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 ≤ 2:1);
2) Where isolation is necessary between input and output (isolation ≤2000VDC);
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: 3192x10³ hours +85°C: 265x10³ 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

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)	Device ON				open or <0.8 VDC
(15 VDC max.)	Device OFF Device OFF (Stand by input current)				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

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.

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3DAW_2 series

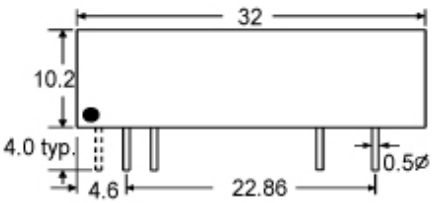
3W - Dual/Single Output - Wide Input - Isolated & Regulated
DC-DC Converter

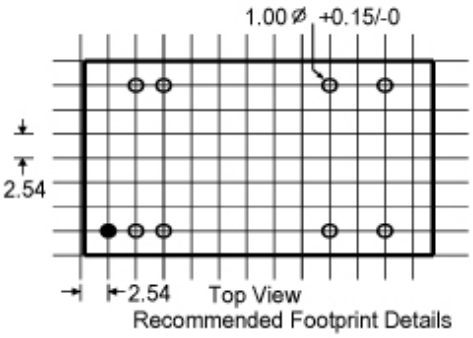
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Max. Capacative Load [µF]
3DAW_xx03S2	4.5-9, 9-18, 18-36, 36-75	3.3	600	77, 78, 79, 80	1000
3DAW_xx05S2	4.5-9, 9-18, 18-36, 36-75	5	600	80, 82, 83, 83	1000
3DAW_xx09S2	4.5-9, 9-18, 18-36, 36-75	9	333	80, 84, 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	±5	±300	80, 82, 83, 83	±470
3DAW_xx12D2	4.5-9, 9-18, 18-36, 36-75	±12	±125	82, 84, 86, 85	±100
3DAW_xx15D2	4.5-9, 9-18, 18-36, 36-75	±15	±100	82, 84, 86, 85	±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

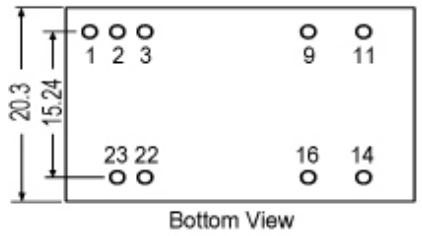




Pin Connections

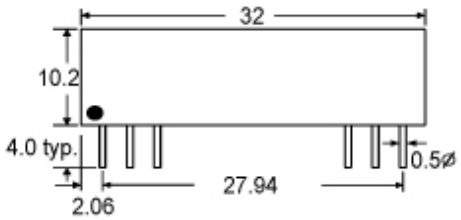
Pin#	Single	Dual
1(option)	CTRL	CTRL
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	COM
22	+Vin	+Vin
23	+Vin	+Vin

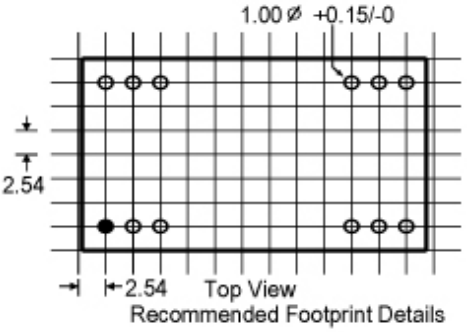
NC=No Connection
CTRL=Remote ON/OFF Control



