

1D14B Series

1W Single/Dual Output - Fixed Input - Isolated & Unregulated
DIP PACKAGE



DC-DC Converter

1 Watt

- High efficiency up to 81%
- DIP Package
- Industry standard pinout
- UL94-V0 package
- 1.5kVDC isolation
- Short circuit protection (SCP)
- Temperature range: -40°C~+105°C
- No external component required
- RoHS compliance

Introducing our high-efficiency The 1D14B series: achieving up to 81% efficiency, this converter is housed in a DIP package with an industry-standard pinout. It features a UL94-V0 compliant package and offers robust 1.5KVDC isolation. Designed with short circuit protection (SCP) and a wide temperature range of -40°C to +105°C, this converter ensures reliable and safe operation without the need for any external components. Additionally, it is RoHS compliant, meeting international environmental and safety standards.



Common specifications

Short circuit protection:	1 second
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	300°C (1.5mm from case for 10 sec.)
Storage humidity range:	< 95%
Case material:	Plastic [UL94-V0]
MTBF:	>3,500,000 hours
Weight:	2.4g

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input current (No load/full load)	• 5V input • 12V input • 15V input • 24V input		25/256 15/106 10/84 7/54		mA
Surge voltage (15 max)	• 5V input • 12V input • 15V input • 24V input	-0.7 -0.7 -0.7 -0.7		9 18 21 30	VDC
Reflected ripple current			15		mA
Filter	Capacitor				

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	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

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				
	• 5V Output		12		%
	• 9V Output		9		%
	• 12V Output		8		%
	• 15V Output		7		%
	• 24V Output		6		%
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		60		mVp-p
Switching frequency	Full load, nominal input		100	300	KHz

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

** Supply voltage must be discontinued at the end of short circuit duration for 1D14B series of 24V input.

Example:

1D14B_0505D1U

1= 1Watt; D14 = DIP14; A = Pinning; 5Vin; 5Vout; D = Dual Output;

1 = 1kVDC; U = Unregulated Output; P = Short Circuit Protection (SCP)

Note:

