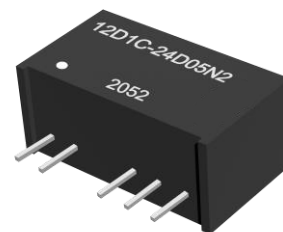
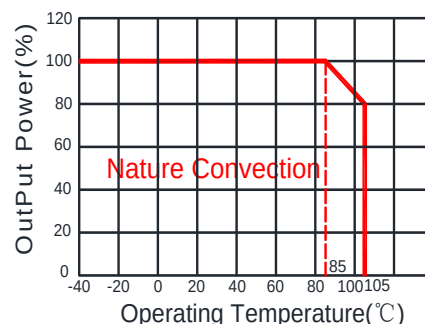


**FEATURES :**

- 7PIN SIP Package
- No-load input current as low as 5mA
- Continuous short-circuit protection
- High Efficiency up to 89%
- Unregulated Output Types
- 6.4KVDC Strengthen Isolation
- Operating Temperature:-40°C to +105°C
- Industry Standard Pinout
- Design refer to IEC62368, UL62368, EN62368

**Volgen****DC-DC Converter****12D1C-2W SERIES****2 Watt****6400Vdc Isolated****Single & Dual Output****SIP7****Temperature Derating**

**Specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified**

| Part Number   | Output Voltage | Output Current | Efficiency | Capacitive Load(μF) |
|---------------|----------------|----------------|------------|---------------------|
|               | Vdc            | mA             | %TYP       | Max.                |
| 12D1C-05S03N2 | 3.3            | 600            | 78         | 2400                |
| 12D1C-05S05N2 | 5              | 400            | 84         | 2400                |
| 12D1C-05S09N2 | 9              | 223            | 85         | 820                 |
| 12D1C-05S12N2 | 12             | 167            | 85         | 470                 |
| 12D1C-05S15N2 | 15             | 133            | 86         | 220                 |
| 12D1C-05S24N2 | 24             | 84             | 87         | 100                 |
| 12D1C-05D03N2 | ±3.3           | ±300           | 78         | ±1200               |
| 12D1C-05D05N2 | ±5             | ±200           | 82         | ±1200               |
| 12D1C-05D09N2 | ±9             | ±112           | 85         | ±330                |
| 12D1C-05D12N2 | ±12            | ±84            | 85         | ±330                |
| 12D1C-05D15N2 | ±15            | ±67            | 87         | ±220                |
| 12D1C-05D24N2 | ±24            | ±42            | 88         | ±47                 |
| 12D1C-XXS03N2 | 3.3            | 600            | 80         | 2400                |
| 12D1C-XXS05N2 | 5              | 400            | 85         | 2400                |
| 12D1C-XXS09N2 | 9              | 223            | 87         | 820                 |
| 12D1C-XXS12N2 | 12             | 167            | 87         | 470                 |
| 12D1C-XXS15N2 | 15             | 133            | 88         | 220                 |
| 12D1C-XXS24N2 | 24             | 84             | 89         | 100                 |
| 12D1C-XXD03N2 | ±3.3           | ±300           | 80         | ±1200               |
| 12D1C-XXD05N2 | ±5             | ±200           | 82         | ±1200               |
| 12D1C-XXD09N2 | ±9             | ±112           | 85         | ±330                |
| 12D1C-XXD12N2 | ±12            | ±84            | 87         | ±330                |
| 12D1C-XXD15N2 | ±15            | ±67            | 88         | ±100                |
| 12D1C-XXD24N2 | ±24            | ±42            | 89         | ±47                 |

**Note:**

"XX" Is Input Voltage : 12=12Vdc, 15=15Vdc, 24=24Vdc e.g, 12D1C-12S05N2, 12D1C-15S12N2, 12D1C-24S15N2

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## Input Specifications

| Parameters        | Conditions | Min | Typ | Max | Units |
|-------------------|------------|-----|-----|-----|-------|
| Voltage Tolerance | Vo, Io Nom |     | ±10 |     | %     |
| Filter            | Capacitor  |     |     |     |       |

