

## 3S7B\_3U Series

3W Single/Dual Output - Fixed Input - Isolated & Semi-regulated SIP PACKAGE

## DC-DC Converter 3 Watt

- ⊕ Small Footprint
- ⊕ 7 pin SIL package
- ⊕ Low ripple and good EMC features
- ⊕ Temperature range: -40°C ~ +85°C
- ⊕ No heat sink required
- ⊕ No external component required
- ⊕ 3KVDC isolation
- ⊕ Internal SMD construction
- ⊕ Industry standard pinout
- ⊕ RoHS compliance



The 3S7B\_3U Series is specially designed for applications where a single power supply is highly 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  $\leq \pm 5\%$ );
- 2) Where isolation is necessary between input and output (isolation voltage  $\leq 3000\text{VDC}$ );
- 3) Where the regulation of the output voltage and the output ripple and noise are demanded.

### Common specifications

Short circuit protection:	1 second
Cooling:	Free air convection
Operation temperature range:	-40°C – +85°C
Storage temperature range:	-40°C – +125°C
Case temperature:	100°C MAX
Lead temperature:	260°C (1.5mm from case for 10 sec.)
Storage humidity range:	< 95%
Case material:	Non-conductive black plastic [UL94-V0]
Potting material:	Epoxy [UL94-V0]
MTBF:	>1,800,000 hours
Weight:	2.8g

### Isolation specifications

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

### Example:

3S7B\_0505S3U  
 3 = 3Watt; S7 = SIP7; B = Pinning; 5Vin; 5Vout; S = Single Output;  
 3 = 3kVDC; U = Unregulated Output

### 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. In this datasheet, all the test methods of indications are based on corporate standards.
4. Only typical models listed, other models may be different, please contact our

### Output specifications

Item	Test condition	Min	Typ	Max	Units
Line regulation	For Vin change of $\pm 1\%$		$\pm 1.2$		%
Load regulation	see table				
Output voltage accuracy	100% full load	$\pm 2$		$\pm 4$	%
Temperature drift	100% full load		$\pm 0.02$		%/°C
Ripple&Noise*	20MHz Bandwidth		50		mVp-p
Switching frequency	Variable		70		KHz

\*Test ripple and noise measured with 20MHz bandwidth and 1.0UF ceramic capacitor.

### Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range			$\pm 10$		%
Input filter	Capacitor				
Input reflected ripple current			25		mA pk-pk
Surge voltage	100ms • 5V • 12V			9 18	VDC VDC

### EMC specifications

CE*	EN55022	CLASS B
RE	EN55022	CLASS B
ESD	IEC 61000-4-2	perf. Criteria A
RS	IEC 61000-4-3	perf. Criteria A
EFT**	IEC 61000-4-4	perf. Criteria A
CS	IEC 61000-4-6	perf. Criteria A
PFMF	IEC 61000-4-8	perf. Criteria A

\* Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; all leads should be minimized to decrease radiated noise (see EMI filter, Test configuration).

