



3DAW4_2 Series

3W - Dual/Single Output - Ultra Wide Input - Isolated & Regulated DC-DC Converter

DC-DC Converter

3 Watt

- ⊕ Ultra Wide 4:1 Input Voltage Range
- ⊕ Very Low Stand-by (no-load) Power Consumption
50mW typ and 150mW max.
- ⊕ High Efficiency up to 86%
- ⊕ 3W Single and Dual outputs
- ⊕ I/O Isolation 1KVDC, 2KVDC, 4KVDC & 6KVDC Option
- ⊕ Operating Temperature Range: -40°C to +85°C
- ⊕ Continuous Short Circuit Protection (SCP)
- ⊕ Remote ON/OFF Control add Suffix „CTRL“ Option
- ⊕ 2 Pinout Options, 2 Case Styles
- ⊕ Internal PI-Filtering



The 3DAW4_ T° series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage range \leq 4:1);
- 2) Where isolation is necessary between input and output (isolation \leq 1000VDC, \leq 2000VDC, \leq 4000VDC, \leq 6000VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

Common specifications

| | |
|--------------------------------|---|
| Input filter: | Pi type |
| Short circuit protection: | Continuous, automatic recovery |
| Temperature rise at full load: | 15°C TYP |
| Cooling: | Free air convection |
| Operation temperature range: | -40°C~+100°C |
| Operation case temperature: | +110°C MAX |
| Storage temperature range: | -55°C ~+125°C |
| Storage humidity range: | < 95% |
| Lead temperature range: | 300°C MAX, 1.5mm from case for 10 sec |
| No-load power consumption: | 50mW TYP / 150mW MAX |
| Temperature coefficient: | -40°C to +85°C ambient 0.015 %/°C MAX |
| Operating Frequency: | 150kHz MIN |
| Case material: | Non-conductive black plastic [UL94-V0] |
| Potting material: | Epoxy [UL94-V0] |
| MTBF (MIL-HDBK 217F): | +25°C: 2597x10 ³ hours +85°C: 378x10 ³ hours |
| Weight: | 13g |

Isolation specifications

| Item | Test condition | Min | Typ | Max | Units |
|-----------------------|-------------------------|------------------------------|-----|-----|-------|
| Isolation voltage | Tested for 1 second | 1000 2000 4000 6000 | | | VDC |
| Isolation resistance | 500VDC, input to output | 15 | | | GΩ |
| Isolation capacitance | 100KHz | | 30 | | pF |

Note:

1. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. In this datasheet, all the test methods of indications are based on corporate standards.
3. Only typical models listed, other models may be different, please contact our technical person for more details.

Output specifications

| Item | Test condition | Min | Typ | Max | Units |
|---|--|-----|------|-------|---|
| Output accuracy | Nominal Vin and full load | | ±2 | | % |
| Line regulation | Vin=min to max, full load | | ±0.5 | | % |
| Load regulation | 20% to 100% full load | | ±0.5 | | % |
| Minimum load | | | 0 | | % |
| Temperature drift (Vout) | Refer to recommended circuit | | | ±0.03 | %/°C |
| Output Ripple & Noise | 20MHz Bandwidth | | | 60 | mVp-p |
| Remote Power OFF (leave open if not used) (15 VDC max.) | Device ON Device OFF Device OFF (Stand by input current) | | | | open or <0.8 VDC CTRL>1.5VDC 0.5mA max. |

Model selection:

WCTV_xxyyN##

W= Watt; C= Case; T= Type; V=Voltage Variation (omitted \pm 10%);
xx= Vin; yy=Vout; N= Numbers of Output; ##= Isolation (kVDC)

Example:

3DAW4_2405D6

3= 3Watt; D= DIP; A= series; W4= wide input (4:1) 9-36Vin; 5Vout;
D= Dual Output; 6= 6000VDC

