GAPTEC
GREEN TECHNOLOGY

1S7B_6UP Series

1W - Single/Dual Output DC-DC Converter – Fixed Input - Isolated & Unregulated

DC-DC Converter 1 Watt

- Efficiency up to 81%
- 4200VAC/6000VDC isolation
- SIP package
- Reinforced insulation
- The patient leakage current: Max 2μA
- Industry standard pinout
- No external component required
- RoHS compliance
- Short circuit protection (3sec)
- Meets EN60601-1, ANSI/AAMI ES60601-1 standards (Pending) (1xMOPP/2xMOOP)

The 1S7B_6UP series meet reinforced insulation requirements. It is specially designed for applications which require compact size, high isolation, low isolation capacitor and low leakage current power.

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 ≤4200VAC or ≤6000VDC)
3) Where do not has high requirement of line regulation and the ripple & noise of the output voltage;

Such as: Medical collection and isolation, High voltage collection circuit, IGBT driven circuits, etc

RoHS

c UL us CE

Common specifications

Short circuit protection*:	3 sec. MAX
Temperature rise at full load:	25°C TYP. (Ta=25°C)
Cooling:	Free air
Operation temperature range:	-40°C ~ +85°C
Storage temperature range:	-55°C ~ +125°C
Lead temperature:	300°C MAX. 1.5mm from case for 10 sec.
Storage humidity range:	< 95%
Patient leakage current:	250VAC, 50/60Hz, 2μA MAX
MTBF:	≥3,500,000 hours
Transformer Creepage:	5mm
PCB Creepage & Clearance:	5.5mm
Case material:	Plastic (UL94-V0)
Weight:	4.2g

* Supply voltage must be discontinued at the end of short circuit duration with less than 3s.

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy	See tolerance envelope curve				
Line regulation	For Vin change of ±1%				
	• 3.3V output			±1.5	%
	• Others			±1.2	%
Load regulation	10% to 100% load				
	• 3.3V/5V output			20	%
	• Others			15	%
Temperature coefficient	100% full load		±0.03		%/°C
Ripple & Noise*	20MHz Bandwidth				
	• 3.3V output		680	150	mVp-p
	• Others				mVp-p
Switching frequency	Full load, nominal input		100		kHz

* Ripple and noise tested with "parallel cable" method, please see DC-DC specific operation methods.

EMC specifications

EMI	CE	CISPR22/EN55022 CLASS B (External Circuit Refer to EMC recommended circuit)
EMI	RE	CISPR22/EN55022 CLASS B (External Circuit Refer to EMC recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV perf. Criteria B

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (no-load/full load)	• 3.3V input		45/426	70/-	VDC
	• 5VDC input		35/274	60/-	VDC
	• 12VDC input		15/114	40/-	VDC
	• 24VDC input		10/56	25/-	VDC
Input surge voltage (1sec. max.)	• 3.3V input	-0.7		7	VDC
	• 5VDC input	0.7		9	VDC
	• 12VDC input	0.7		18	VDC
	• 24VDC input	0.7		30	VDC
Input filter	Capacitor				
Hot plug	Unavailable				

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	4200			VAC
		6000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output, 100KHz/0.1V		5	9	pF

Model selection

1WCTP_xxyyN#HO**

W= Watt; C= Case; T= Type; P= Pinning; *= Voltage Variation (omitted ± 10%); xx= Vin; yy= Vout; N= Numbers of Output; ##= Isolation (kVDC); O= output regulation

Example:

1S7B-0505D6UP

1= 1Watt; S7= SIP7; B= Pinning; 5Vin; 5Vout; D= Dual Output; 6= 6kVDC; U= Unregulated Output; P= Short circuit protection

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.

This Datasheet is currently under revision and will be available very soon.

Thank you for your understanding.