

FEATURES :

- 7PIN SIP Package
- High Efficiency up to 85%
- Unregulated Output Types
- Single Output 5/9/12/15V Approved By UL 60950-1
- Internal SMD Construction
- No External Component Required
- Operating Temperature:-40°C TO +85°C
- Industry Standard Pinout

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

| Part Number | Output Voltage | Output Current | Efficiency | Package Style |
|---------------|----------------|----------------|------------|---------------|
| | Vdc | mA | %TYP | |
| 12D-XXS03NNL | 3.3 | 303 | 70 | 1 |
| ★12D-XXS05NNL | 5 | 200 | 70 | 1 |
| ★12D-XXS09NNL | 9 | 112 | 75 | 1 |
| ★12D-XXS12NNL | 12 | 84 | 78 | 1 |
| ★12D-XXS15NNL | 15 | 67 | 80 | 1 |
| 12D-XXS24NNL | 24 | 42 | 82 | 1 |
| 12D-XXD03NNL | ±3.3 | ±150 | 70 | 1 |
| 12D-XXD05NNL | ±5 | ±100 | 70 | 1 |
| 12D-XXD09NNL | ±9 | ±56 | 75 | 1 |
| 12D-XXD12NNL | ±12 | ±42 | 78 | 1 |
| 12D-XXD15NNL | ±15 | ±34 | 80 | 1 |
| 12D-XXD24NNL | ±24 | ±21 | 82 | 1 |
| 12D-XXS05N2NL | 5 | 200 | 70 | 2 |
| 12D-XXS09N2NL | 9 | 112 | 75 | 2 |
| 12D-XXS12N2NL | 12 | 84 | 78 | 2 |
| 12D-XXS15N2NL | 15 | 67 | 80 | 2 |
| 12D-XXS24N2NL | 24 | 42 | 82 | 2 |
| 12D-XXD05N2NL | ±5 | ±100 | 70 | 2 |
| 12D-XXD09N2NL | ±9 | ±56 | 75 | 2 |
| 12D-XXD12N2NL | ±12 | ±42 | 78 | 2 |
| 12D-XXD15N2NL | ±15 | ±34 | 80 | 2 |
| 12D-XXD24N2NL | ±24 | ±21 | 82 | 2 |

Note :

- 1."XX" is input voltage: 03=3.3Vdc 05=5Vdc, 09=9Vdc, 12=12Vdc, 15=15Vdc, 24=24Vdc, 48=48Vdc.
2. Over 48Vdc input voltage, using the 2nd package.
3. The input voltage increases, there will be an increase in efficiency.
- 4." ★" marked as recognized by UL 60950-1. (Without input voltage: 03=3.3Vdc, 09=9Vdc)

Input Specifications

| Parameters | Conditions | Min | Typ | Max | Units |
|-------------------|------------|-----|-----|-----|-------|
| Voltage Tolerance | Vo,Io Nom | | | ±5 | % |
| Filter | Capacitor | | | | |



