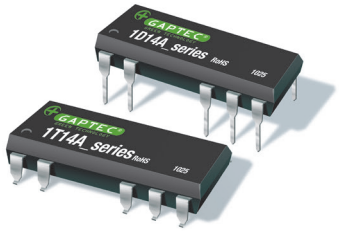
GAPTEC®
GREEN TECHNOLOGY

1T14A_1.5UP & 1D14A_1.5UP Series

1W - Single Output DC-DC Converter - Fixed Input - Isolated - Regulated & Unregulated



DC-DC Converter 1 Watt

- **Small footprint, ultra-thin package**
- **1.5KVDC isolation**
- **Temperature range: -40°C to +105°C**
- **SOIC-14 case, SMD & THT**
- **Excellent temperature performance**
- **International Standard Pinout**
- **Short circuit protection (SCP)**
- **RoHS Compliance**

The 1T14A_1.5UP & 1D14A_1.5UP series is specially designed for applications where an isolated voltage is required in a distributed power supply system.

These products apply to:
1) Where the voltage of the input power supply is stable (voltage variation ≤ ±5%/10%)
2) Where isolation is necessary between input and output (isolation voltage ≤1500VDC)
3) Where do not has high requirement of line regulation and load regulation

Such as: purely digital circuits, low frequency analog circuits, relay-driven circuits and data switching circuits.

Common specifications

Short circuit protection*:	Continuous, automatic recovery
Temperature rise at full load:	25°C typ
Cooling:	Free air convection
Operation temperature range:	-40°C~+105°C
Storage temperature range:	-55°C ~+125°C
Lead temperature:	250°C max, 1.5mm from case for 10 sec
Reflow soldering temperature:	Peak temp. ≤245°C, 60sec. max. at 217°C. Please refer to IPC/JEDEC J-STD-020D.1 for actual application.
Storage humidity range:	< 95%
Package material:	Epoxy Resin [UL94-V0]
MTBF:	>3,500,000 hours
Weight:	1.4g

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy	See tolerance envelope graph				
Line regulation	For Vin change of 1%			±1.2	%
Load regulation	10% to 100% load		12	15	%
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth, nominal input		60	100	mVp-p
Switching frequency	Full load, nominal input		100	300	KHz

* Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (no load / full load)			25/250		mA
Surge voltage		-0.7		9	VDC
Reflected ripple current			15		mA
Input filter	Capacitor filter				

Model selection:
WCTP_xxyyN##O**
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:
1T14A_0505S1.5U
1= 1Watt; T14= SMT14; A= Pinning; 5Vin; 5Vout; S= Single Output; 1.5= 1,5kVDC; U= Unregulated Output; P= Short Ciruit Protection (SCP)

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		20		pF

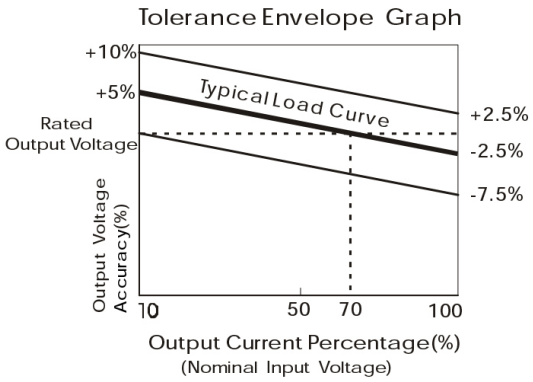
EMC specifications

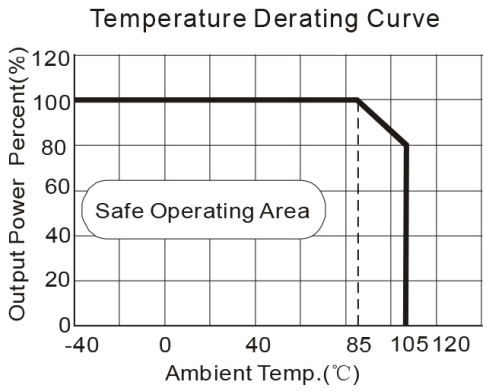
EMI	CE	CISPR22/EN55022 (see EMC recommended circuit)	CLASS B	
EMI	RE	CISPR22/EN55022 (see EMC recommended circuit)	CLASS B	
EMS	ESD	IEC/EN61000-4-2 perf. Criteria B	Contact ±6KV	Air ±8KV