Note:
XX.X ± 0.25 mm
XX.XX ± 0.15 mm

B Pinning

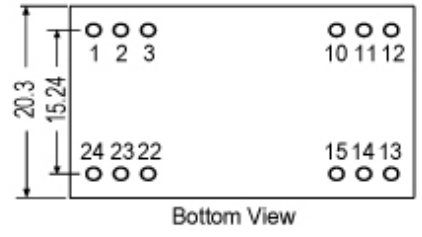




Pin Connections

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 ± 0.25 mm
XX.XX ± 0.15 mm

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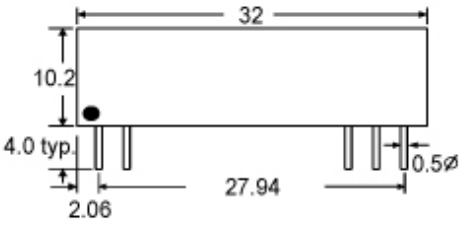
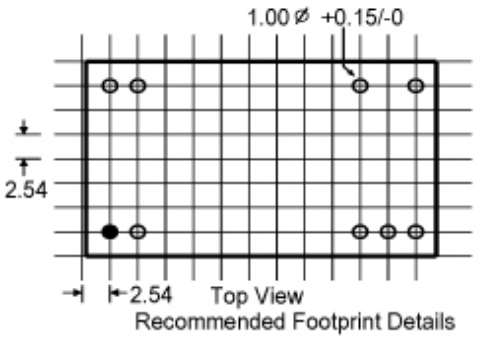
Mechanical dimensions/footprint

C Pinning





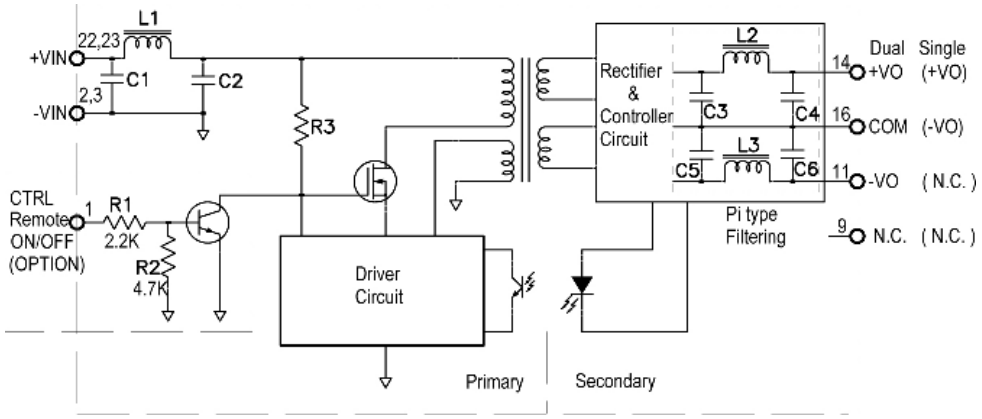
Pin Connections

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

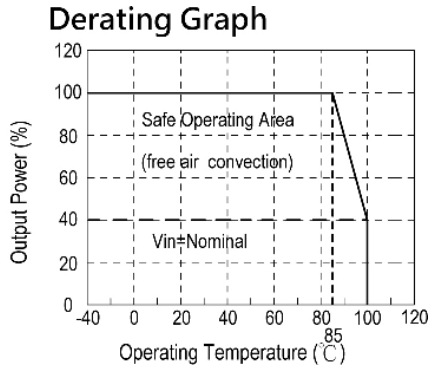
Functional block diagram (A pinning)

