600	80	220
3S4A_1209S1UP	12	9	333	83	220
3S4A_1212S1UP	12	12	250	86	220
3S4A_1215S1UP	12	15	200	84	220
3S4A_1218S1UP	12	18	166	74	220

## Typical characteristics

Temperature derating graph

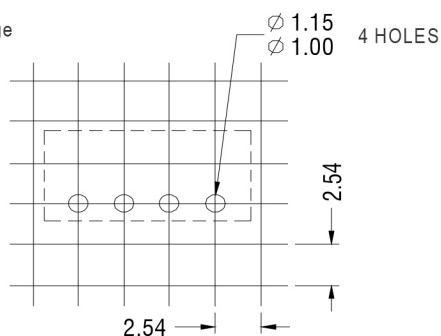


Tolerance envelopes graph



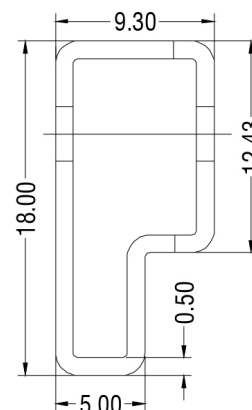
## Recommended footprint

4Pin SIP Package



## Tube outline

4Pin SIP Tube

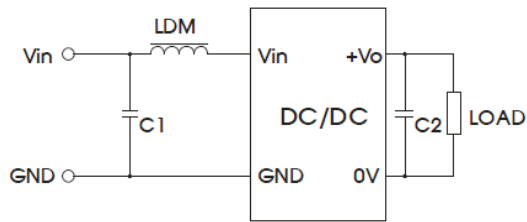


**Note:**  
Unit: mm  
General tolerance:  $\pm 0.5$ mm  
Tube length: 520mm;  $\pm 2$ mm  
Tube quantity: 35pcs

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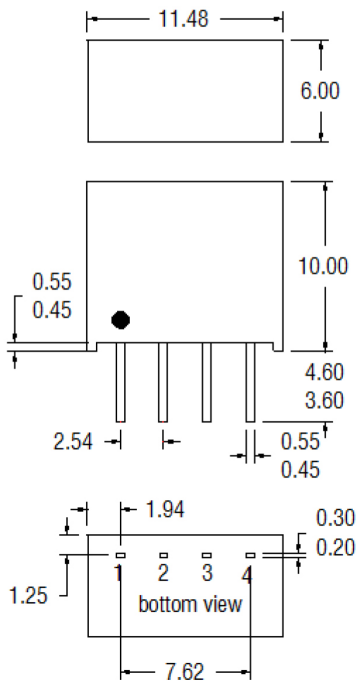
### EMC solution recommended circuit



input voltage		5V
EMI	C1	2.2uF 0805 16V
	C2	2.2uF 0805 16V
	LDM	6.8μH

### Mechanical Dimensions

### Pin connections



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

**Note:**  
Unit: mm  
All pins on a 2.54mm pitch  
Pin diameter: ±0.25mm  
Case tolerances: ±0.25mm