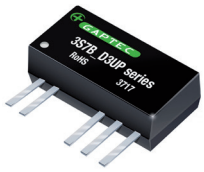

3S7B_3UP series

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

DC-DC Converter 3 Watt

- Small Footprint
- SIP7 package
- Low ripple and excellent EMC features
- Operating temperature: range -40°C ~ +105°C
- No heat sink required
- No external components required
- 3kVDC isolation
- Internal SMD construction
- Industry standard pinout
- RoHS compliance
- Up to 89% efficiency

Introducing our new high-efficiency DC-DC converter 3S7B_3UP series in compact SIP7 package. With its small footprint and industry-standard pinout, this converter offers seamless integration into your designs. It delivers low ripple and excellent EMC performance across a wide operating temperature range of –40°C to +85°C – all without the need for a heat sink or external components. Featuring 3kVDC isolation, internal SMD construction, and up to 89% efficiency, it ensures reliable and space-saving power conversion for demanding applications. Fully RoHS compliant.

Common specifications	
Short circuit protection:	continous short circuit protection
Cooling:	Free air convection
Operation temperature range:	-40°C – +105°C (wwith derating)
Storage temperature range:	-50°C – +130°C
Case temperature above ambient:	30°C max.
Lead temperature:	300°C (1.5mm from case for 10 sec.)
Storage humidity range:	< 95%
Case material:	UL94V-0 package material (unspecified plastic)]
Potting material:	Epoxy [UL94-V0]
MTBF:	>3,500,000 hours
Weight:	2.85 g

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation capacitance	Tested for 1 minute		55		pF
Isolation resistance	Test at 1000VDC	1			GΩ

Example:
3S7B_0505S3UP
3 = 3Watt; S7 = SIP7; B = Pinning; 5Vin; 5Vout; S = Single Output;
3 = 3kVDC; U= Unregulated Output; P = Short Circuit Protection

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 technical support for more details.

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Line regulation	High Vin to low Vin		±1	±1.2	%
Load regulation	see table				
Output voltage accuracy	100% full load	±2		±4	%
Temperature drift	100% full load		±0.02		%/°C
Ripple&Noise*	20MHz Bandwidth		70	200	mVp-p
Switching frequency	Variable		65		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	• 3.3Vin • 5Vin • 12Vin • 15Vin • 24Vin	2.9 4.5 11 13.4 22	3.3 5 12 15 24	3.6 5.5 13 16.4 26	V V V V V
Input filter	Capacitor				
Input reflected ripple current			25.5		mA pk-pk

EMC specifications		
EMI	Conduction Emission	CISPR32/EN55032 CLASS B (SEE fig 2)
EMI	Radiation Emission	CISPR32/EN55032 CLASS B (SEE fig 2)
EMS	Electrostatic Discharge IEC/EN61000-4-2 Contact ±6kV perf. Criteria B (dual out)	
EMS	Electrostatic Discharge IEC/EN61000-4-2 Contact ±8kV perf. Criteria B (single out)	

* Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. Theses 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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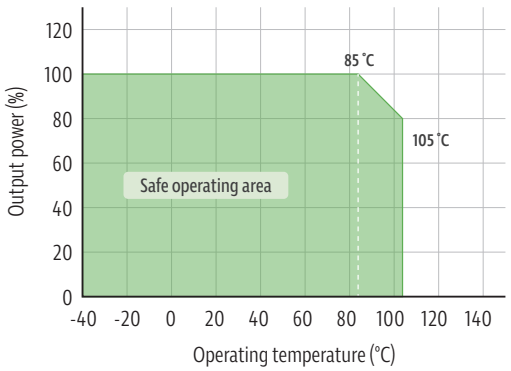
Product Selection Guide

