



3S7A1_1.5UP series

3W - Single/Dual Output DC-DC Converter - Fixed Input - Isolated & Unregulated

DC-DC Converter

3 Watt

- ⊕ 7PIN SIP Package
- ⊕ No-load input current as low as 8mA
- ⊕ Continuous short-circuit protection
- ⊕ Operating temperature: -40°C to +85°C
- ⊕ High efficiency up to 88%
- ⊕ Unregulated output types
- ⊕ 1.5kVDC Isolation
- ⊕ Industry standard pinout
- ⊕ Meets IEC62368, UL62368, EN62368 approvals

Introducing our advanced 3S7A1_1.5UP series, designed for optimal performance and reliability: Featuring a 7PIN SIP package, this module boasts an impressively low no-load input current of just 8mA. It includes continuous short-circuit protection, ensuring safe and reliable operation across a wide temperature range of -40°C to +85°C.

With high efficiency reaching up to 88%, this module delivers superior performance with unregulated output types. Offering isolation levels from 1.5kVDC to 6kVDC, it ensures robust protection and stability. Designed with an industry-standard pinout, this module meets the stringent IEC62368, UL62368, and EN62368 approvals, guaranteeing compliance and safety in diverse applications.



Common specifications

Short circuit protection:	Continuous.
Operation temperature range:	-40°C – +85°C
Storage temperature range:	-55°C – +125°C
Case Temperature Rise (Ta=25°C)	25°C
Storage humidity range:	95% RH MAX. (Non-condensing)
MTBF (MIL-HDBK-217F@25°C):	>3500 k hours
Case material:	DAP
Weight:	2.7g Typ.
Dimensions	19.50 x 7.1 x 10.0 mm
Cooling:	Free air convection

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage Range			±10		%
Input filter	Capacitance filter				

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input-output, with the test time of 1 minute	1500			VDC
Isolation resistance	Input-output, Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output, 100KHz/0.1V		20		pF

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage tolerance	Vo,lo Nom			±5	%
Line regulation	For 1.0% OF Vin		1.2		%
Load regulation	5V (10% To 100% F.L)		9	15	%
	12V (10% To 100% F.L)		7	10	%
	15V (10% To 100% F.L)		6	10	%
	24V (10% To 100% F.L)		5	10	%
Temperature coefficient	100% full load		±0.02		%/°C
Ripple & Noise*	20MHz Bandwidth		100	150	mVp-p
Switching frequency	Full load, nominal input		250		KHz

Note:* The "parallel cable" method is used for Ripple and Noise test, please refer to DC-DC Converter Application Notes for specific information.

Example:

3S7A1_1205D1.5UP

1 = 1Watt; S7 = SIP7; A1 = Pinning; 12 = 12Vin; 05 = 5Vout;
 D = Dual Output; 1.5 = 1.5kVDC isolation; U = Unregulated Output;
 P = Short circuit protection

EMC specifications

Emissions	CE	CISPR32/EN55032 CLASS B (see Fig for recommended circuit)
Emissions	RE	CISPR32/EN55032 CLASS B (see Fig. for recommended circuit)
Immunity	ESD	IEC/EN61000-4-2 Air ±8kV , Contact ±6kV perf. Criteria B

Note:

1. Operation under minimum load will not damage the converter; however, they may not meet all specifications.
2. Max. Capacitive Load is tested at nominal input voltage and full load.
3. Unless otherwise noted, All specifications are measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load.
4. In this datasheet, all test methods are based on our corporate standards.
5. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.
6. Please contact our technical support for any specific requirement.
7. Specifications of this product are subject to changes without prior notice.

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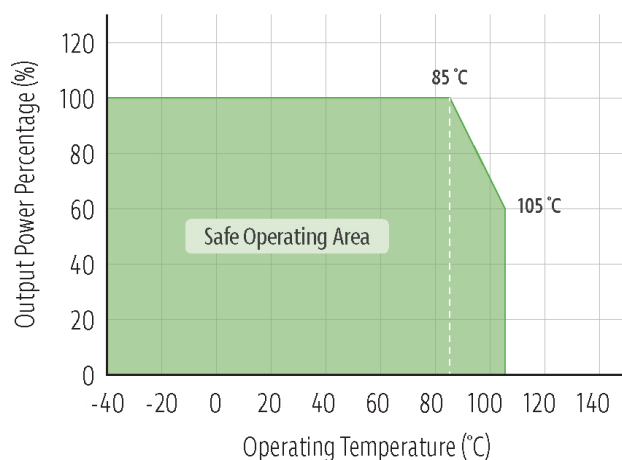
Product Selection Guide

