



## 3DAW\_2 series

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

## DC-DC Converter

3 Watt

- ⊕ Wide 2:1 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 2kVDC
- ⊕ Operating Temperature Range: -40°C to +100°C
- ⊕ Continuous Short Circuit Protection (SCP)
- ⊕ Remote ON/OFF Control add Suffix „/CTRL“ Option
- ⊕ A, B & C Pinning Options
- ⊕ Internal PI-Filtering



The 3DAW 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  $\leq 2000\text{VDC}$ );
- 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
Max. operation temperature range:	-40°C~+100°C
Operation case temperature:	+110°C MAX
Storage temperature range:	-55°C to +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:	100kHz MIN
Case material:	Non-conductive black plastic [UL94-V0]
Potting material:	Epoxy [UL94-V0]
MTBF (MIL-HDBK 217F):	+25°C: 3192x10 <sup>3</sup> hours +85°C: 265x10 <sup>3</sup> hours
Weight:	13g

### Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 60 seconds	2000			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 (Stand by input current)				open or <0.8 VDC CTRL>1.5VDC 0.5mA max.

### Example:

#### 3DAW\_2405D2

3 = 3Watt; D = DIP; A = series; W = wide input (2:1) 18-36V;  
24 = Vin5; Vout; D = Dual Output; 2 = 2000VDC isolation

## 3DAW\_2 series

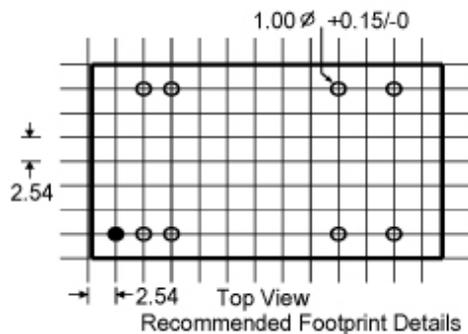
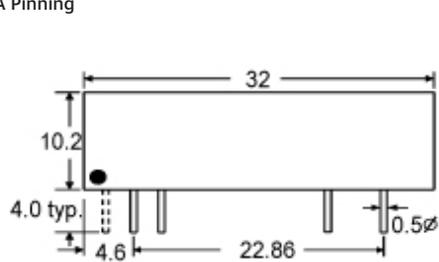
3W - Dual/Single Output - Wide Input - Isolated & Regulated  
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Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacitive Load [ $\mu$ F]
3DAW_xx03S2	4.5-9, 9-18, 18-36, 36-75	3.3	600	77, 78, 79, 80	1000
3DAW_xx05S2	4.5-9, 9-18, 18-36, 36-75	5	600	80, 82, 83, 83	1000
3DAW_xx09S2	4.5-9, 9-18, 18-36, 36-75	9	333	80, 84, 84, 84	680
3DAW_xx12S2	4.5-9, 9-18, 18-36, 36-75	12	250	83, 85, 85, 85	470
3DAW_xx15S2	4.5-9, 9-18, 18-36, 36-75	15	200	83, 85, 85, 85	330
3DAW_xx24S2	4.5-9, 9-18, 18-36, 36-75	24	125	82, 84, 84, 85	220
3DAW_xx05D2	4.5-9, 9-18, 18-36, 36-75	$\pm 5$	$\pm 300$	80, 82, 83, 83	$\pm 470$
3DAW_xx12D2	4.5-9, 9-18, 18-36, 36-75	$\pm 12$	$\pm 125$	82, 84, 86, 85	$\pm 100$
3DAW_xx15D2	4.5-9, 9-18, 18-36, 36-75	$\pm 15$	$\pm 100$	82, 84, 86, 85	$\pm 47$

- xx=Input Voltage (possible for other input and output voltage combinations on request)  
Vin = 4.5-9V, xx = 05  
Vin = 9-18V, xx = 12  
Vin = 18-36V, xx = 24  
Vin = 36-75V, xx = 48
- For B or C Pinning: 3DBW\_xx03S2 or 3DCW\_xx03S2

