

## 7.5DAW\_2 series

7.5W - Single/Dual Output - Ultra Wide Input - Isolated & Regulated DC-DC Converter

## DC-DC Converter

7.5 Watt

- ⊕ Wide 2:1 input voltage range
- ⊕ DIP24 package metal case (Suffix „/M“ ) and plastic case options
- ⊕ 5 side shielded metal case
- ⊕ High efficiency up to 87%
- ⊕ 7.5W single and dual outputs
- ⊕ I/O isolation 2kVDC and 3kVDC option
- ⊕ Operating temperature range -40°C to +75°C
- ⊕ Continuous short circuit protection (SCP)
- ⊕ Remote ON/OFF control option („A“ pinning only)



The 7.5DAW\_2 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  $\leq 2:1$ );
- 2) Where isolation is necessary between input and output (isolation  $\leq 2000\text{VDC}$ ,  $\leq 3000\text{VDC}$ );
- 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  |
| Temperature rise at full load: | 25°C TYP  |
| Cooling:                       | Free air convection   |
| Operation temperature range:   | -40°C~+100°C (see derating graph)                                       |
| 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:     | 150mW MAX   |
| Temperature coefficient:       | -40°C to +85°C ambient<br>0.015 %/°C TYP                                |
| Operating Frequency:           | 200kHz MIN  |
| Case material:                 | Non-conductive black plastic [UL94-V0]<br>or conductive metal [UL94-V0] |
| Potting material:              | Epoxy [UL94-V0]   |
| MTBF (MIL-HDBK 217F):          | 2000 Khours min.  |
| Weight:                        | 13g   |

### Isolation specifications

| Item                  | Test condition          | Min          | Typ | Max | Units |
|-----------------------|-------------------------|--------------|-----|-----|-------|
| Isolation voltage     | Tested for 1 second     | 2000<br>3000 |     |     | VDC   |
| Isolation resistance  | 500VDC, input to output | 15           |     |     | GΩ    |
| Isolation capacitance | 100KHz                  |              | 30  |     | pF    |

### Output specifications

| Item  | Test condition                                    | Min | Typ       | Max | Units                     |
|---|---|-----|-----------|-----|---------------------------|
| Output voltage accuracy                                 | Nominal $V_{in}$ and full load                    |     | $\pm 2$   |     | %                         |
| Line voltage regulation                                 | $V_{in} = \text{min to max, full load}$           |     | $\pm 0.5$ |     | %                         |
| Load voltage regulation                                 | 20% to 100% full load                             |     | $\pm 0.5$ |     | %                         |
| Output Ripple & Noise                                   | 20MHz Bandwidth                                   |     |           | 100 | mVp-p                     |
| Remote Power OFF (leave open if not used) (15 VDC max.) | Device ON   |     |           |     | open or <0.8 VDC          |
|   | Device OFF<br>Device OFF (Stand by input current) |     |           |     | CTRL>1.5VDC<br>0.5mA max. |

### Example:

#### 7.5DAW\_2405D3

7.5 = 7.5Watt; D = DIP; A = series; W = wide input (2:1) 18-36Vin;  
5 = 5Vout; D = Dual Output; 3 = 3000VDC isolation

### Note:

1. All specifications measured at  $T_a = 25^\circ\text{C}$ , 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.

## 7.5DAW\_2 series

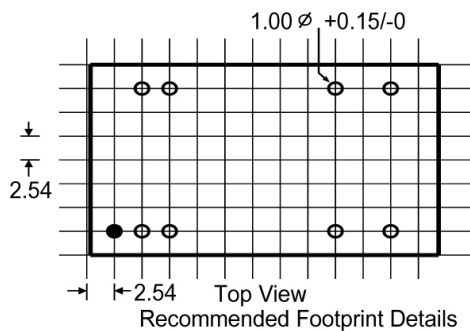
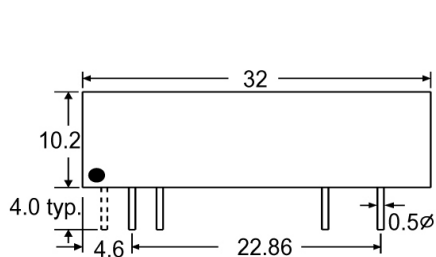
7.5W - Single/Dual Output - Wide Input - Isolated & Regulated DC-DC Converter