\*\* An external filter is required if the module has to meet IEC61000-4-4

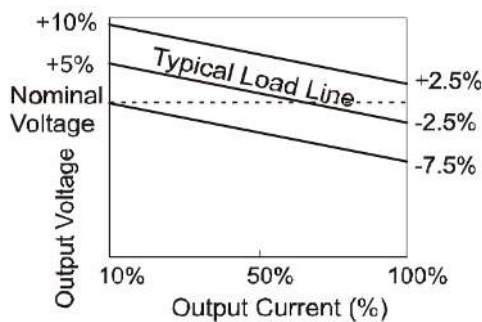
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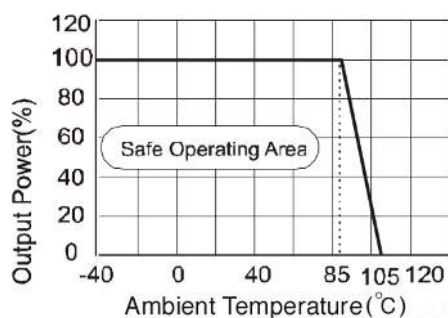
Part Number	Input Voltage [V]	Input Current [mA, max]	Output Voltage [VDC]	Current [mA, max]	Load regulation [%]	Efficiency [%, max]	Capacitor load [ $\mu$ F]
3S7B_0505S3U	5	769	5	600	8	78	220
3S7B_0509S3U	5	714	9	333	7	84	220
3S7B_0512S3U	5	714	12	250	6	84	100
3S7B_0515S3U	5	714	15	200	6	84	100
3S7B_1205S3U	12	298	5	600	6	84	220
3S7B_1209S3U	12	287	9	333	4	87	220
3S7B_1212S3U	12	284	12	250	4	88	100
3S7B_1215S3U	12	278	15	200	3	90	100
3S7B_0505D3U	5	741	$\pm$ 5	$\pm$ 300	7	81	$\pm$ 100
3S7B_0509D3U	5	706	$\pm$ 9	$\pm$ 166	6	85	$\pm$ 100
3S7B_0512D3U	5	706	$\pm$ 12	$\pm$ 125	6	85	$\pm$ 47
3S7B_0515D3U	5	714	$\pm$ 15	$\pm$ 100	5	84	$\pm$ 47
3S7B_1205D3U	12	294	$\pm$ 5	$\pm$ 300	5	85	$\pm$ 100
3S7B_1209D3U	12	284	$\pm$ 9	$\pm$ 166	4	88	$\pm$ 100
3S7B_1212D3U	12	281	$\pm$ 12	$\pm$ 125	3	89	$\pm$ 47
3S7B_1215D3U	12	278	$\pm$ 15	$\pm$ 100	3	90	$\pm$ 47

### Typical characteristics

Tolerance Envelope Graph

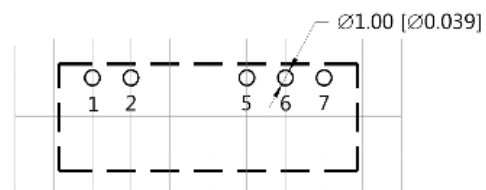


Temperature Derating Graph

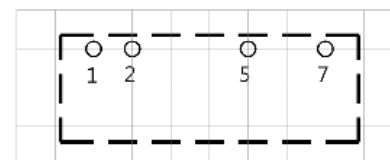


### Recommended footprint

Dual



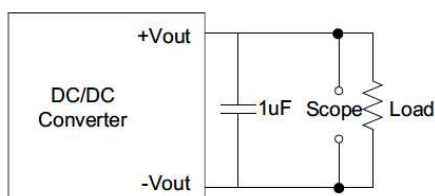
Single



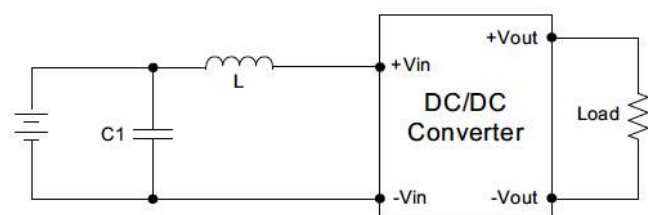
Note : Grid 2.54\*2.54mm

### Test configurations

Output Ripple & Noise measurement test  
Use a capacitor (1.0uF) measurement. The scope measurement bandwidth is 0-20MHz.



