



1D14A1_1.5UP Series

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

DC-DC Converter 1 Watt

- ⊕ Continuous short-circuit protection
- ⊕ No-load input current as low as 5mA
- ⊕ Operating ambient temp. range -40°C ~ +105°C
- ⊕ I/O isolation test voltage 1.5k VDC
- ⊕ Industry standard pin-out
- ⊕ DIP package
- ⊕ EN62368 Approval

The 1D14A1_1.5UP series is specially designed for applications where an isolated voltage is required in a distributed power supply system. They are suitable for: pure digital circuits, low frequency analog circuits, relay-driven circuits and data switching circuits.



| Common specifications | |
|------------------------------|---|
| Short circuit protection: | Continuous, self-recovery |
| Operation temperature range: | -40°C – +105°C (Derating when operating temperature up to 85°C, see Fig. 2) |
| Storage temperature range: | -55°C – +125°C |
| Lead temperature | 300°C Max. (1.5mm from case for 10 sec.) |
| Casing Temperature Rise: | 15°C TYP Ta = 25°C |
| Storage humidity range: | < 95% (Non-condensing) |
| MTBF (MIL-HDBK-217F@25°C): | >3,500,000 hours |
| Case material: | Black plastic; flame-retardant and heat-resistant (UL94 V-0) |
| Cooling: | Free air convection |
| Dimensions: | 20.00 x 10.00 x 7.00mm |
| Weight: | 2.1g Typ. |

| Output specifications | | | | | |
|-------------------------|--------------------------------------|-----|-------|------|-------|
| Item | Test condition | Min | Typ | Max | Units |
| Output power | See output regulation curve (Fig. 1) | | | | |
| Line regulation | For Vin change of 1% | | | ±1.2 | % |
| Load regulation | 10%-100% load | | 10 | 15 | % |
| Ripple & Noise* | 20MHz Bandwidth | | 30 | 75 | mVp-p |
| Output voltage accuracy | See tolerance envelope graph | | | | |
| Temperature drift | 100% full load | | ±0.02 | | %/°C |
| Switching frequency | 100% load, nominal input voltage | | 270 | | KHz |

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

Example:
1D14A1_0505D1.5UP
1 = 1Watt; D14 = DIP14; A1 = Pinning; 05 = 5Vin; 05 = 5Vout;
D = Dual Output; 1 = 1.5kVDC; U = Unregulated Output;
P = Short Circuit Protection

| Input specifications | | | | | |
|-----------------------------------|--------------------|------|-------|--------|-------|
| Item | Test condition | Min | Typ | Max | Units |
| Input current (No load/full load) | 5VDC output | | 270/5 | 286/10 | mA |
| Reflected ripple current | | | 15 | | mA |
| Surge voltage | 1s max | -0.7 | | 9 | VDC |
| Filter | Capacitance filter | | | | |
| Hot Plug | Unavailable | | | | |

Note: * Refer to DC-DC Converter Application Notes for detailed description of reflected ripple current test method.

| EMC specifications | | | | | |
|--------------------|-----|-----------------|--------------|---|--|
| Emissions | CE | CISPR32/EN55032 | CLASS B | (External Circuit Refer to EMC recommended circuit) | |
| Emissions | RE | CISPR32/EN55032 | CLASS B | (External Circuit Refer to EMC recommended circuit) | |
| Immunity | ESD | IEC/EN61000-4-2 | Contact ±4KV | perf. Criteria B | |

Note:

- If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
- The maximum capacitive load offered were tested at input voltage range and full load;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta = 25°C, humidity <75%RH with nominal input voltage and rated output load;
- All index testing methods in this datasheet are based on our company's corporate standards;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see „Features“ and „EMC“;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