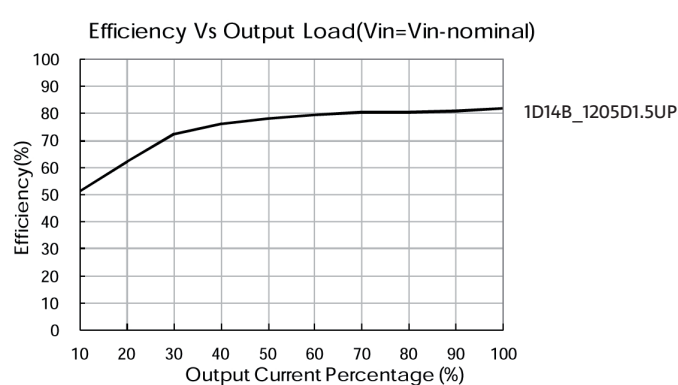
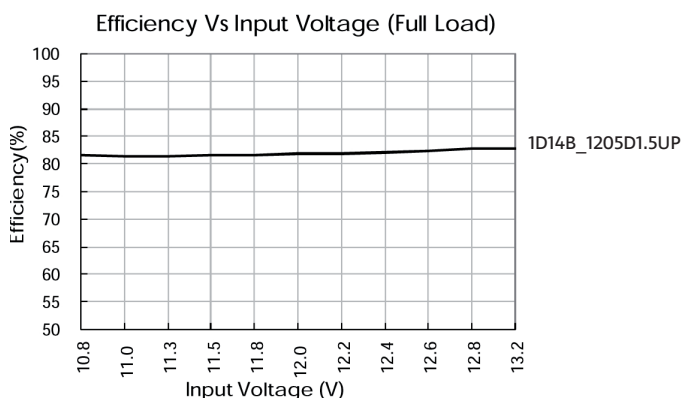
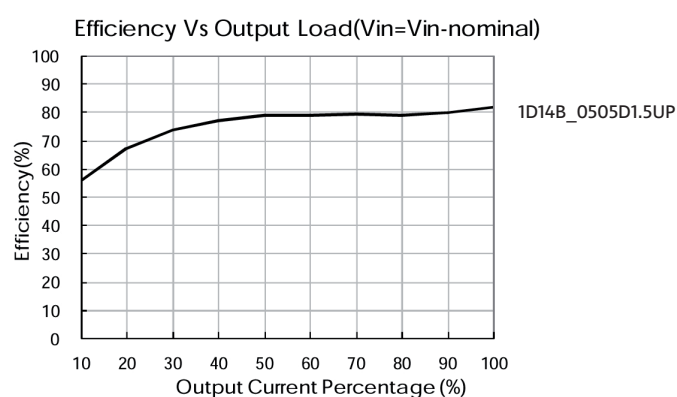
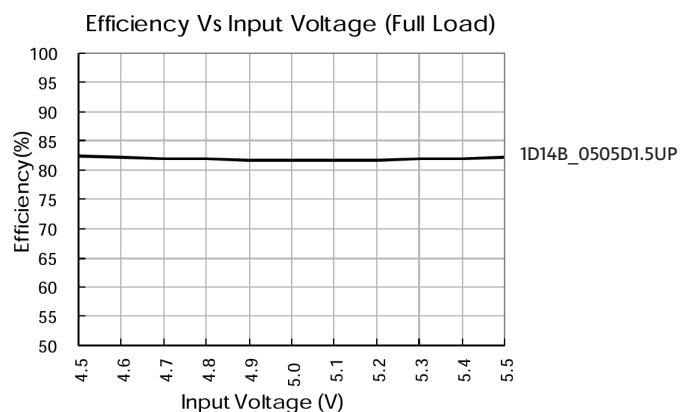
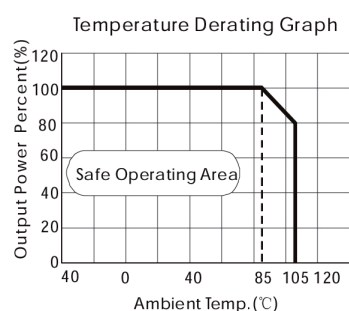
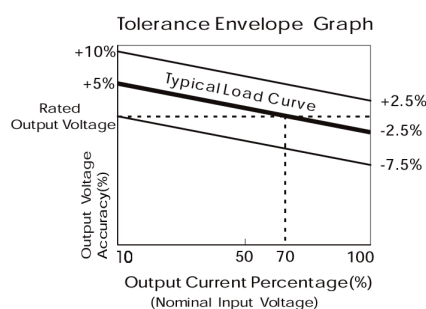
- Operation under minimum load will not damage the converter; However, they may not meet all specification listed, and that will reduce the life of product.
- All specifications measured at Ta = 25°C, humidity < 75%, nominal input voltage and rated output load unless otherwise specified.
- In this datasheet, all the test methods of indications are based on corporate standards.
- Only typical models listed, other models may be different, please contact our technical person for more details.

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Part Number	Input Voltage [V]	Output Voltage [VDC]	Current [mA]	Efficiency [% , typ]	Capacitive load [μ F, max]
1D14B_0505D1.5UP	5	± 5	± 100	80	100
1D14B_0509D1.5UP	5	± 9	± 56	80	100
1D14B_0512D1.5UP	5	± 12	± 42	81	100
1D14B_0515D1.5UP	5	± 15	± 34	81	100
1D14B_0524D1.5UP	5	± 24	± 21	81	100
1D14B_1205D1.5UP	12	± 5	± 100	80	100
1D14B_1209D1.5UP	12	± 9	± 56	80	100
1D14B_1212D1.5UP	12	± 12	± 42	81	100
1D14B_1215D1.5UP	12	± 15	± 34	81	100
1D14B_1224D1.5UP	12	± 24	± 21	81	100
1D14B_2405D1.5UP	24	± 5	± 100	80	100
1D14B_2409D1.5UP	24	± 9	± 56	80	100
1D14B_2412D1.5UP	24	± 12	± 42	81	100
1D14B_2415D1.5UP	24	± 15	± 34	81	100
1D14B_2424D1.5UP	24	± 24	± 21	81	100

Typical characteristics



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Application note

1) 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 ensure the modules running well, the recommended capacitive load values as shown in Table 1.