3DAW4_2 Series

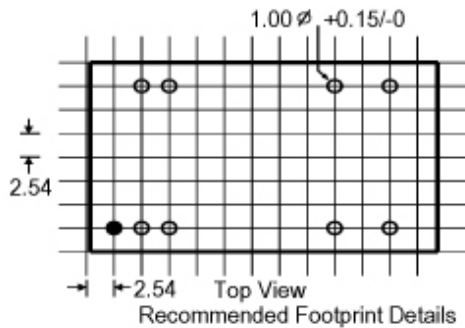
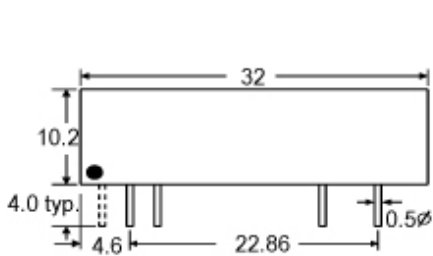
3W - Dual/Single Output - Wide Input - Isolated & Regulated DC-DC Converter

| Part Number | Input Voltage [V] | Output Voltage [VDC] | Output Current [mA, max] | Efficiency [%, typ] | Max. Capacitive Load [μ F] |
|--------------|---------------------|----------------------|--------------------------|---------------------|---------------------------------|
| 3DAW4_xx03SX | 4.5-18, 9-36, 18-75 | 3.3 | 600 | 78-80 | 1000 |
| 3DAW4_xx05SX | 4.5-18, 9-36, 18-75 | 5 | 600 | 82-83 | 1000 |
| 3DAW4_xx12SX | 4.5-18, 9-36, 18-75 | 12 | 250 | 85 | 470 |
| 3DAW4_xx15SX | 4.5-18, 9-36, 18-75 | 15 | 200 | 85 | 330 |
| 3DAW4_xx05DX | 4.5-18, 9-36, 18-75 | \pm 5 | \pm 300 | 82-84 | \pm 470 |
| 3DAW4_xx12DX | 4.5-18, 9-36, 18-75 | \pm 12 | \pm 125 | 84-86 | \pm 100 |
| 3DAW4_xx15DX | 4.5-18, 9-36, 18-75 | \pm 15 | \pm 100 | 85-86 | \pm 47 |

- X=1=1KVDC, X=2=2KVDC, X=4=4KVDC, X=6=6KVDC
- xx=Input Voltage (possible for other input and output voltage combinations on request)
 Vin=4.5-18V, xx=12
 Vin=9-36V, xx=24
 Vin=18-75V, xx=48
- For B or C Pinning: 3DBW4_xx03SX or 3DCW4_xx03SX

Mechanical dimensions/footprint

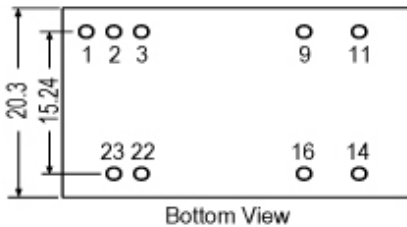
A Pinning



Pin Connections

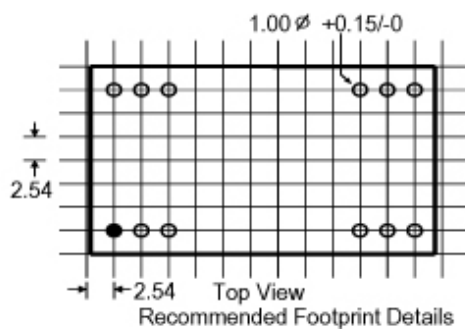
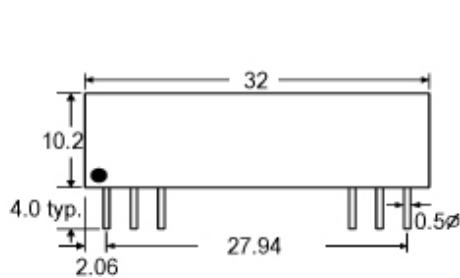
| Pin# | Single | Dual |
|-----------|--------|-------|
| 1(option) | CTRL | CTRL |
| 2 | -Vin | -Vin |
| 3 | -Vin | -Vin |
| 9 | NC | Com |
| 11 | NC | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | COM |
| 22 | +Vin | +Vin |
| 23 | +Vin | +Vin |

NC=No Connection
CTRL=Remote ON/OFF Control



Note:
XX.X \pm 0.25 mm
XX.XX \pm 0.15 mm

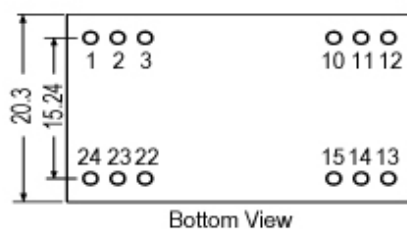
B Pinning



Pin Connections

| Pin# | Single | Dual |
|------|--------|-------|
| 1 | +Vin | +Vin |
| 2 | NC | -Vout |
| 3 | NC | Com |
| 10 | -Vout | Com |
| 11 | +Vout | +Vout |
| 12 | -Vin | -Vin |
| 13 | -Vin | -Vin |
| 14 | +Vout | +Vout |
| 15 | -Vout | Com |
| 22 | NC | Com |
| 23 | NC | -Vout |
| 24 | +Vin | +Vin |