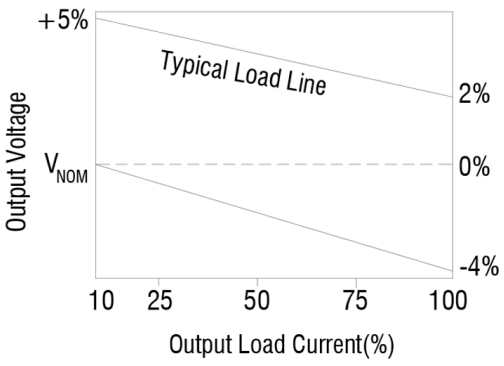
Part Number	Input Voltage [V]	Output Voltage [VDC]	Current [mA, max]	Load regulation [%]	Efficiency [%, max]
3S7B_0303S3UP	3.3	3.3	909	7.2	83
3S7B_0305S3UP	3.3	5	600	7.2	83
3S7B_0503S3UP	5	3.3	909	7.2	83
3S7B_0505S3UP	5	5	600	7.2	83
3S7B_0509S3UP	5	9	333	5.8	86
3S7B_0512S3UP	5	12	250	5.0	86
3S7B_0515S3UP	5	15	200	4.6	87
3S7B_1205S3UP	12	5	600	4.9	84
3S7B_1209S3UP	12	9	333	3.0	87
3S7B_1212S3UP	12	12	250	2.9	87
3S7B_1215S3UP	12	15	200	2.5	89
3S7B_1515S3UP	15	15	200	2.5	84
3S7B_2405S3UP	24	05	600	4.9	84
3S7B_2412S3UP	24	12	250	5.0	84
3S7B_2415S3UP	24	15	200	2.5	89
3S7B_2424S3UP	24	24	125	5.0	83
3S7B_0505D3UP	5	±5	±300	6.3	83
3S7B_0509D3UP	5	±9	±166.5	5.4	86
3S7B_0512D3UP	5	±12	±125	4.8	86
3S7B_0515D3UP	5	±15	±100	5.3	87
3S7B_0524D3UP	5	±24	±62.5	5.0	83
3S7B_1205D3UP	12	±5	±300	3.9	84
3S7B_1209D3UP	12	±9	±166.5	2.9	86
3S7B_1212D3UP	12	±12	±125	2.8	87
3S7B_1215D3UP	12	±15	±100	2.5	87
3S7B_1515D3UP	15	±15	±100	2.5	87
3S7B_2405D3UP	24	±5	±300	3.9	84
3S7B_2412D3UP	24	±12	±125	2.8	87
3S7B_2415D3UP	24	±15	±100	2.5	87
3S7B_2424D3UP	24	±24	±62.5	5.0	83

Typical characteristics

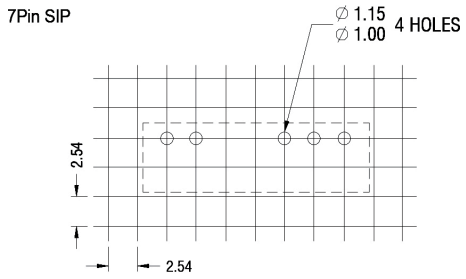
Temperature derating graph



Tolerance envelope graph

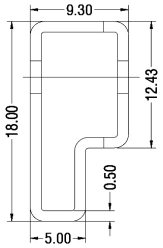


Footprint



Unless otherwise stated all dimensions in mm ±0.5mm.

Tube outline



Note:
Unit: mm [inch]
All dimensions in mm ±0.5mm.
Tube length: 520mm ±2mm
Tube quantity: 25 pcs.

EMC and application circuit

If it is required to further reduce input and output ripple, a filter capacitor may be connected to the input and output terminals, see Fig.1Moreover, choosing a suitable filter capacitor is very important, start-up problems may be caused if the capacitance is too large. Under thecondition of safe and reliable operation, the recommended capacitive load values are shown in Table 1.

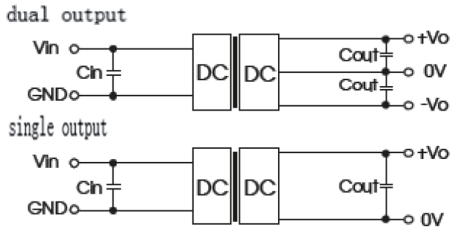


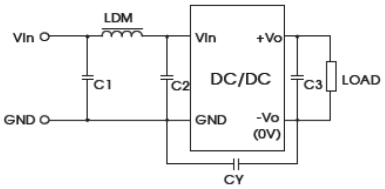
Fig 1

Table1: recommended capacitive load value

Vin (VDC)	Cin (μF)	single output (VDC)	Cout (μF)	dual output (VDC)	Cout* (μF)
5	4.7	3.3/5	10	±3.3/±5	4.7
12/15	2.2	9/12	2.2	±9/±12	1
24	1	15/18/24	1	±15/±24	0.47

The capacitive load of the positive and negative outputs are the same

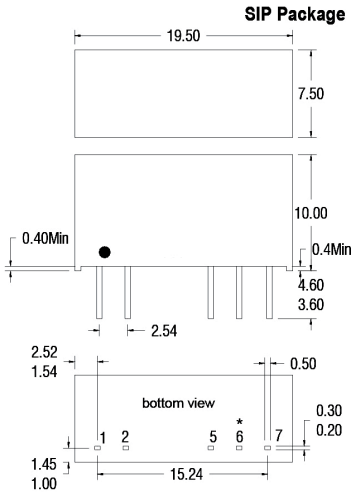
Fig 2



Input voltage		5/12/15	24
EMI	C1/C2	4.7μF /50V	
	CY	--	1nF/3KV
	C3	refer to the Cout in fig 1	
	LDM	6.8μH	

To ensure the efficient and reliable operation of the module, its minimum output load should not be less than 10% of the rated load during use. If your required power is indeed small, please connect a resistor in parallel at the output end (the sum of the power consumed by the resistor and the actual power used is greater than or equal to 10% of the rated power).

Mechanical dimensions



Pin connections

Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	--	0V
7	+Vout	+Vout

Note:
Unit: mm[inch]
All dimensions in mm ±0.25mm.
All pins on a 2.54mm pitch and within ±0.25mm of true position.
* Pin not fitted on single output variants