



0.5S4E_3U series

0.5W - Single Output - Fixed Input - Isolated & Unregulated
Miniature SIP package

DC-DC Converter

0.5 Watt

- ⊕ Fixed Input, isolation, Unregulated Output, 0.5W
- ⊕ Isolation voltage: 3kVDC
- ⊕ SIP package
- ⊕ Efficiency: up to 80%
- ⊕ Working temperature -55°C~+125°C
- ⊕ Industry standard pinout
- ⊕ No heat sink required
- ⊕ No external component required
- ⊕ In line with RoHS codes

The 0.5S4E_3U Series are specially designed for applications where a single power supply is isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation $\leq \pm 10\%$);
- 2) Where isolation is necessary between input and output (isolation voltage = 3000VDC)
- 3) Where the regulation of the output voltage and the output ripple and noise are not demanding. Such as: purely digital circuits, ordinary low frequency analog circuits and IGBT power device driven circuits, etc.

These products don't apply to:

- 1) Where the input supply voltage is varied (variation $\geq \pm 10\%$), otherwise our company's wide range series is recommended
- 2) Where the isolation voltage between input and output is required to be $> 3000\text{VDC}$, otherwise our company's high isolation series of products are recommended



Common specifications

Temperature rise at full load:	25°C MAX, 15°C TYP
Cooling:	Free air convection
Operation temperature range:	-55°C~+125°C
Storage temperature range:	-55°C ~+125°C
Storage humidity range:	< 95%
MTBF:	$\geq 35 \times 10^5$ hours
Dimension:	11.5 x 10 x 6 mm

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output power				0.5	W
Output voltage accuracy	See tolerance envelope graph				
Line regulation	For V_{in} change of 1%			± 1.2	%
Load regulation	10% to 100% full load			15	%
Ripple & Noise	20MHz Bandwidth			75	mVp-p
Temperature drift	100% full load			± 0.03	%/°C
Switching frequency	Full load, nominal input		100		KHz

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance			60		pF

Note:

1. All specifications measured at $T_A = 25^\circ\text{C}$, humidity < 75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

Example:

0.5S4E_0505S3U

0.5 = 0.5Watt; S4 = SIP4; E = Pinning; 5Vin; 5Vout; S = Single Output; 3 = 3kVDC; U = Unregulated Output

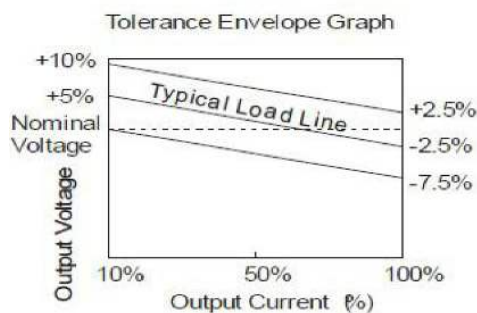
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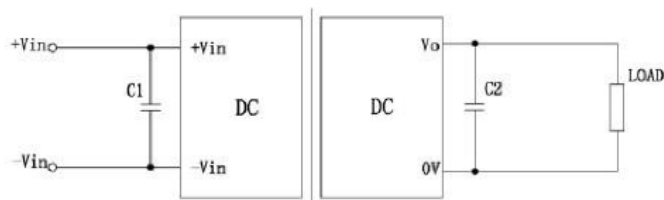
Product Selection Guide

