

## 0.5S7B\_3UP Series

0.5W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

### DC-DC Converter

0.5 Watt

- ⊕ Short circuit protection (SCP)
- ⊕ 3KVDC Isolation
- ⊕ Temperature range: -40°C ~ +105°C
- ⊕ Efficiency up to 80%
- ⊕ Power density up to 0.85W/cm<sup>3</sup>
- ⊕ Power sharing on dual output
- ⊕ Industry standard pinout
- ⊕ RoHS compliance
- ⊕ Footprint from 1.17cm<sup>3</sup>

The 0.5S7B\_3UP series are miniature, isolated 0.25W 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 3KVDC isolation.



Common specifications	
Short circuit protection:	Continuous, self-recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+105°C
Storage temperature range:	-50°C ~+130°C
Lead temperature:	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Power density:	< 0.85W/cm <sup>3</sup>
Case material:	Plastic [UL94-V0]
MTBF (MIL-HDFK-217F@25°C):	>3,500,000 hours
Weight:	2.1g (SIP), 2.4g (DIP)

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Output voltage accuracy	See tolerance envelope graph					
Line regulation	From high to low Vin		1	1.32	%	
Ripple & Noise*	20MHz Bandwidth		50	75	mVp-p	
Temperature drift	100% full load		±0.03		%/°C	
Switching frequency	• 3.3VDC input • 5VDC input • 12VDC input • 15VDC input		95	120	140	kHz
			145	180	180	kHz
			90	180	k Hz	

\* Ripple and noise are measured by "parallel cable" method, please see DC-DC Converter Application Notes for specific operation.

Input specifications						
Item	Test condition	Min	Typ	Max	Units	
Input voltage range	• 3.3VDC input	2.9	3.3	3.6	V	
	• 5VDC input	4.4	5	5.6	V	
	• 12VDC input	11	12	13.3	V	
	• 15VDC input	13.4	15	16.4	V	

**Example SIP7 Case:**  
**0.5S7B\_0505S3UP**  
**0.5= 0.5 Watt; S7= SIP7; B= Pinning; 05= 5 Vin; 05= 5Vout;**  
**S= Single Output; 3= 3kVDC Isolation; U= Unregulated Output;**  
**P= Short circuit protection (SCP)**

Isolation specifications						
Item	Test condition	Min	Typ	Max	Units	
Isolation voltage	Tested for 1 minute and 1mA max	3000			VDC	
Isolation resistance	Test at 1000VDC	1			GΩ	

**Note:**

1. 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.
2. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
3. Only typical models listed, other models may be different, please contact our technical person for more details.
4. In this datasheet, all the test methods of indications are based on corporate standards.