Note:
1. If the product is operated under the min. required load, the product performance cannot be guaranteed to comply with all performance indexes in this datasheet;
3. The max. capacitive load should be tested within the input voltage range and under full load conditions;
4. Unless otherwise specified, data in this data sheet should be tested under the conditions of Ta=25°C, humidity<75% when inputting nominal voltage and outputting rated load;
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;
7. We can provide product customization service;
8. Specifications of this product are subject to changes without prior notice.

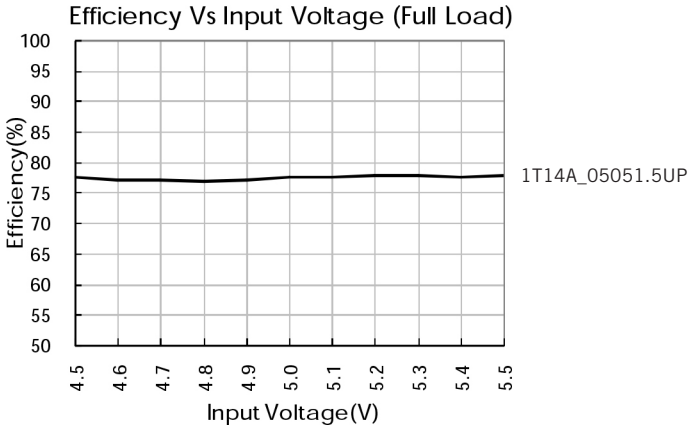
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]	Capacitive load [µF, max]
1T14A_0505S1.5UP	5	5	200	76	220
1D14A_0505S1.5UP	5	5	200	76	220

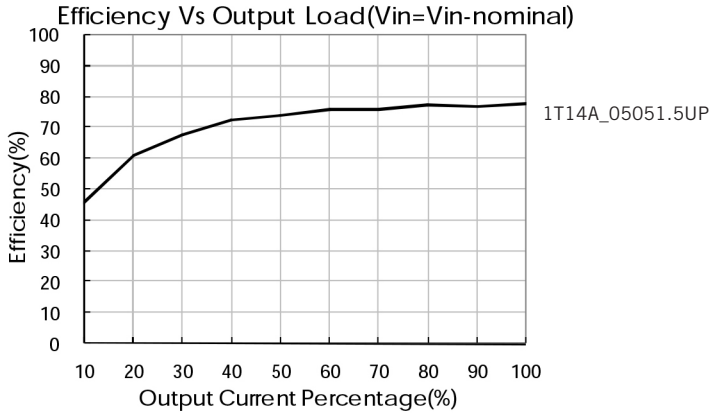
Typical characteristics





Efficiency





Typical application

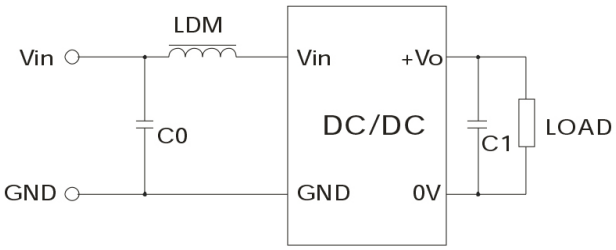
If it is required to further reduce input and output ripple, a filter capacitor can be connected to the input and output terminals, see Fig. 1.
Moreover, choosing suitable filter capacitor is very important , start-up problems may be caused by too large capacitance. To ensured the modules running well, the recommended capacitive load values as shown in Table 1.

Recommended capacitive load value table (Table 1)

Vin(VDC)	Cin(µF)	Vo (VDC)	Cout(µF)
5	4.7	5	10

It is not recommended to connect any external capacitor when output power is less than 0.5W.