| Part Number   | Input Voltage [V]  | Output Voltage [VDC] | Output Current [mA, max] | Efficiency [%, typ] | Max. Capacitive Load [ $\mu$ F] |
|---------------|--------------------|----------------------|--------------------------|---------------------|---------------------------------|
| 7.5DAW_xx03SX | 9-18, 18-36, 36-75 | 3.3                  | 1500                     | 79-81               | 1000                            |
| 7.5DAW_xx05SX | 9-18, 18-36, 36-75 | 5                    | 1500                     | 82-84               | 1000                            |
| 7.5DAW_xx09SX | 9-18, 18-36, 36-75 | 9                    | 833                      | 82-84               | 680                             |
| 7.5DAW_xx12SX | 9-18, 18-36, 36-75 | 12                   | 625                      | 84-87               | 470                             |
| 7.5DAW_xx15SX | 9-18, 18-36, 36-75 | 15                   | 500                      | 84-86               | 470                             |
| 7.5DAW_xx24SX | 9-18, 18-36, 36-75 | 24                   | 312                      | 83-84               | 330                             |
| 7.5DAW_xx05DX | 9-18, 18-36, 36-75 | $\pm 5$              | $\pm 750$                | 82-84               | $\pm 470$                       |
| 7.5DAW_xx09DX | 9-18, 18-36, 36-75 | $\pm 9$              | $\pm 417$                | 82-84               | $\pm 330$                       |
| 7.5DAW_xx12DX | 9-18, 18-36, 36-75 | $\pm 12$             | $\pm 312$                | 84-87               | $\pm 220$                       |
| 7.5DAW_xx15DX | 9-18, 18-36, 36-75 | $\pm 15$             | $\pm 250$                | 84-86               | $\pm 220$                       |
| 7.5DAW_xx24DX | 9-18, 18-36, 36-75 | $\pm 24$             | $\pm 156$                | 83-84               | $\pm 100$                       |

- X=2=2kVDC or X=3=3kVDC
- xx=Input Voltage (possible for other input and output voltage combinations on request)  
 Vin=9-18V, xx=12  
 Vin=18-36V, xx=24  
 Vin=36-75V, xx=48
- For B or C Pinning: 7.5DBW\_xx03SX or 7.5DCW\_xx03SX
- For metal case add suffix „/M“

## Mechanical dimensions/footprint

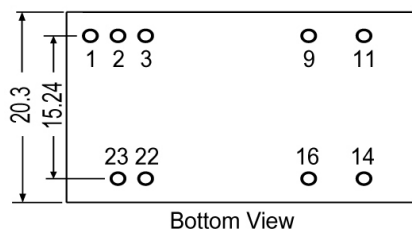
### A Pinning



#### Pin Connections

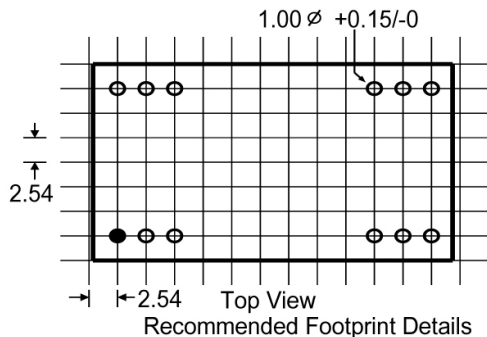
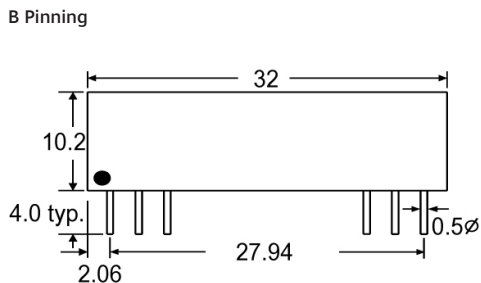
| Pin#      | Single | Dual  |
|-----------|--------|-------|
| 1(option) | CTRL   | CTRL  |
| 2         | -Vin   | -Vin  |
| 3         | -Vin   | -Vin  |
| 9         | NC     | Com   |
| 11        | NC     | -Vout |
| 14        | +Vout  | +Vout |
| 16        | -Vout  | COM   |
| 22        | +Vin   |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