DC-DC Converter

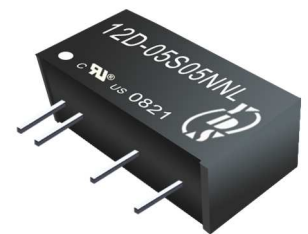
12D-3KV SERIES

1Watt

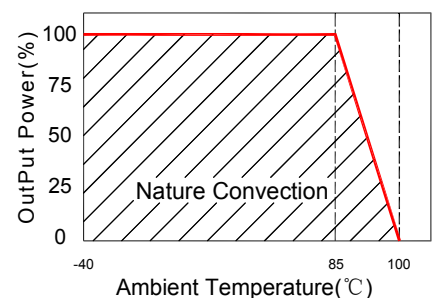
3KV Isolated

Single & Dual Output

SIP7



Temperature Derating Graph



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Rev:4 2019/03/11

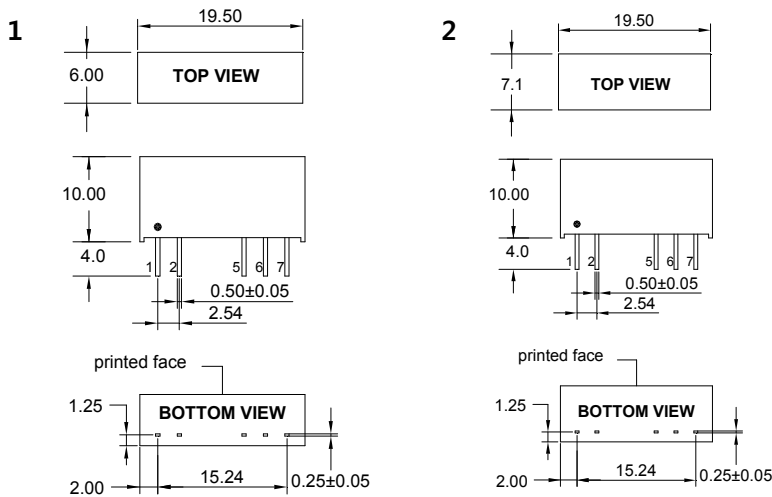
Output Specifications

| Parameters | Conditions | Min | Typ | Max | Units |
|---------------------------------|-------------------------------------|-----|-----|-----|-------|
| Voltage Tolerance | 100% full load | | | ±5 | % |
| Short Circuit Protection | Short Term | | | 1 | Sec |
| Line Regulation | For 1.0% OF Vin | | 1.2 | | % |
| Load Regulation | 3.3V,5V (10% To 100% F.L) | | | 15 | % |
| Load Regulation | 9V,12V,15V,24V (10% To 100% F.L) | | | 10 | % |
| Ripple & Noise | BW=DC To 20MHz | | | 100 | mVp-p |
| Transient response setting time | 50% load step change | | 350 | | us |

General Specifications

| Parameters | Conditions | Min | Typ | Max | Units |
|-----------------------|-----------------------------|---------|---------------|-----|-------|
| Isolation Resistance | 500Vdc | 1000 | | | MΩ |
| Switching Frequency | Full load, nominal input | | 100 | | KHz |
| Operating Temperature | | -40 | | +85 | °C |
| Humidity | Non Condensing | | | 95 | % |
| Cooling | Free air Convection | | | | |
| Case material | DAP | | | | |
| MTBF | MIL-HDBK-217F @25°C | 3500000 | | | Hours |
| Weight | Package 1 or Package2 | | 2.1 or 2.7 | | g |
| Dimensions | Package 1 | | 19.5x6.0x10.0 | | mm |
| Dimensions | Package 2 | | 19.5x7.1x10.0 | | mm |

Markings and dimensions

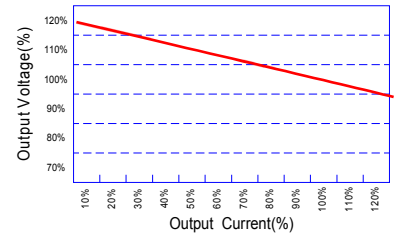


Unit:mm Unless otherwise specified, all tolerances are ±0.25

PIN Connection

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

Tolerance Envelope Graph

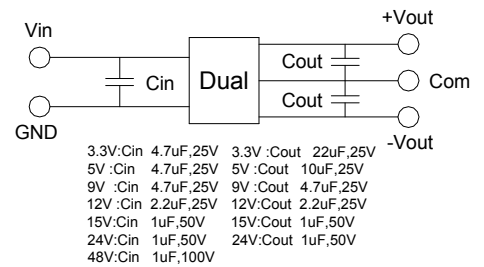
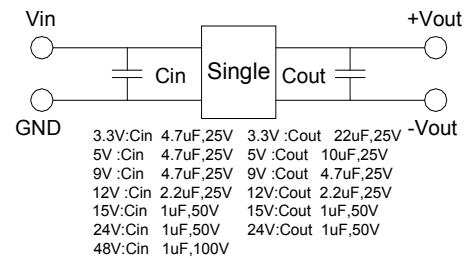


Part Number

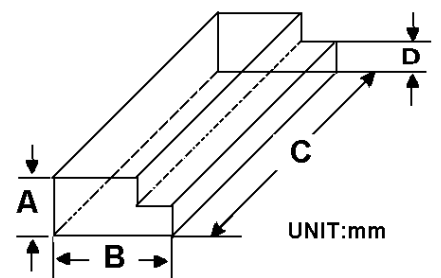
12D - 05 S 05 N 2 NL
A B C D E F G

- A:Series
- B:Input Voltage
- C:Single(S)Dual(D)
- D:Output Voltage
- E:Unregulated(N)
- F:Package
- G:RoHS Version

Recommended Test Circuit



Packaging



| Size (mm) | | | |
|-----------|------|------|-----|
| A | B | C | D |
| 9.5 | 16.5 | 52.2 | 5.0 |