Part Number	Input Voltage [Nominal, V]	Output Voltage [VDC]	Output current [mA]	Max. capacitive load [μ F]	Efficiency [%, typ]
3S7A1_1205S1.5UP	12	5	600	1000	85
3S7A1_1212S1.5UP	12	12	250	220	87
3S7A1_1215S1.5UP	12	15	200	220	88
3S7A1_1224S1.5UP	12	24	125	47	88
3S7A1_1505S1.5UP	15	5	600	1000	85
3S7A1_1512S1.5UP	15	12	250	220	87
3S7A1_1515S1.5UP	15	15	200	220	88
3S7A1_1524S1.5UP	15	24	125	47	88
3S7A1_2405S1.5UP	24	5	600	1000	85
3S7A1_2412S1.5UP	24	12	250	220	87
3S7A1_2415S1.5UP	24	15	200	220	88
3S7A1_2424S1.5UP	24	24	125	47	88

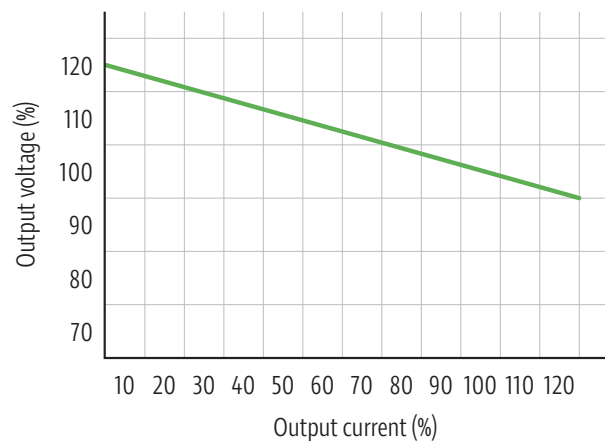
Part Number	Input Voltage [Nominal, V]	Output Voltage [VDC]	Output current [mA]	Max. capacitive load [μ F]	Efficiency [%, typ]
3S7A1_1205D1.5UP	12	\pm 5	\pm 300	\pm 560	86
3S7A1_1212D1.5UP	12	\pm 12	\pm 125	\pm 100	86
3S7A1_1215D1.5UP	12	\pm 15	\pm 100	\pm 100	88
3S7A1_1224D1.5UP	12	\pm 24	\pm 63	\pm 22	88
3S7A1_1505D1.5UP	15	\pm 5	\pm 300	\pm 560	86
3S7A1_1512D1.5UP	15	\pm 12	\pm 125	\pm 100	86
3S7A1_1515D1.5UP	15	\pm 15	\pm 100	\pm 100	88
3S7A1_1524D1.5UP	15	\pm 24	\pm 63	\pm 22	88
3S7A1_2405D1.5UP	24	\pm 5	\pm 300	\pm 560	86
3S7A1_2412D1.5UP	24	\pm 12	\pm 125	\pm 100	86
3S7A1_2415D1.5UP	24	\pm 15	\pm 100	\pm 100	88
3S7A1_2424D1.5UP	24	\pm 24	\pm 63	\pm 22	88

Typical characteristics

Temperature Derating Graph



Tolerance envelope graph



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Typical application

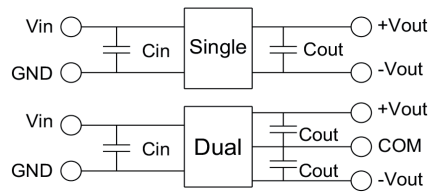


Fig:1

Table 1: Recommended input and output capacitor values

Vin	Cin	Single Vout	Cout	Dual Vout	Cout
12VDC	2.2μF/25V	5VDC	10μF/16V	±5Vdc	±4.7μF/16V
15VDC	2.2μF/25V	9VDC	2.2μF/16V	±9Vdc	±1μF/16V
24VDC	1μF/50V	12VDC	2.2μF/25V	±12Vdc	±1μF/25V
		15VDC	1μF/25V	±15Vdc	±1μF/25V
		24VDC	1μF/50V	±24Vdc	±1μF/50V

EMC typical recommended circuit (CLASS B)

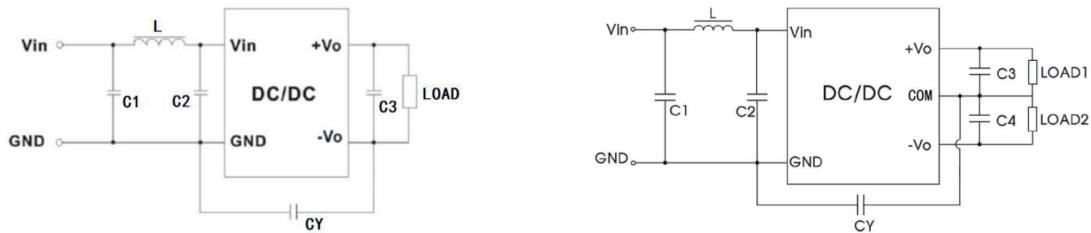


Fig:2

Input voltage		12/15 VDC
Emissions	C1	10μF /50V
Emissions	C2	10μF /50V
Emissions	CY	1nF/4kV
Emissions	C3, C4	Recommended Test Circuit
Emissions	L	6.8μH

Mechanical dimensions