## Output Specifications

| Parameters               | Conditions                | Min | Typ | Max | Units |
|--------------------------|---------------------------|-----|-----|-----|-------|
| Voltage Tolerance        | 100% Full Load            |     |     | ±5  | %     |
| Short Circuit Protection | Continuous, self-recovery |     |     |     |       |
| Line Regulation          | For 1.0% of Vin           |     | 1.2 |     | %     |
| Load Regulation          | 3.3V (10% To 100% F.L)    |     | 15  | 20  | %     |
|                          | 5V (10% To 100% F.L)      |     | 8   | 15  | %     |
|                          | 9V (10% To 100% F.L)      |     | 6   | 10  | %     |
|                          | 12V (10% To 100% F.L)     |     | 5   | 10  | %     |
|                          | 15V (10% To 100% F.L)     |     | 4   | 10  | %     |
|                          | 24V (10% To 100% F.L)     |     | 3   | 10  | %     |
| Ripple & Noise           | BW=DC To 20MHz            |     | 75  | 150 | mVp-p |

## General Specifications

| Parameters            | Conditions                          | Min     | Typ           | Max  | Units |
|-----------------------|-------------------------------------|---------|---------------|------|-------|
| Isolation Resistance  | 500Vdc                              | 1000    |               |      | MΩ    |
| Isolation Capacitance | Input-output, 100KHz/0.1V           |         | 20            |      | pF    |
| Switching Frequency   | Full load, nominal input @5V Vin    |         | 215           |      | KHz   |
|                       | Full load, nominal input @other Vin |         | 250           |      | KHz   |
| Operating Temperature |                                     | -40     |               | +105 | °C    |
| Storage Temperature   |                                     | -55     |               | +125 | °C    |
| Humidity              | Non Condensing                      |         |               | 95   | %     |
| Cooling               | Free air Convection                 |         |               |      |       |
| Case material         | DAP                                 |         |               |      |       |
| MTBF                  | MIL-HDBK-217F@25°C                  | 3500000 |               |      | Hours |
| Weight                |                                     |         | 4             |      | g     |
| Dimensions            |                                     |         | 19.5x9.8x12.5 |      | mm    |

## Electromagnetic Compatibility (EMC)

|     |     |                                                              |
|-----|-----|--------------------------------------------------------------|
| EMI | CE  | CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit) |
|     | RE  | CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit) |
| EMS | ESD | IEC/EN61000-4-2 Air ±8kV, Contact ±6kV perf. Criteria B      |

## CONTACT US

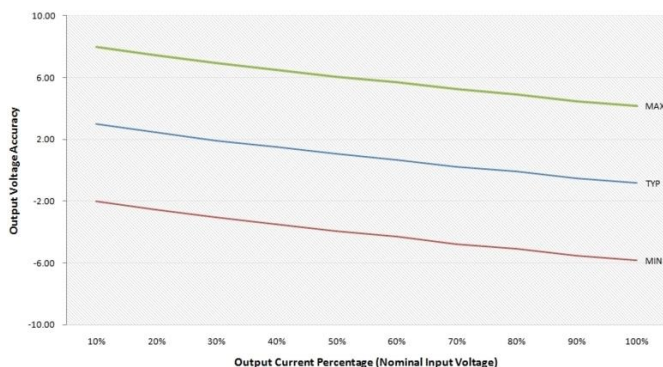
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## Tolerance Envelope Graph

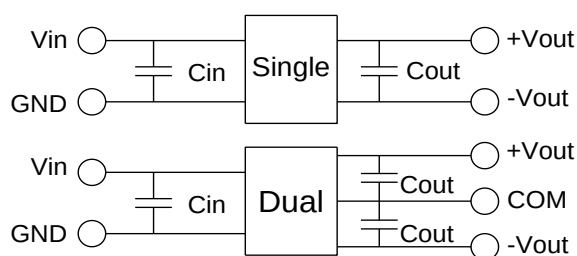


## Part Number

|       |   |    |   |    |   |   |
|-------|---|----|---|----|---|---|
| 12D1C | - | 24 | S | 12 | N | 2 |
| A     |   | B  | C | D  | E | F |

A : Series  
 B : Input Voltage  
 C : Single Output  
 D : Output Voltage  
 E : Unregulated(N)  
 F : Output Power

## Recommended Test Circuit



| Vin   | Cin       | Single Vout | Cout      | Dual Vout | Cout       |
|-------|-----------|-------------|-----------|-----------|------------|
| 5Vdc  | 4.7μF/25V | 3.3Vdc      | 10μF/16V  | ±3.3Vdc   | ±4.7μF/16V |
| 12Vdc | 2.2μF/25V | 5Vdc        | 10μF/16V  | ±5Vdc     | ±4.7μF/16V |
| 15Vdc | 2.2μF/25V | 9Vdc        | 2.2μF/16V | ±9Vdc     | ±1μF/16V   |
| 24Vdc | 1μF/50V   | 12Vdc       | 2.2μF/25V | ±12Vdc    | ±1μF/25V   |
| --    | --        | 15Vdc       | 1μF/25V   | ±15Vdc    | ±1μF/25V   |
| --    | --        | 24Vdc       | 1μF/50V   | ±24Vdc    | ±1μF/50V   |