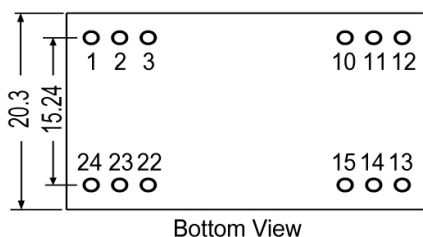
### B Pinning



#### 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



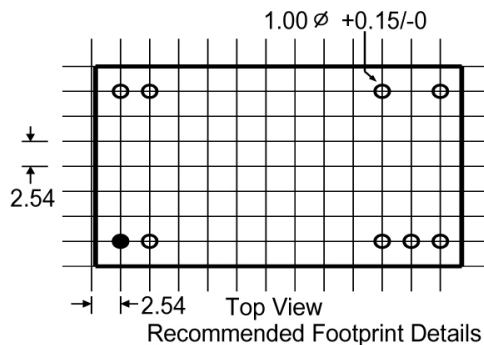
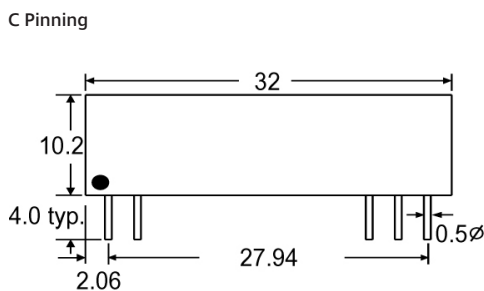
Note:  
XX.X  $\pm$  0.25 mm  
XX.XX  $\pm$  0.15 mm

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### Mechanical dimensions/footprint

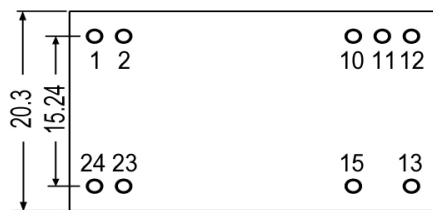
C Pinning



#### Pin Connections

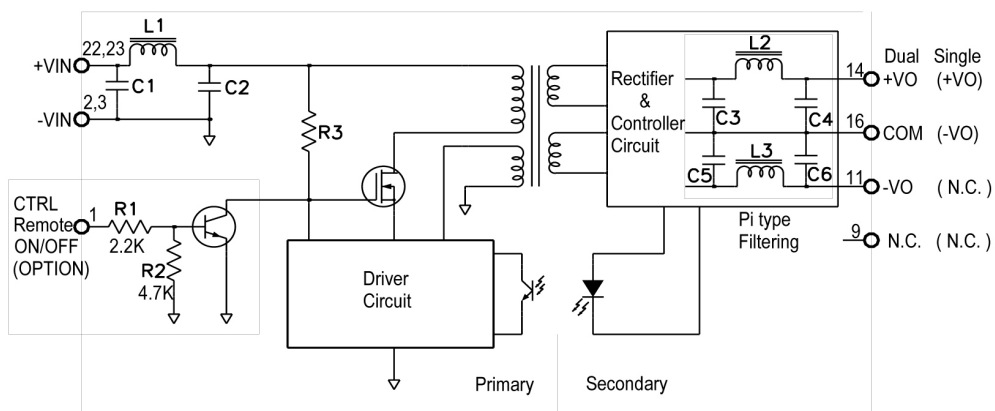
| Pin# | Single | Dual  |
|------|--------|-------|
| 1    | +Vin   | +Vin  |
| 2    | +Vin   | +Vin  |
| 10   | NC     | Com   |
| 11   | NC     | Com   |
| 12   | -Vout  | NC    |
| 13   | +Vout  | -Vout |
| 15   | NC     | +Vout |
| 23   | -Vin   | -Vin  |
| 24   | -Vin   | -Vin  |