## Mechanical dimensions/footprint

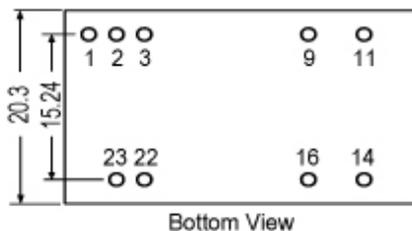
### A Pinning



#### Pin Connections

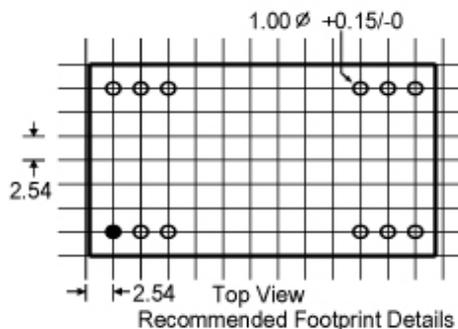
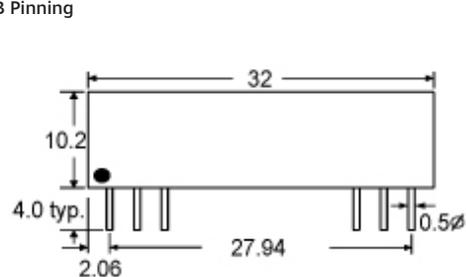
Pin#	Single	Dual
1(option)	CTRL	CTRL
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	COM
22	+Vin	+Vin
23	+Vin	+Vin

NC=No Connection  
CTRL=Remote ON/OFF Control



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

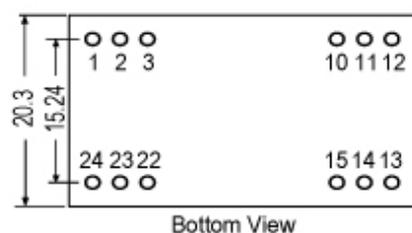
### B Pinning



#### 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



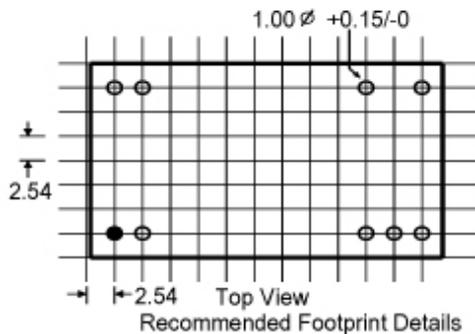
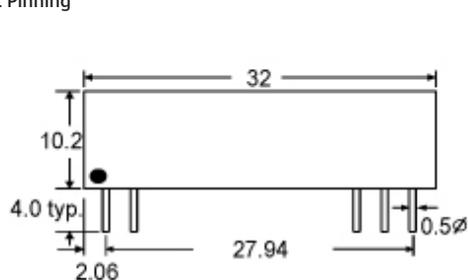
Note:  
XX.X  $\pm$  0.25 mm  
XX.XX  $\pm$  0.15 mm

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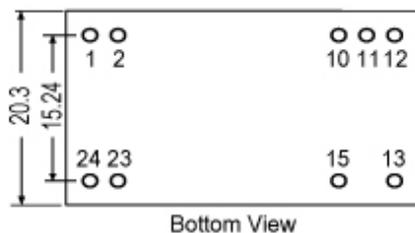
C Pinning



### Pin Connections

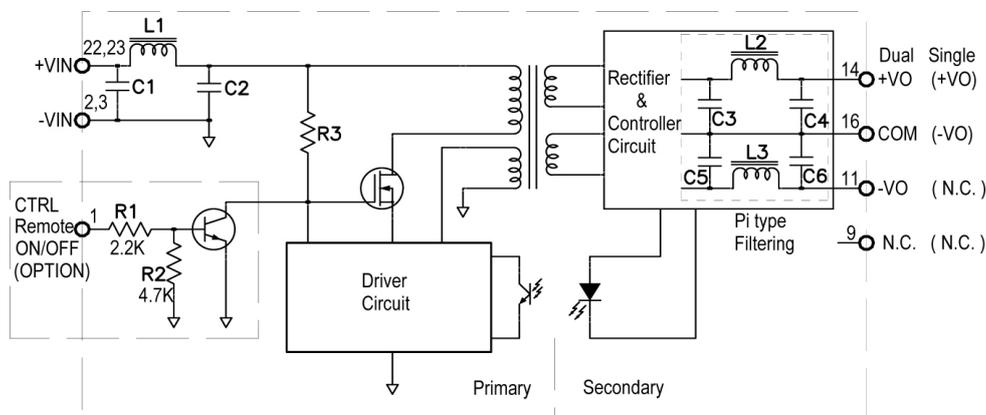
Pin#	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	NC	Com
11	NC	Com
12	-Vout	NC
13	+Vout	-Vout
15	NC	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