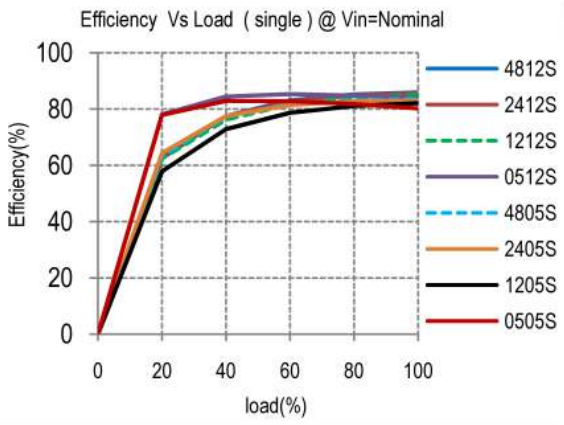


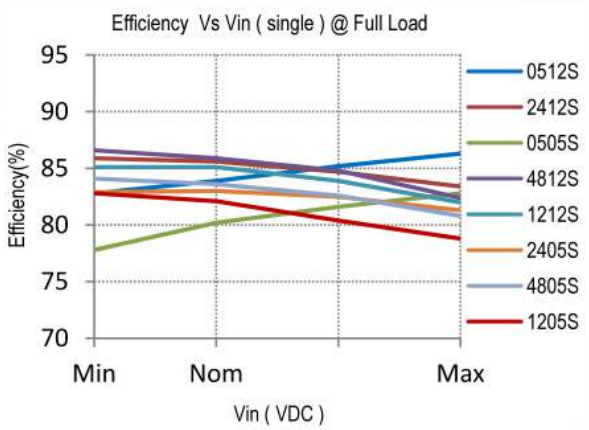
The Values of Input π type Filtering

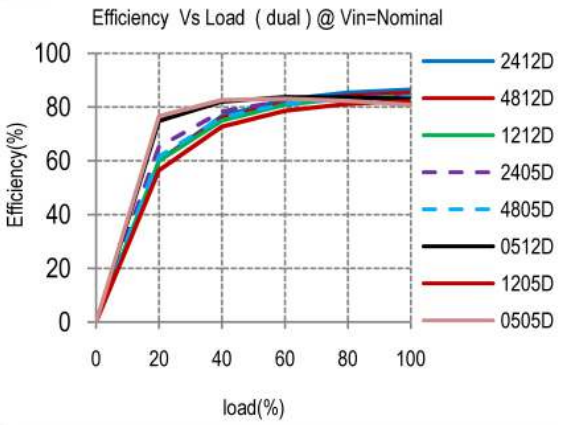
Input Voltage	C1	C2	L1
4.5~9, 9~18VDC	1uF~10uF	10uF/25V	0.47uH~4.7uH
18~36VDC	0.1uF~1uF	4.7uF/50V	1uH~10uH
36~75VDC	0.1uF~1uF	1uF/100V	2.2uH~22uH

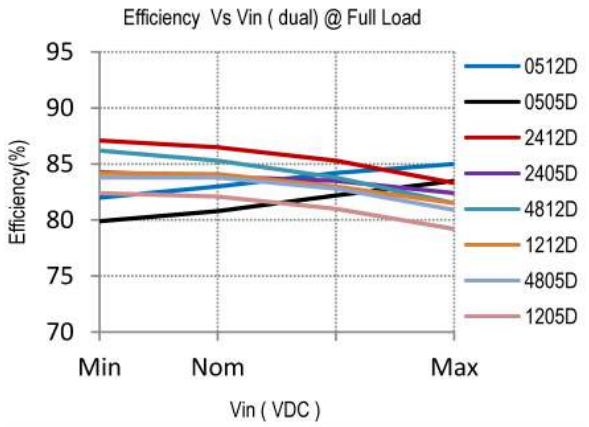
Typical characteristics



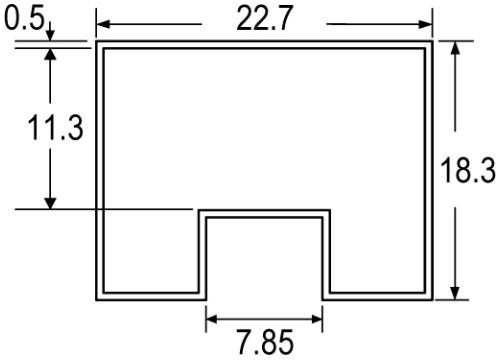








Tube outline



Note:
Unit: mm
General tolerances: ±0.50mm

L=530mm ±2mm
Tube quantity: 15pcs