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 (voltag variation ≤ ±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≥ ±10%), otherwise our company's wide range series is recommended
2) Where the isolation voltage between input and output is required to be >3000VDC, 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:	-40°C~+105°C
Storage temperature range:	-55°C ~+125°C
Storage humidity range:	< 95%
MTBF:	≥35y10^5 hours
Dimensity:	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 Vin 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 TA = 25°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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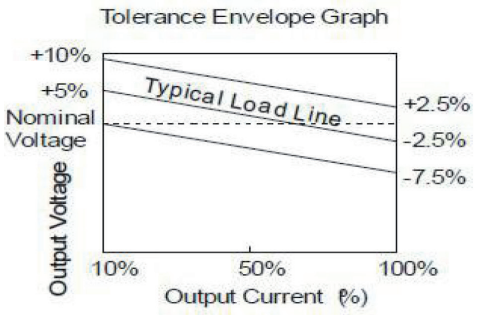
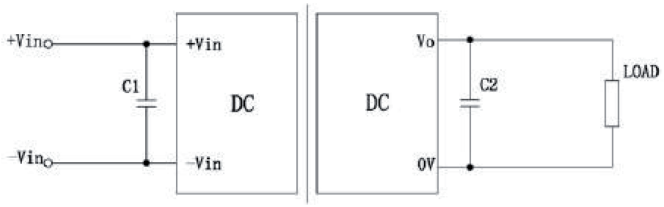
Product Selection Guide

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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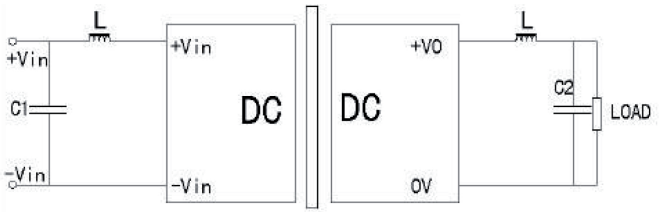
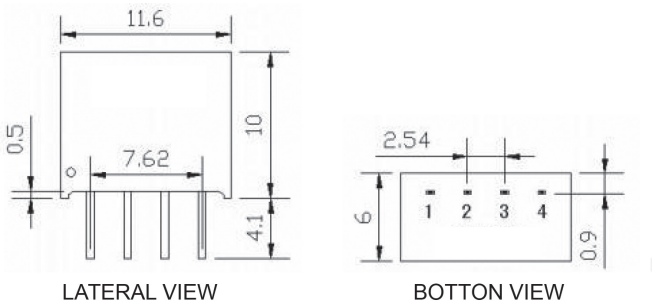
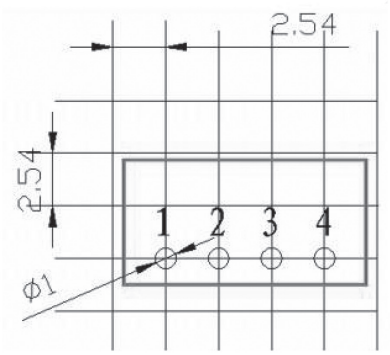
Application Note

(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,resistance = U2 /(10%×1W)
(2) Pls don't connect the excessive capacitor in external circut :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