



## 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.

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	14	15	%		
	• 9VDC output	9	10	%		
	• 12VDC output	7.5	9.5	%		
	• 15VDC output	7	8.5	%		
	• 24VDC output	5.5	7.5	%		
Temperature drift	100% full load			±0.03	% / °C	
Ripple & Noise*	20MHz Bandwidth	100		mVp-p		
Switching frequency	• 5V input	70	110	KHz		
	• 12V input	145		KHz		

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

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)

Input specifications						
Item	Test condition	Min	Typ	Max	Units	
Voltage range	• 5V input	4.5	5	5.5	V	
	• 12V input	10.8	12	13.2	V	
Reflected ripple current		26		48	mA	
Surge voltage	• 5V input	-0.7	9		VDC	
	• 12V input	-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.

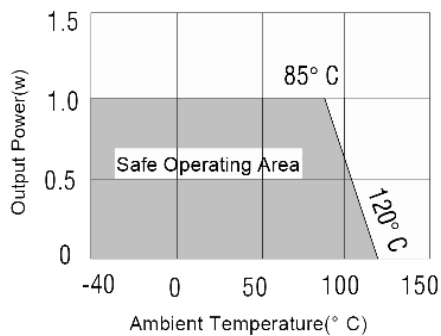
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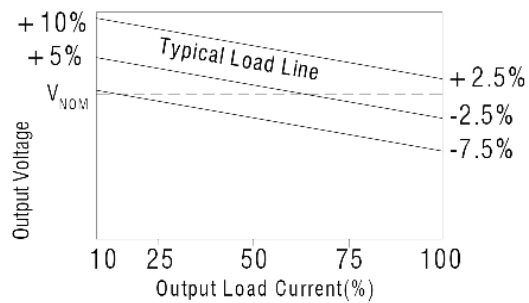
Part Number	Input Voltage [V]	Output Voltage [VDC]	Current [mA, max]	Efficiency [%, typ]	Capacitor load [ $\mu$ F]
3S4A_0505S1UP	5	5	600	77	220
3S4A_0509S1UP	5	9	333	80	220
3S4A_0512S1UP	5	12	250	82	220
3S4A_0515S1UP	5	15	200	80	220
3S4A_0524S1UP	5	24	125	79	220
3S4A_1205S1UP	12	5	600	80	220
3S4A_1209S1UP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

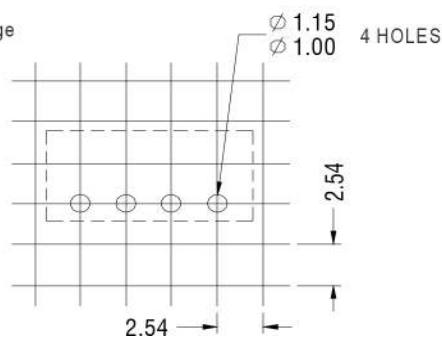


Tolerance envelopes graph



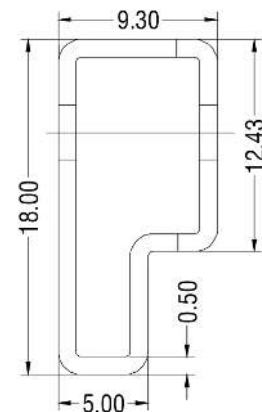
## Recommended footprint

4Pin SIP Package



## Tube outline

4Pin SIP Tube

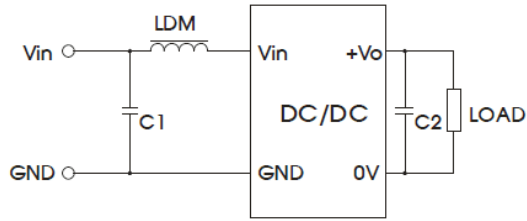


**Note:**  
Unit: mm  
General tolerance:  $\pm 0.5$ mm  
Tube length: 520mm;  $\pm 2$ mm  
Tube quantity: 35pcs

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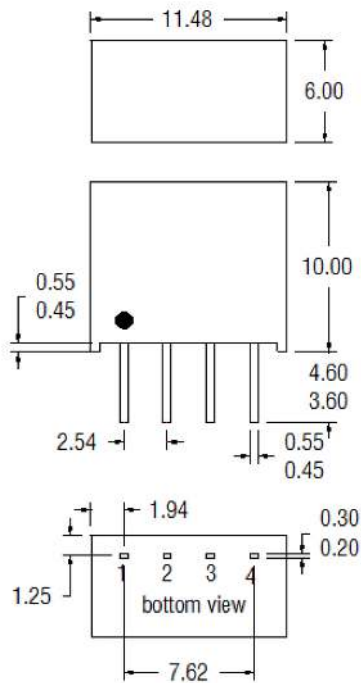
### EMC solution recommended circuit



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