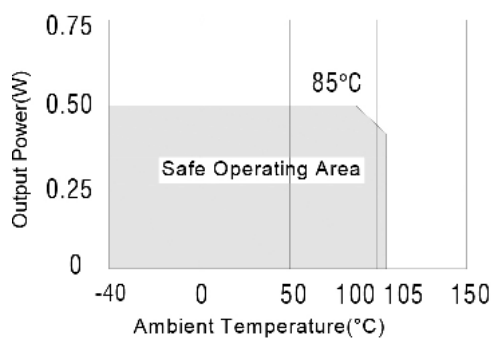
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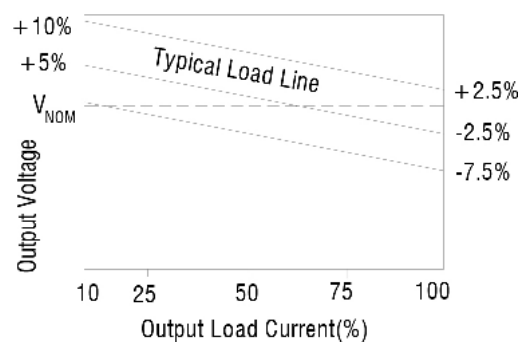
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Package Style
0.5S7B_0303S3UP	3.3	3.3	152	72	SIP
0.5S7B_0305S3UP	3.3	5	100	72	SIP
0.5S7B_0505S3UP	5	5	100	83/72	SIP
0.5S7B_0509S3UP	5	9	55.5	75	SIP
0.5S7B_0512S3UP	5	12	41.7	76	SIP
0.5S7B_0515S3UP	5	15	33.3	78	SIP
0.5S7B_0524S3UP	5	24	20.84	79	SIP
0.5S7B_1205S3UP	12	5	100	72	SIP
0.5S7B_1209S3UP	12	9	55.5	75	SIP
0.5S7B_1212S3UP	12	12	41.7	77	SIP
0.5S7B_1215S3UP	12	15	33.3	78	SIP
0.5S7B_1505S3UP	15	5	100	72	SIP
0.5S7B_1512S3UP	15	12	41.7	74	SIP
0.5S7B_1515S3UP	15	15	33.3	78	SIP
0.5S7B_0505D3UP	5	±5	±50	72	SIP
0.5S7B_0509D3UP	5	±9	±27.75	77	SIP
0.5S7B_0512D3UP	5	±12	±20.85	78	SIP
0.5S7B_0515D3UP	5	±15	±16.65	80	SIP
0.5S7B_1205D3UP	12	±5	±50	72	SIP
0.5S7B_1209D3UP	12	±9	±27.75	74	SIP
0.5S7B_1212D3UP	12	±12	±20.85	76	SIP
0.5S7B_1215D3UP	12	±15	±16.65	77	SIP
0.5S7B_1505D3UP	15	±5	±50	72	SIP
0.5S7B_1512D3UP	15	±12	±20.85	74	SIP
0.5S7B_1515D3UP	15	±15	±16.65	78	SIP

## Typical characteristics

Temperature derating graph



Tolerance envelope graph



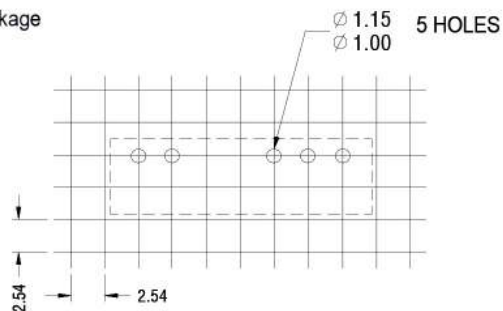
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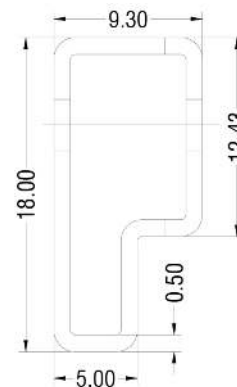
### Recommended footprints

### Tube outline

7Pin SIP Package



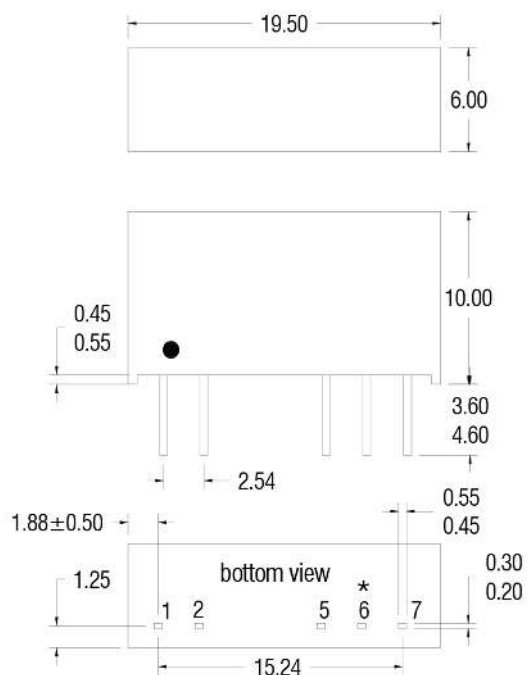
7Pin SIP Tube



Tube Quantity : 25PCS

### Mechanical dimensions

SIP Package



Single

7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

Dual

7 PIN SIP	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
6	0V
7	+Vout

Pin not fitted on single output variants. All dimensions in mm  $\pm 0.25$ mm.

\*\*7.50 for 48V variants

All pins on a 2.54mm pitch and within  $\pm 0.25$ mm of true position.

Weight: 2.11g