1S7A_1U series

1W - Single Output - Fixed Input - Isolated & Unregulated
SIP Package

DC-DC Converter 1 Watt

- Efficiency up to 80%
- SIP package
- Single output voltage
- 1kVDC isolation
- Temperature range: -40°C~+85°C
- Industry standard pinout
- No heatsink required
- No external component required
- RoHS Compliance

The 1S7A_1U 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 (voltage variation ≤±10%);
2) Where isolation is necessary between input and output (isolation voltage = 1000VDC)
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.

Common specifications

Operation temperature range:	-40°C ~ +85°C
Storage temperature range:	-55°C ~ +125°C
Cooling:	Free air convection
MTBF:	>3,500,000 hours
Dimensions:	19.6 x 6.0 x 10.0 mm

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage		1000			VDC
Isolation resistance	Tested for 1 minute	1000			MΩ
Isolation capacitance			130		Pf

Note:
1. All specifications measured at TA = 25°C, humidity < 75%, nominal input voltage and rated output load unless otherwise specified.

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output power		0.1		1	W
Line regulation	For Vin change of 1%			1.2	%
Load regulation	10% to 100% full load			15	%
Temperature drift	100% full load			0.03	%/°C
Ripple & Noise	20MHz Bandwidth			<75	mVp-p
Switching frequency	Full load, nominal input		100		KHz

Example:
1S7A_0505S1U
1 = 1Watt; S7 = SIP7; A = Pinning; 05 = 5Vin; 05 = 5Vout;
S = Single Output; 1 = 1kVDC; U = Unregulated Output

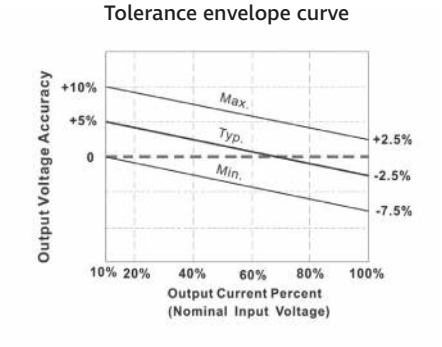
Product Selection Guide

Part Number	Input voltage range [V]		Output Voltage [VDC]	Current [mA]	Efficiency [%, Typ]	Package
1S7A_0303S1U	3.3	3~3.6	3.3	303	73	SIP7
1S7A_0305S1U	3.3	3~3.6	5	200	74	SIP7
1S7A_0303S1U	3.3	3~3.6	12	83	74	SIP7
1S7A_0503S1U	5	4.5~5.5	3.3	303	72	SIP7
1S7A_0505S1U	5	4.5~5.5	5	200	70	SIP7
1S7A_0509S1U	5	4.5~5.5	9	111	78	SIP7
1S7A_0512S1U	5	4.5~5.5	12	83	78	SIP7
1S7A_0515S1U	5	4.5~5.5	15	67	80	SIP7
1S7A_0524S1U	5	4.5~5.5	24	42	81	SIP7
1S7A_1203S1U	12	10.8~13.2	3.3	303	74	SIP7
11S7A_1205S1U	12	10.8~13.2	5	200	71	SIP7
1S7A_1209S1U	12	10.8~13.2	9	111	76	SIP7
1S7A_1212S1U	12	10.8~13.2	12	83	78	SIP7
1S7A_1215S1U	12	10.8~13.2	15	67	79	SIP7
1S7A_1224S1U	12	10.8~13.2	24	42	84	SIP7
1S7A_1505S1U	15	13.5~16.5	5	200	72	SIP7
1S7A_1512S1U	15	13.5~16.5	12	83	76	SIP7
1S7A_1515S1U	15	13.5~16.5	15	67	75	SIP7
1S7A_2405S1U	24	21.6~26.4	5	200	73	SIP7
1S7A_2412S1U	24	21.6~26.4	12	83	78	SIP7
1S7A_2415S1U	24	21.6~26.4	15	67	79	SIP7
1S7A_2424S1U	24	21.6~26.4	24	42	78	SIP7

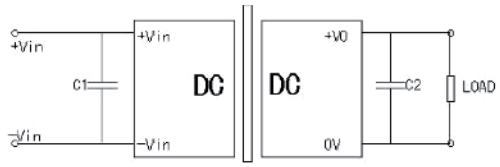
GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com

Typical characteristics

Tolerance envelope curve



Recommend Circuit



Single O/P

Dual O/P

C1, C2 select

Vin	C1	Dual Vout	C2	Single Vout	C2
5VDC	4.7 uF	±5 VDC	4.7uF	3.3VDC	10 uF
12VDC	2.2 uF	±9 VDC	2.2 uF	5VDC	10 uF
24VDC	1 uF	±12 VDC	1 uF	9VDC	4.7 uF
---	---	±15 VDC	1 uF	12VDC	2.2 uF
---	---		---	15/24VDC	1 uF

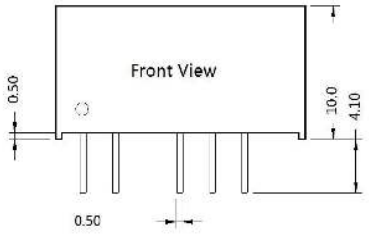
Application Note

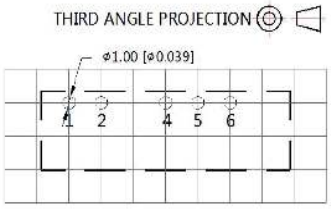
(1) Please don't use under no load: when the load power is less than 10% of the rated power we advise to connect the resistance following the output or the selection the smaller rated power module, for the resistance, the value is 5~10% of the rated power, resistance = U2 / (10%×1W).

(2) Please don't connect the excessive capacitor in external circuit: 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.

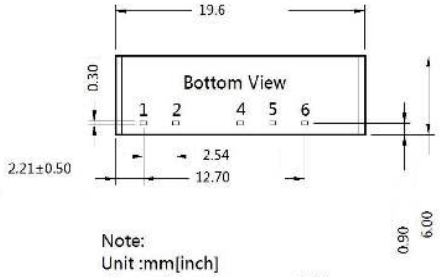
(3) For the ripple & noise with higher requirements, we advise to connect the LC filter, the frequency of LC filter is far smaller than the DC-DC module switching frequency, prevent mutual interference, resulting in increased the ripple damage the power module.

Mechanical Dimensions





Note : Grid 2.54*2.54mm



Note:
Unit :mm[inch]
Pin section tolerances :±0.10
General tolerances:±0.25

5 PIN SIP

Pin	Function
1	Vin
2	GND
4	0V
5	No Pin
6	+Vo