EMC recommended circuit



Input voltage (V)		5
EMI	C0	4.7μF /50V
	C1	10μF /50V
	LDM	6.8μH

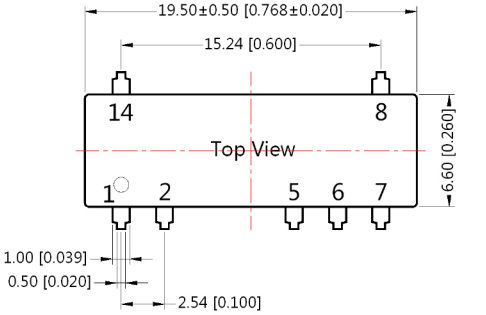
Output load requirements

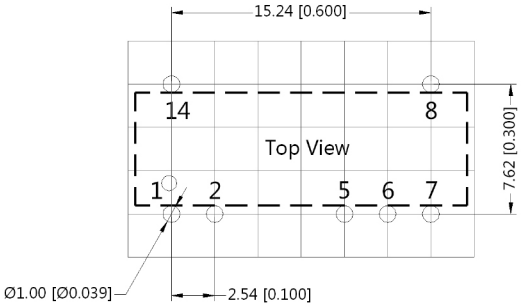
To ensure the module work efficiently and reliably, during the operation, the min. output load should be no less than 10% of the full load. If the actual output power is low, please connect a resister to the output terminal in parallel, with a recommenced resistance which is 10% of the rated power, and derating is required during operation.

Mechanical dimensions

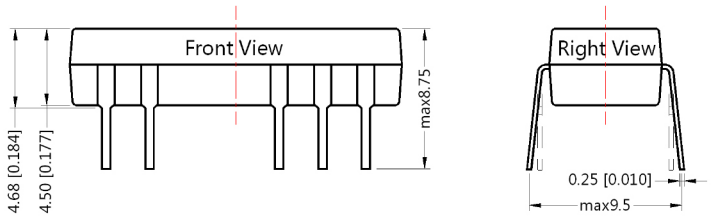
1D14A_0505S1.5UP

THIRD ANGLE PROJECTION





Note: Grid 2.54*2.54mm



Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10mm[± 0.004inch]
General tolerances: ± 0.25mm[± 0.010inch]

Pin-Out	
Pin	Function
1	Vin
2	GND
5	0V
6	+Vo
Others	NC

NC: No Connection

Mechanical dimensions

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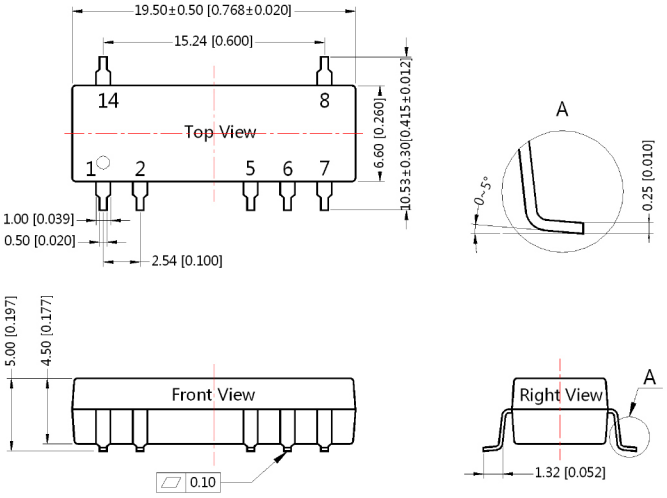

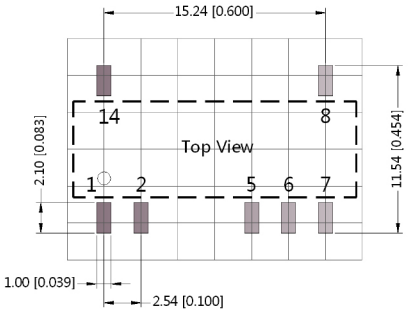

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