

## 10DAW\_1.5R series

10W - Dual/Single Output - 2:1 Wide Input - Isolated & Regulated DC-DC Converter

### DC-DC Converter

10 Watt

- ⊕ 2:1 wide input voltage range
- ⊕ Efficiency up to 86%
- ⊕ 1.5kVDC isolation
- ⊕ Short circuit protection (SCP) (automatic recovery)
- ⊕ Operating temperature: -40°C to +100°C
- ⊕ RemoteControl: On/Off
- ⊕ Industry standard pinout
- ⊕ RoHS Compliance

The 10DAW\_1.5R 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 Voltage  $\leq 1500\text{VDC}$ )
- 3) Where the regulation of the output voltage and the output ripple noise are demanded



Common specifications	
Short circuit protection:	Hiccup, automatic recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+100°C (with derating)
Storage temperature range:	-55°C ~+125°C
Lead temperature range:	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95% (non-condensing)
Case material:	Nickle-coated with non-conductive base
MTBF (MIL-HDBK-217F@25°C):	3.342x10 <sup>6</sup> hours
Weight:	32.6g

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Input filter	Pi				
Hot plug	unavailable				
Start-up voltage	• 12VDC input • 24VDC input • 48VDC input			9 18 36	VDC
Ctrl*	• Models ON • Models OFF • Input current (Models OFF)		Ctrl pin floating or connected to TTL high level(3.5-12VDC) Ctrl connect GND or low level (0-1.2VDC) 1mA (TYP), 3mA (MAX)		

\* The voltage of Ctrl pin is relative to input pin GND.

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage		1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/Output, 100KHz/0.1V		1000		pF

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Output voltage tolerance	Full load @Vin (nom)			±2	%
Line regulation	Full load, input voltage from low to high			±0.5	%
Load regulation	• Single • Dual (balanced load)			±0.5 ±1.0	%
Cross regulation	Dual (25% to 100%)			±5	%
Transient response setting time	25% load step change		300		μs
Temperature coefficient	100% load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth • Output 3-15V • Output >15V			100 1% of Vout	mVp-p mVp-p
Over Voltage Protection	Input voltage range	110	120	140	%Vo
Switching frequency	PWM mode		300		KHz

\* Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

#### Example:

**10DAW\_1205S1.5**  
**10 = 10Watt; D = DIP; A = series; W = wide input (2:1) 9-18Vin;**  
**05 = 5Vout; S = Single output; 1.5 = 1500VDC isolation**

#### Note:

1. Min. load shouldn't be less than 5%, otherwise ripple maybe increased dramatically, If the product operates under min. load, it may not be guaranteed to meet all specifications listed. Operation under minimum load will not damage the converter.
2. Recommended Dual output models unbalanced load is  $\leq \pm 5\%$ , If the product operates  $> \pm 5\%$ , it may not be guaranteed to meet all specifications listed.
3. Max. Capacitive Load is tested at input voltage range and full load.
4. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
5. In this datasheet, all test methods are based on our corporate standards.
6. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more details.
7. Specifications of this product are subject to changes without prior notice.

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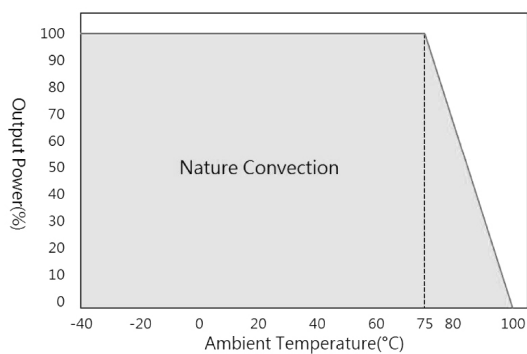
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### Product Selection Guide