### EMI filter

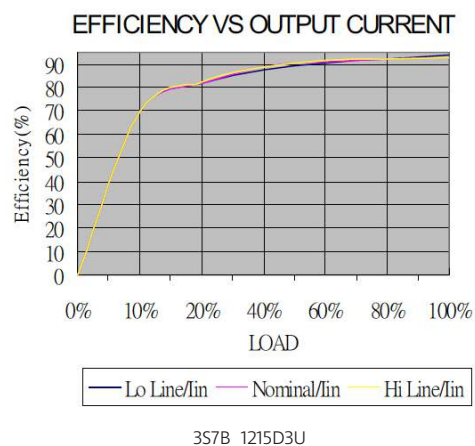
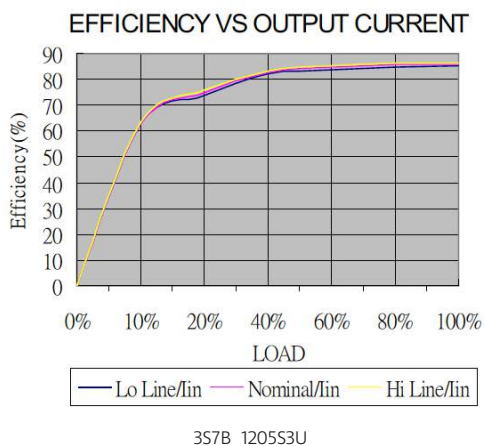
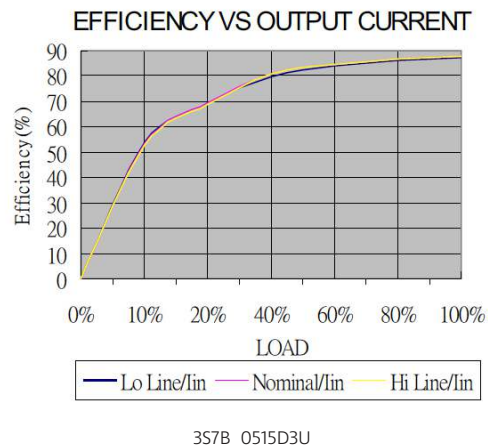
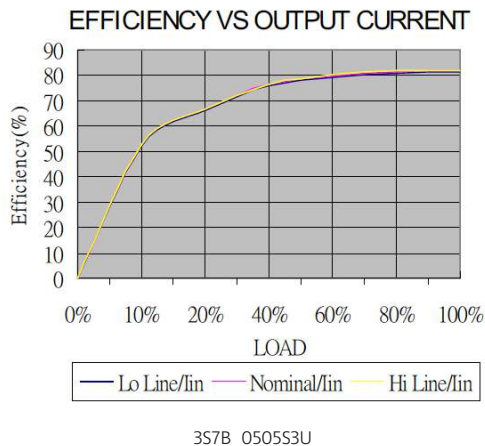


	C1	L
3S7B_05yyS/D3U	1210, 2.2uF/100V	18uH
3S7B_12yyS/D3U	1210, 2.2uF/100V	18uH

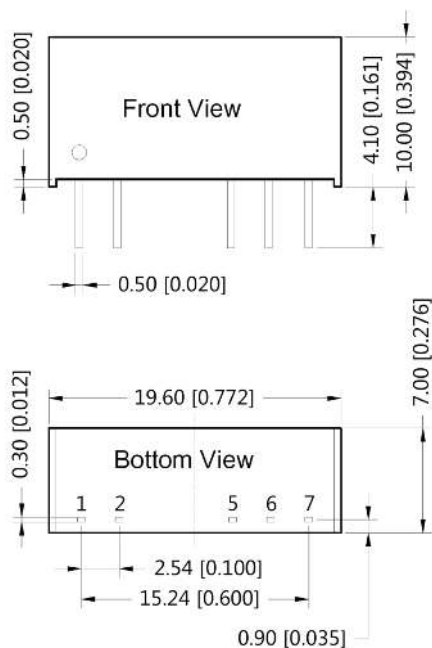
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## Efficiency



## Mechanical Dimensions



PIN CONNECTION		
Pin	Single	Dual
1	V <sub>in</sub>	V <sub>in</sub>
2	GND	GND
5	0V	-V <sub>o</sub>
6	No Pin	0V
7	+V <sub>o</sub>	+V <sub>o</sub>

Note:  
Unit: mm[inch]  
Pin diameter:  $\pm 0.10\text{mm}$  [ $\pm 0.004\text{inch}$ ]  
Case tolerances:  $\pm 0.25\text{mm}$  [ $\pm 0.010\text{inch}$ ]