Part Number	Input Voltage Range [VDC]	Input Voltage [V]	Output Voltage [VDC]	Output current [mA; min]	Output current [mA; max]	Efficiency [%; typ]
0.5S4E_0505S3U	4.5-5.5	5	5	10	100	72
0.5S4E_0509S3U	4.5-5.5	5	9	5.5	55	74
0.5S4E_0512S3U	4.5-5.5	5	12	4.1	41	72
0.5S4E_0515S3U	4.5-5.5	5	15	3.3	33	74
0.5S4E_0524S3U	4.5-5.5	5	24	2	20	72
0.5S4E_1205S3U	10.8-13.2	12	5	10	100	74
0.5S4E_1209S3U	10.8-13.2	12	9	5.5	55	72
0.5S4E_1212S3U	10.8-13.2	12	12	4.1	41	74
0.5S4E_1215S3U	10.8-13.2	12	15	3.3	33	74
0.5S4E_1224S3U	10.8-13.2	12	24	2	20	72
0.5S4E_2405S3U	21.6-26.4	24	5	10	100	74
0.5S4E_2409S3U	21.6-26.4	24	9	5.5	55	72
0.5S4E_2412S3U	21.6-26.4	24	12	4.1	41	74
0.5S4E_2415S3U	21.6-26.4	24	15	3.3	33	74
0.5S4E_2424S3U	21.6-26.4	24	24	2	20	72
0.5S4E_4805S3U	43.2-52.8	48	5	10	100	74
0.5S4E_4809S3U	43.2-52.8	48	9	5.5	55	72
0.5S4E_4812S3U	43.2-52.8	48	12	4.1	41	74
0.5S4E_4815S3U	43.2-52.8	48	15	3.3	33	72
0.5S4E_4824S3U	43.2-52.8	48	24	2	20	74

Typical characteristics



Recommend Circuit



C1, C2 select

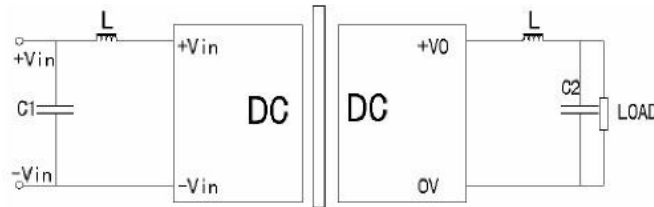
INPUT VOLTAGE(S)	C1	O/P VOLTAGE(D)	C2
3.3VDC	4.7uF	3.3VDC	10uF
5VDC	4.7uF	5 VDC	10uF
12VDC	2.2uF	9 VDC	4.7uF
		12 VDC	2.2 uF
		15 VDC	1 uF

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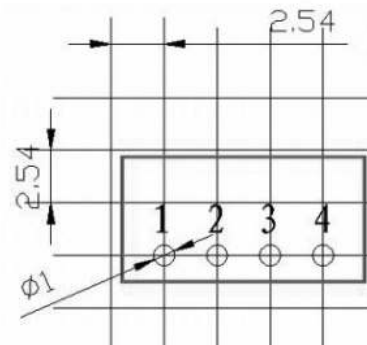
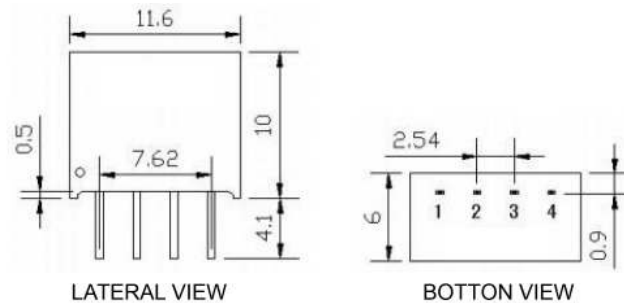
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Application Note

- (1) Pls don't use under no load: when the load power is less than 10% of the rated power ,we advise to connect the resistance following the output or the selection the smaller rated power module,for the resistance,the value is 5~10% of the rated power, $\text{resistance} = U^2 / (10\% \times 1W)$
- (2) Pls don't connect the excessive capacitor in external circuit :output connects C2's value can't be too big,, otherwise easily lead to module startup flow or poor starting, According to the external table to select the capacitance
- (3) For the ripple & noise with higher requirements ,we advise to connect the LC filter, the frequency of LC filter is far smaller than the DC-DC module switching frequency, prevent mutual interference, resulting in increased the ripple damage the power module,pls see below



Mechanical dimensions



Note:
Unit: mm[inch]

Recommended PCB Layout

Pin assignment				
PIN	1	2	3	4
S	GND	Vin	0V	+Vo