



3S4A_1.5UP series

3W Single Output - Fixed Input - Isolated & Semi-regulated SIP Package

DC-DC Converter 3 Watt

- + 4 Pin SIP Package
- + No load input current as low as 8mA
- + Continuous short circuit protection
- + High Efficiency up to 88%
- + Unregulated output types
- + 1.5kVDC isolation
- + Operating Temperature: -40°C to +85°C
- + Industry Standard Pinout
- + Design refers to IEC62368, UL62368, EN62368

The 3S4A_1.5UP series is a family of cost effective 3W single & dual output DC-DC converters. These converters achieve low cost and ultra-miniature SIP4 pin size. Devices are encapsulated using flame retardant resin. The models operate from input voltage of 5, 12, 24 VDC with output voltage of 5, 12, 15, 24 VDC. High performance features include 1,500VDC input/output isolation, high efficiency operation and output voltage accuracy of $\pm 5\%$ maximum. Standard features include an input range of $\pm 10\%$ tolerance and low output noise and ripple.



Common specifications					
Item	Test condition	Min	Typ	Max	Units
Switching Frequency	Full load, nominal input		250		KHz
Operation Temperature		-40		+85	°C
Storage Temperature		-55		+125	°C
Humidity	Non Condensing			95	%
Cooling	Free air Convection				
Case material	DAP				
MTBF	MIL-HDBK-217F@25°C	3500000			Hours
Weight			1.9		g
Dimensions			12.70x10.16x7.50		mm

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

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation capacitance	Input-output, 100KHz/0.1V		20		pF
Isolation resistance	500VDC	1000			MΩ

EMC specifications					
CE	CISPR32/EN55032	CLASS B (see Fig. 1 for recommended circuit)			
RE	CISPR32/EN55032	CLASS B (see Fig. 1 for recommended circuit)			
ESD	IEC/EN61000-4-2 Air ± 8 kV , Contact ± 4 kV perf. Criteria B				

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage Tolerance	100% full load			± 5	%
Short Circuit Protection		Continuous			
Line Regulation	For 1.0% OF Vin		1.2		%
Load Regulation	5V (10% To 100% F.L)		9	15	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
Ripple & Noise	24V (10% To 100% F.L)		5	10	%
	BW=DC To 20MHz		100	150	mVp-p

Example:
3S4A_0505S1.5UP
 3 = 3Watt; S4 = SIP4; A = Pinning; 05 = 5Vin; 05 = 5Vout; S = Single Output; 1.5 = 1.5kVDC isolation; U = Unregulated Output; P = Short circuit protected

- Note:
- Operation under minimum load will not damage the converter; However, they may not meet all specification listed, and that will reduce the life of product.
 - All specifications measured at Ta = 25°C, humidity <95%, nominal input voltage and rated output load unless otherwise specified.
 - Measured Input reflected ripple current with a simulated source inductance of 12μH and a source capacitor
 - Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating
 - Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

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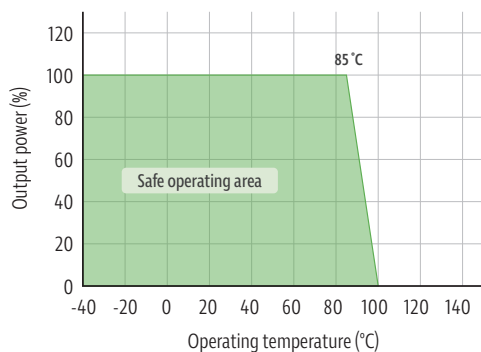
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SIP Package