NC=No Connection



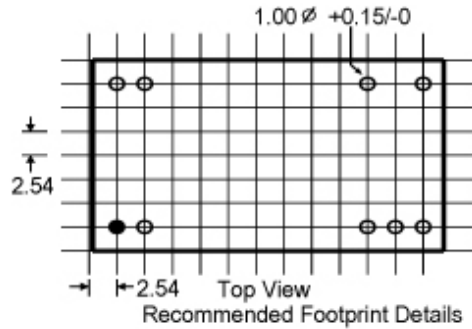
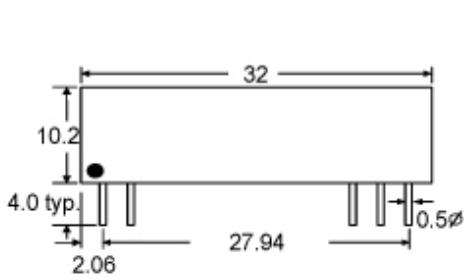
Note:
XX.X \pm 0.25 mm
XX.XX \pm 0.15 mm

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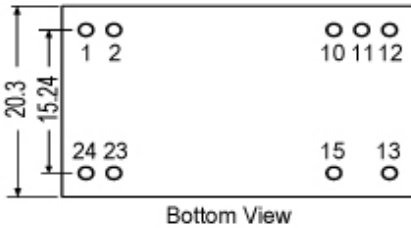
Mechanical dimensions/footprint

C Pinning



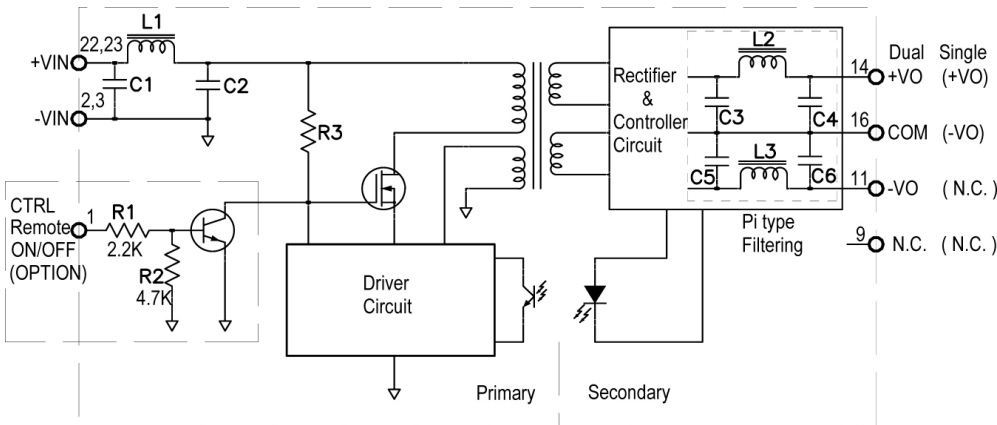
| Pin Connections | | |
|-----------------|--------|-------|
| Pin# | Single | Dual |
| 1 | +Vin | +Vin |
| 2 | +Vin | +Vin |
| 10 | NC | Com |
| 11 | NC | Com |
| 12 | -Vout | NC |
| 13 | +Vout | -Vout |
| 15 | NC | +Vout |
| 23 | -Vin | -Vin |
| 24 | -Vin | -Vin |

NC=No Connection



Note:
 XX.X ± 0.25 mm
 XX.XX ± 0.15 mm

Functional block diagram (A pinning)