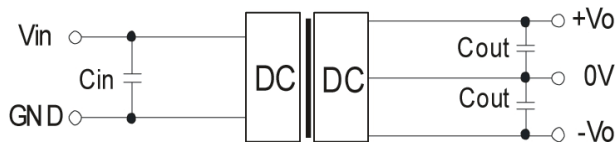


Figure 1

Vin (VDC)	Cin (uF)	Dual Vout (VDC)	Cout (uF)
5	4.7	±5	4.7
12	2.2	±9/ ±12	1
15	2.2	±15/±24	0.47
24	1	--	--

Table 1

2) EMC typical recommended circuit (CLASS B)

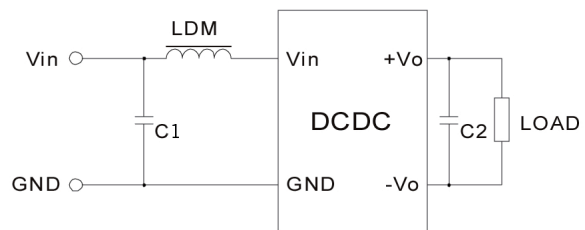


Figure 2

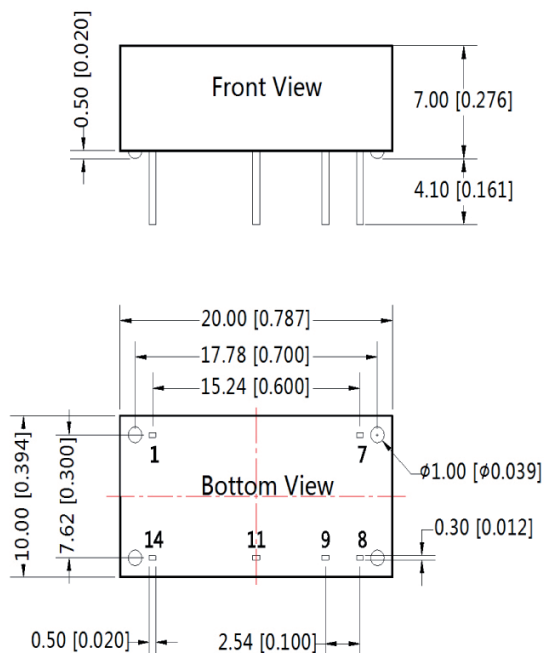
Input voltage (V)		5 / 12 / 15 / 24
EMI	C1	4.7μF/50V
EMI	C2	Refer to the Cout in Fig. 1
EMI	LDM	6.8μH

3) Output load requirements

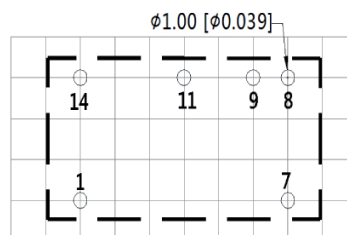
To ensure the module work efficiently and reliably, during the operation, the min. output load should be no less than 10% of the full load. If the actual output power is low, please connect a resistor to the output terminal in parallel, with a recommended resistance which is 10% of the rated power, and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

Mechanical dimensions and foot-

THIRD ANGLE PROJECTION



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



Note : Grid 2.54*2.54mm

Pin-Out	
Pin	Dual
1	GND
7	NC
8	0V
9	+Vo
11	-Vo
14	Vin

NC:No connection