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

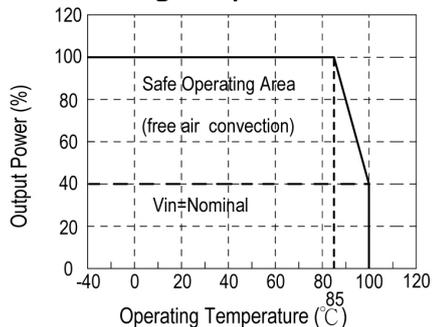
Input Voltage	C1	C2	L1
4.5~9, 9~18VDC	1 $\mu$ F~10 $\mu$ F	10 $\mu$ F/25V	0.47 $\mu$ H~4.7 $\mu$ H
18~36VDC	0.1 $\mu$ F~1 $\mu$ F	4.7 $\mu$ F/50V	1 $\mu$ H~10 $\mu$ H
36~75VDC	0.1 $\mu$ F~1 $\mu$ F	1 $\mu$ F/100V	2.2 $\mu$ H~22 $\mu$ H

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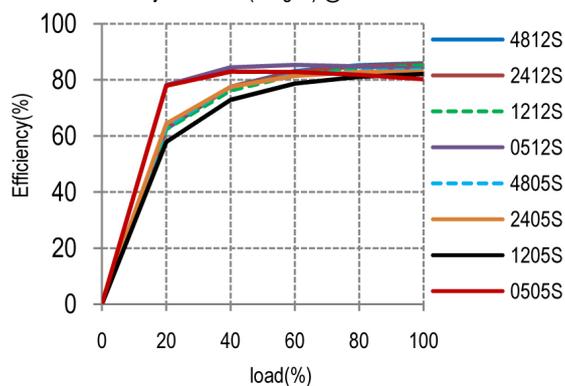
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## Typical characteristics

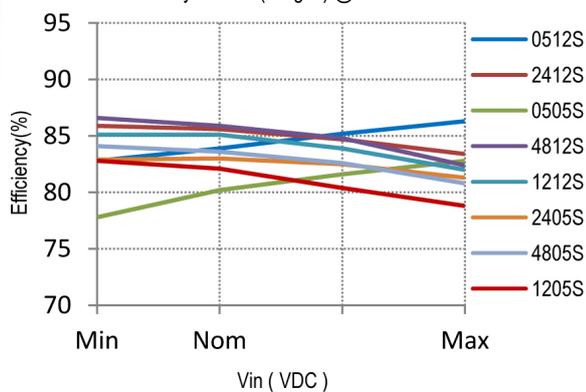
### Derating Graph



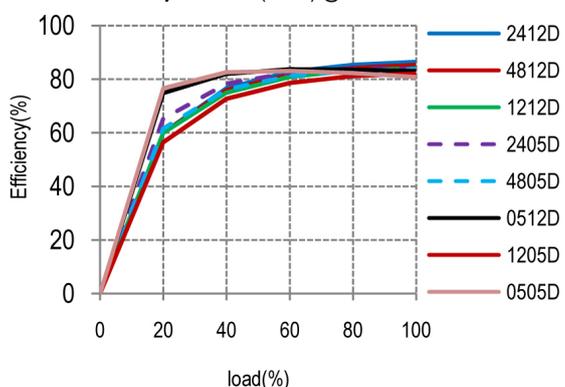
Efficiency Vs Load ( single ) @ Vin=Nominal



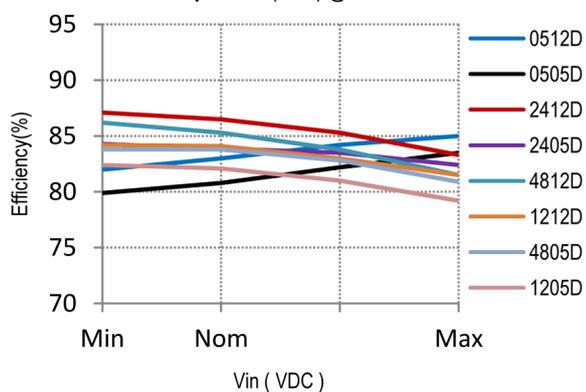
Efficiency Vs Vin ( single ) @ Full Load



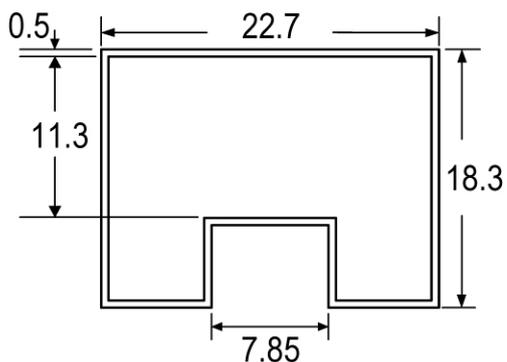
Efficiency Vs Load ( dual ) @ Vin=Nominal



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