## EMC (CLASS B) Compliance Circuit

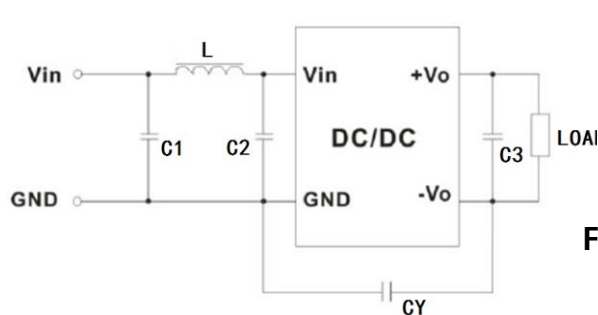
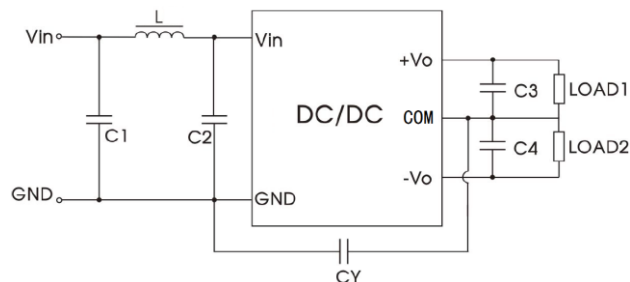


Fig.1



## EMC recommended circuit value table

|     |    |                          |
|-----|----|--------------------------|
| EMI | C1 | 4.7μF /50V               |
|     | C2 | 4.7μF /50V               |
|     | CY | 1nF/4kV                  |
|     | C3 | Recommended Test Circuit |
|     | L  | 6.8μH                    |

## CONTACT US

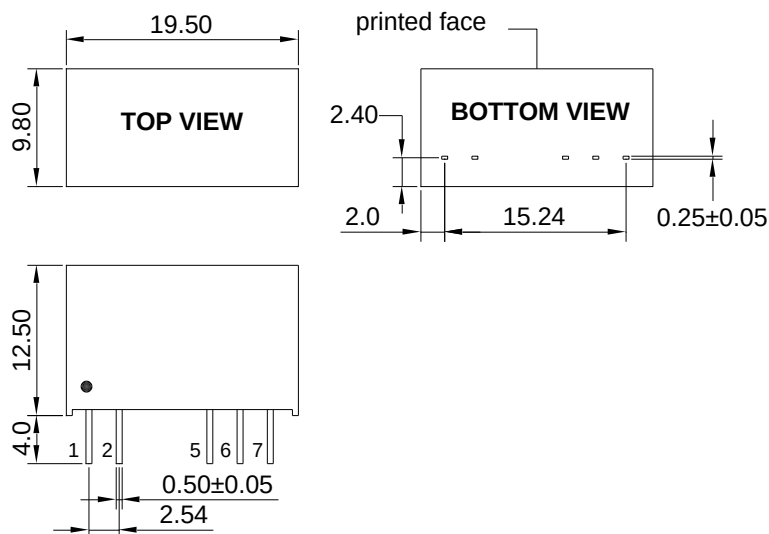
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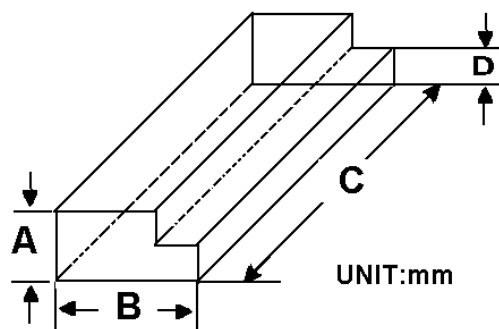


## Markings and Dimensions



UNIT: mm Unless otherwise specified, all tolerances are  $\pm 0.25$

## Packaging



TUBE-----25pcs

| Size(mm) |       |     |     |
|----------|-------|-----|-----|
| A        | B     | C   | D   |
| 12.0     | 28.55 | 550 | 6.0 |

## PIN Connection

| PIN    | 1    | 2    | 5     | 6      | 7     |
|--------|------|------|-------|--------|-------|
| Single | +Vin | -Vin | -Vout | No Pin | +Vout |
| Dual   | +Vin | -Vin | -Vout | Com    | +Vout |

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