The Values of Input π type Filtering

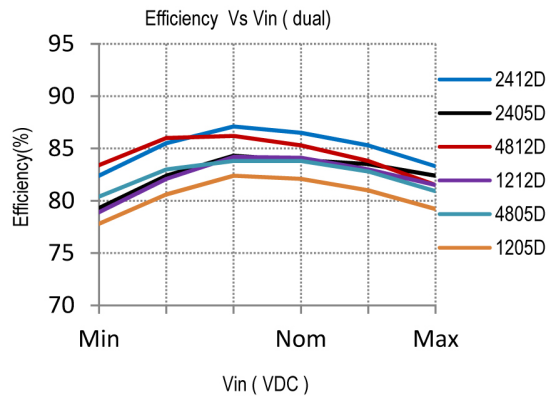
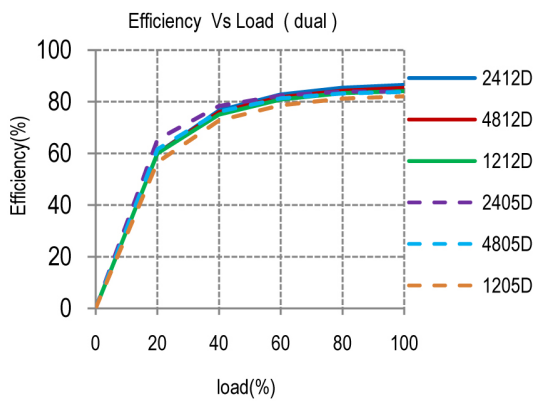
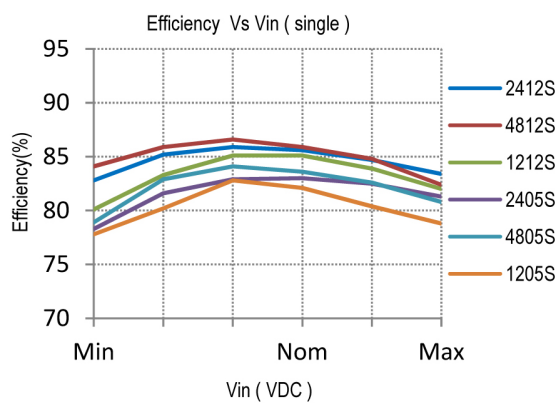
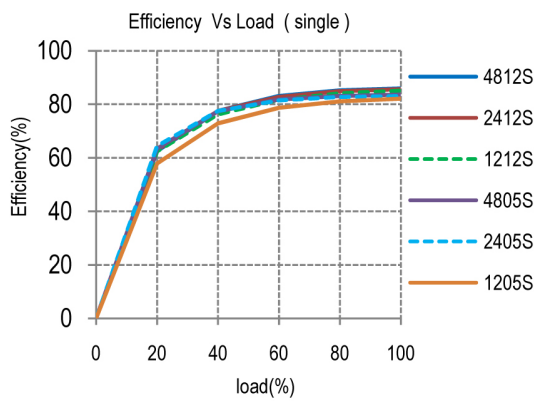
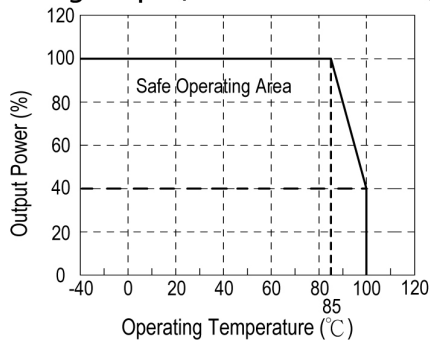
| Input Voltage | C1 | C2 | L1 |
|---------------|-----------|-----------|--------------|
| 4.5~18VDC | 0.1uF~1uF | 10uF/25V | 0.47uH~4.7uH |
| 9~36VDC | 0.1uF~1uF | 4.7uF/50V | 1uH~10uH |
| 18~75VDC | 0.1uF~1uF | 1uF/100V | 2.2uH~22uH |

3DAW4_2 Series

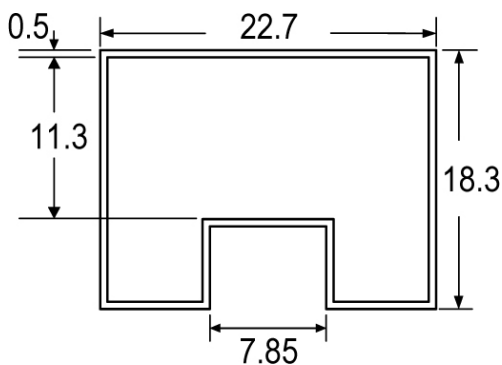
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DC-DC Converter

Typical characteristics

Derating Graph (Natural convection)



Tube outline



Note:
Unit: mm
General tolerances: $\pm 0.50\text{mm}$

L=530mm $\pm 2\text{mm}$
Tube quantity: 15pcs