Part Number	Input Voltage [VDC]			Output Voltage [VDC]	Input Current [mA, typ]	Output Current [mA]	Capacitive load [ $\mu$ F; max.]	Efficiency [%, Typ.]
	Nominal	Range	Max*					
10DAW_1203S1.5	12	9-18	20	3.3	994	3000	1500	83
10DAW_1205S1.5	12	9-18	20	5	980	2000	1500	85
10DAW_1212S1.5	12	9-18	20	12	971	835	120	86
10DAW_1215S1.5	12	9-18	20	15	967	665	120	86
10DAW_2403S1.5	24	18-36	40	3.3	497	3000	3300	83
10DAW_2405S1.5	24	18-36	40	5	490	2000	3300	85
10DAW_2412S1.5	24	18-36	40	12	485	835	330	86
10DAW_2415S1.5	24	18-36	40	15	483	665	330	86
10DAW_4803S1.5	48	36-72	80	3.3	248	3000	5600	83
10DAW_4805S1.5	48	36-72	80	5	245	2000	5600	85
10DAW_4812S1.5	48	36-72	80	12	243	835	680	86
10DAW_4815S1.5	48	36-72	80	15	242	665	680	86
10DAW_1205D1.5	12	9-18	20	$\pm$ 5	1004	$\pm$ 1000	$\pm$ 1000	83
10DAW_1212D1.5	12	9-18	20	$\pm$ 12	972	$\pm$ 418	$\pm$ 120	86
10DAW_1215D1.5	12	9-18	20	$\pm$ 15	968	$\pm$ 333	$\pm$ 120	86
10DAW_2405D1.5	24	18-36	40	$\pm$ 5	502	$\pm$ 1000	$\pm$ 2000	83
10DAW_2412D1.5	24	18-36	40	$\pm$ 12	486	$\pm$ 418	$\pm$ 330	86
10DAW_2415D1.5	24	18-36	40	$\pm$ 15	484	$\pm$ 333	$\pm$ 330	86
10DAW_4805D1.5	48	36-72	80	$\pm$ 5	251	$\pm$ 1000	$\pm$ 3300	83
10DAW_4812D1.5	48	36-72	80	$\pm$ 12	243	$\pm$ 418	$\pm$ 220	86
10DAW_4815D1.5	48	36-72	80	$\pm$ 15	242	$\pm$ 333	$\pm$ 220	86

\* Input voltage can't exceed this value, or will cause permanent damage

### Typical characteristics



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### Recommended circuit

#### Recommended Circuit

All the DC-DC converters of this series are tested according to the recommended circuit (see Fig. 1) before delivery.

If a further decrease of the input and output ripple is required, properly increase the input & output of additional capacitors  $C_{in}$  and  $C_{out}$  or select capacitors of low equivalent impedance, and ensure the capacitance should be lower than the max. capacitive load of the product.

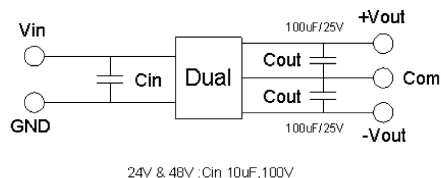
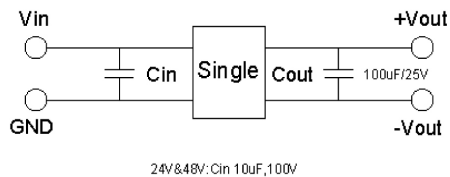
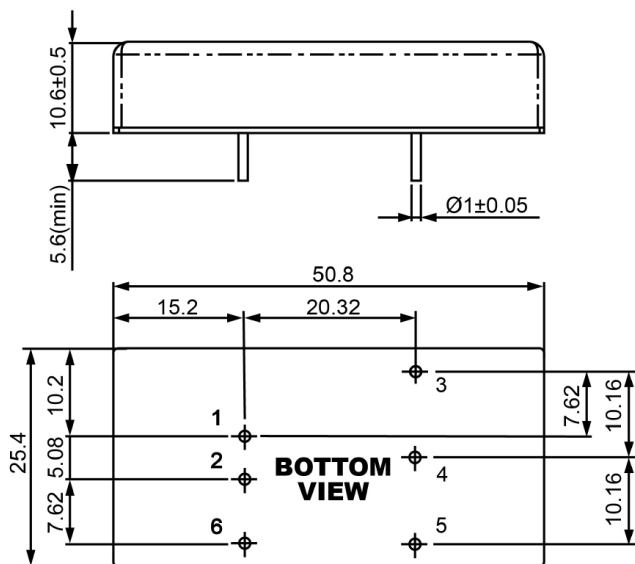


Figure 1

### Mechanical dimensions



Pin-Assignment						
Pin	1	2	3	4	5	6
Single	+Vin	-Vin	+Vout	Trim	-Vout	Control On/Off
Dual	+Vin	-Vin	+Vout	Com	-Vout	Remote On/Off

#### Note:

Unit: mm

Tolerances: XX.X ±0.50mm / XX.XX ±0.25mm