NC=No Connection



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

### Functional block diagram (A pinning)



The values of input  $\pi$  type filtering

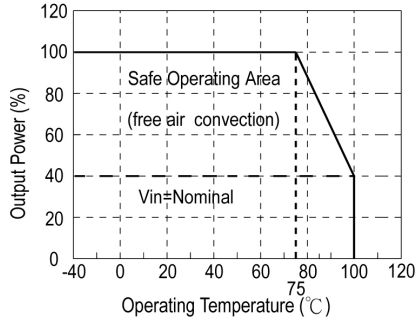
| Input voltage | C1                    | C2              | L1                       |
|---------------|-----------------------|-----------------|--------------------------|
| 9-18VDC       | 1 $\mu$ F~10 $\mu$ F  | 10 $\mu$ F/25V  | 0.47 $\mu$ H~4.7 $\mu$ H |
| 18-36VDC      | 0.1 $\mu$ F~1 $\mu$ F | 4.7 $\mu$ F/50V | 1 $\mu$ H~10 $\mu$ H     |
| 36-75VDC      | 0.1 $\mu$ F~1 $\mu$ F | 1 $\mu$ F/100V  | 2.2 $\mu$ H~22 $\mu$ H   |

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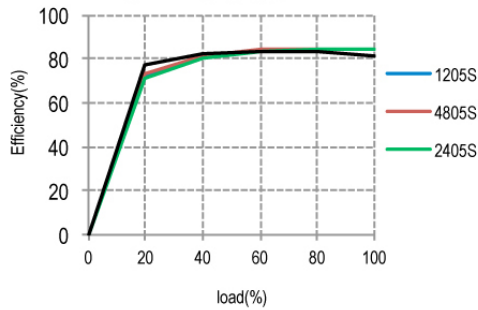
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## Typical characteristics

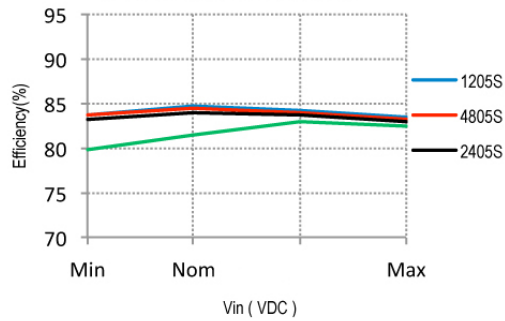
Derating Graph



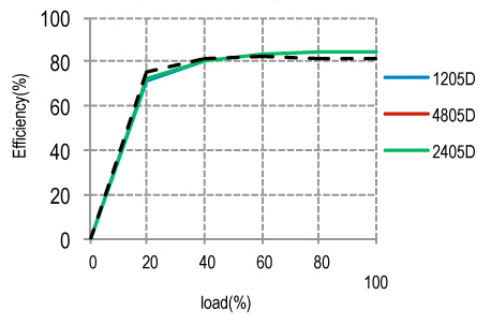
Efficiency Vs Load (single) @ Vin=Nominal



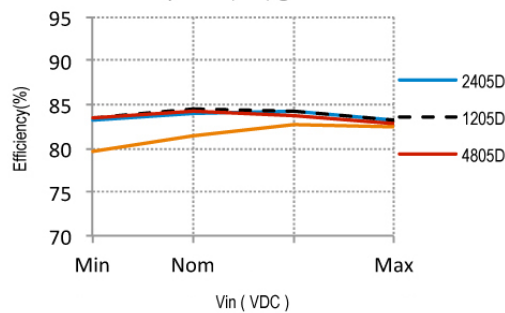
Efficiency Vs Vin (single) @ Full Load



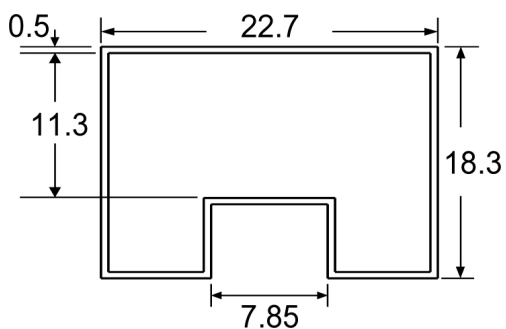
Efficiency Vs Load (dual) @ Vin=Nominal



Efficiency Vs Vin (dual) @ Full Load



## Tube outline



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

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