Product Selection Guide

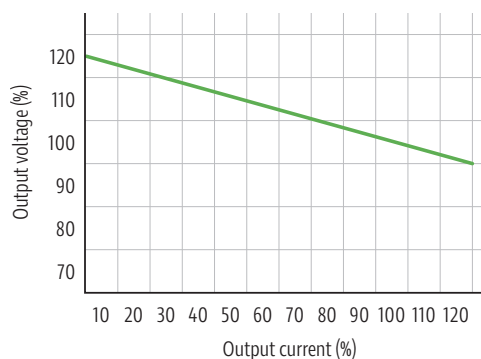
Part Number	Output Voltage [VDC]	Output Current [Full Load mA, max]	Efficiency [@FL, %, max]	CapacitorLoad [@FL, μ F]
3S4A_1205S1.5UP	5	600	85	1000
3S4A_1212S1.5UP	12	250	87	220
3S4A_1215S1.5UP	15	200	88	220
3S4A_1224S1.5UP	24	125	88	47
3S4A_1505S1.5UP	5	600	85	1000
3S4A_1512S1.5UP	12	250	87	220
3S4A_1515S1.5UP	15	200	88	220
3S4A_1524S1.5UP	24	125	88	47
3S4A_2405S1.5UP	5	600	85	1000
3S4A_2412S1.5UP	12	250	87	220
3S4A_2415S1.5UP	15	200	88	220
3S4A_2424S1.5UP	24	125	88	47

Typical characteristics

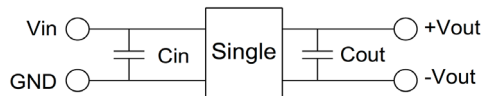
Temperature derating graph



Tolerance envelope graph

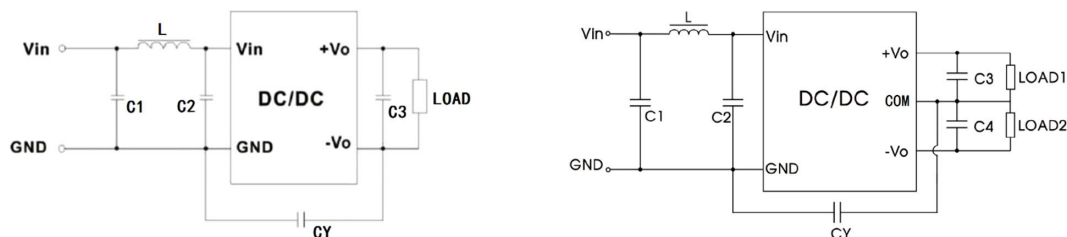


Recommended Test Circuit



Vin	Cin	Single Vout	Cout
12Vdc	2.2 μ F/25V	5Vdc	10 μ F/16V
15Vdc	2.2 μ F/25V	9Vdc	2.2 μ F/16V
24Vdc	1 μ F/50V	12Vdc	2.2 μ F/25V
--	--	15Vdc	1 μ F/25V
--	--	24Vdc	1 μ F/50V

EMC (CLASS B) compliance circuit

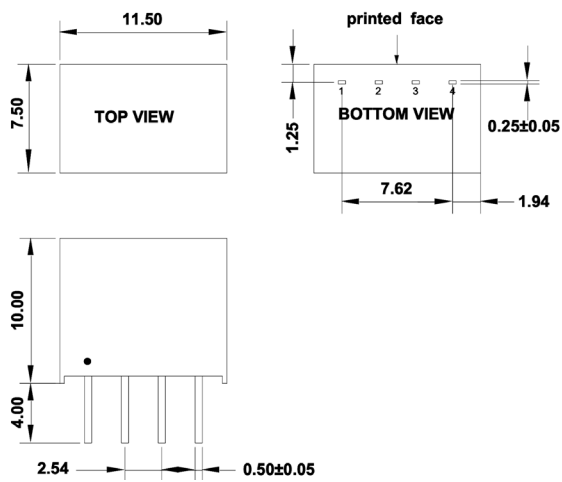


EMC recommended circuit value table		
EMI	C1	10 μ F /50V
	C2	10 μ F /50V
	CY	1nF/4kV
	C3,C4	Recommended Test Circuit
	L	6.8 μ H

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Markings and dimensions



PIN Connection							
PIN	1	2	3	4	5	7	8
Single	-Vin			+Vin	+Vout	-Vout	No Pin