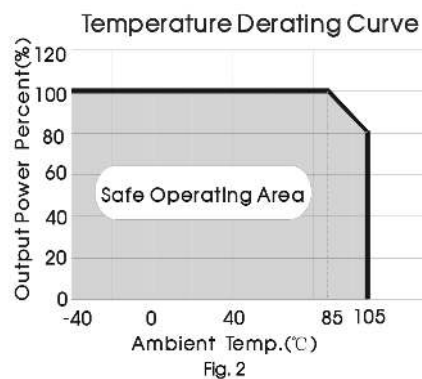
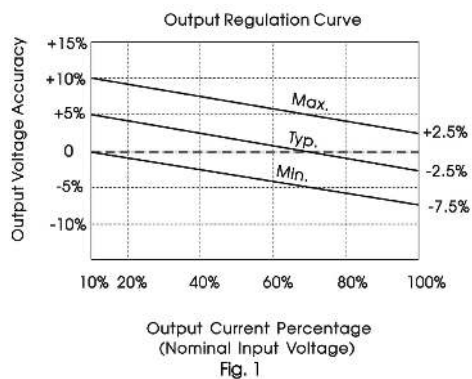
Product Selection Guide

| Part Number | Input Voltage [V] | Output Voltage [VDC] | Output Current [mA, Max/Min] | Full Load Efficiency [%, min/typ] | Capacitive load [µF, max] |
|-------------------|-------------------|----------------------|------------------------------|-----------------------------------|---------------------------|
| 1D14A1_0505D1.5UP | 5 (4.5-5.5) | 5 | 200/20 | 78/82 | 2400 |

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Typical characteristics



Typical application circuit

Input and/or output ripple can be further reduced, by connecting a filter capacitor from the input and/or output terminals to ground as shown in Fig. 3.

Choosing suitable filter capacitor values is very important for a smooth operation of the modules, particularly to avoid start-up problems caused by capacitor values that are too high. For recommended input and output capacitor values refer to Table 1.



Table 1: Recommended capacitive load value table

| Vin (VDC) | Cin (μF) | Vout (VDC) | Cout (μF) |
|-----------|----------|------------|-----------|
| 5VDC | 4.7 | 5 | 10 |

EMC solution-recommended circuit

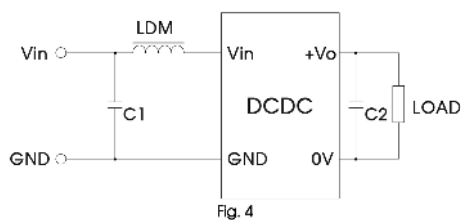
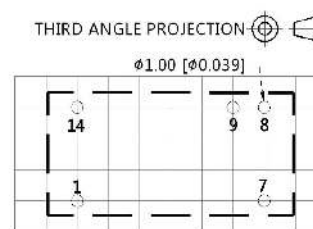
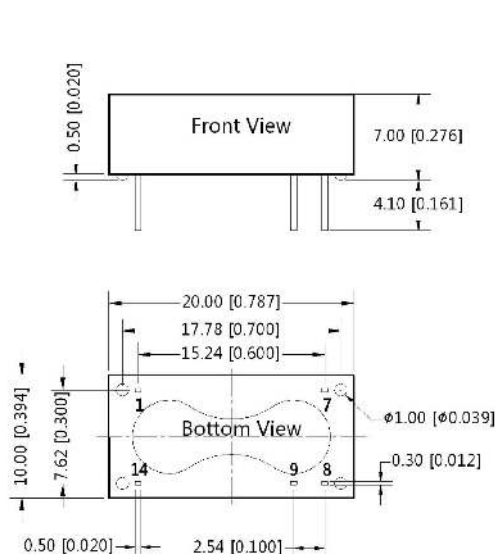


Table 2: EMC recommended circuit value table

| Emissions | Output voltage | 5 |
|-----------|----------------|------------------------------|
| | C1 | 4.7μF /25V |
| | C2 | Refer to the Cout in table 1 |
| | LDM | 6.8μH |

Mechanical dimensions



Note : Grid 2.54*2.54mm

| Pin-Out | |
|---------|--------|
| Pin | Single |
| 1 | GND |
| 7 | NC |
| 8 | 0V |
| 9 | +Vo |
| 14 | Vin |

NC:No connection

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