FEATURES

- Wide range of input voltage (4:1)
- Efficiency up to 90%
- Isolation voltage :1500VDC
- Operating temperature range: -40 ℃t o +85℃
- Output short circuit protection
- Six-sided metal shield
- International standard pin-out
- Meet CISPR22/EN55022 CLASS A

Z7X_D30P & Z7Y_D30P

30W, wide input isolated & regulated dual / single output DC/DC converter

Z7X_D30P & Z7Y_D30P series products are of 30W output power, wide range of voltage input of 9-36VDC, 18-75VDC, isolation voltage of 1500VDC, output over-current protection and output short circuit protection with the six-sided metal shielding package; these products are widely used in fields such as industrial control, electric power, instruments and communication.

Selection Guide

Part No.①	Input Voltage (VDC)		Output		Efficiency (%,Typ.) @ Full Load	Max. Capacitive Load③ (μF)
	Nominal (Range)	Max.②	Output Voltage (VDC)	Output Current (mA)(Max./Min.)		
Z7X-2405-D30P	24 (9-36)	40	±5	±3000/±150	86	2000
Z7X-2412-D30P			±12	±1250/±63	89	1250
Z7X-2415-D30P			±15	±1000/±50	90	680
Z7Y-2405-D30P			5	6000/300	88	6000
Z7Y-2412-D30P			12	2500/125	88	2500
Z7Y-2415-D30P			15	2000/100	90	1100
Z7X-4805-D30P	48 (18-75)	80	±5	±3000/±150	86	2000
Z7X-4812-D30P			±12	±1250/±63	87	1250
Z7X-4815-D30P			±15	±1000/±50	87	680
Z7Y-4805-D30P			5	6000/300	88	6000
Z7Y-4812-D30P			12	2500/125	88	2500
Z7Y-4815-D30P			15	2000/100	89	1100

Note:
① Series with Suffix „H“ are heat sink mounting, such as Z7Y-2405-D30PH (with heat sink), Z7Y-2405-D30P (without heat sink);
② Absolute maximum rating without damage on the converter,but it isn‘t recommended;
③ The capacitive loads of positive and negative outputs are identical.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	24VDC input	5VDC output	--	1420/120	--	mA
		Others	--	1420/30	--	
	48VDC input	5VDC output	--	710/100	--	
		Others	--	710/30	--	
Reflected Ripple Current	24VDC/48VDC input		--	30	--	
Input impulse Voltage (1sec. max.)	24VDC input		-0.7	--	50	VDC
	48VDC input		-0.7	--	100	
Starting Time			--	10	--	ms
Input Filter			Pi filter			
Ctrl①	Module switch on		Ctrl suspended or connected to TTL high level (2.5-12VDC)			
	Module switch off		Ctrl pin connected to GND or low level (0-1.2VDC)			
	Input current when switched off		--	1	--	mA

Note: ① the voltage of Ctrl pin is relative to input pin GND.

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		--	±1	±3	%
Line Regulation	Full load, the input voltage is from low voltage to high voltage	--	±0.2	±0.5	
Load Regulation	5%-100% load	--	±0.5	±1	
Cross Regulation	From 10% to 100% load input (Dual output)	--	--	±5	
Transient Recovery Time	25% load step change	--	300	500	μs
Transient Response Deviation		--	±3	±5	%
Temperature Drift Coefficient	Full load	--	±0.02	--	%/℃
Ripple & Noise*	20MHz bandwidth	--	85	100	mV p-p
Trim		--	±10%Vo	--	VDC
Output Over-voltage Protection	5VDC output	--	6.1	--	
	12VDC output	--	15	--	
	15VDC output	--	18	--	
Output Over-current Protection	Input voltage range	--	150	--	%Io
Output Short circuit Protection		Hiccup, continuous, self-recovery			

Note:* Ripple and noise tested with "parallel cable" method, please see *DC-DC Converter Application Notes* for specific operation methods.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	1500	--	--	VDC
Isolation Resistance	Input-output, insulation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	2000	--	pF
Operating Temperature	see Fig. 1	-40	--	85	℃
Storage Temperature		-55	--	125	
Storage Humidity	Non-condensing	5	--	95	%RH
Max. Operating Temperature for casing	Within the operating temperature curve	--	--	105	℃
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	
Switching Frequency	PWM mode	--	400	--	KHz
MTBF	MIL-HDBK-217F@25°C	1000	--	--	K hours

Physical Specifications

Casing Material	Aluminum alloy	
Package Dimensions	without heat sink	50.80*40.60*11.80 mm
	with heat sink	50.80*40.60*16.30 mm
Weight	without heat sink	50g (Typ.)
	with heat sink	70g (Typ.)
Cooling Method	Free air convection	

EMC Specifications

EMI	Conducted disturbance	CISPR22/EN55022 CLASS A (Bare component)/ CLASS B (see Fig.3-②for recommended circuit)	
	Radiated emission	CISPR22/EN55022 CLASS A (Bare component)/ CLASS B (see Fig.3-②for recommended circuit)	
EMS	Electrostatic discharge	IEC/EN61000-4-2 Contact ±4KV	perf. Criteria B
	Radiation immunity	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV (see Fig.3-①for recommended circuit)	perf. Criteria B
	Surge immunity	IEC/EN61000-4-5 ±2KV (see Fig.3-①for recommended circuit)	perf. Criteria B
	Conducted disturbance immunity	IEC/EN61000-4-6 3 Vr.m.s	perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-29 0-70%	perf. Criteria B

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : info@zimtec-electronics.de

Product Characteristic Curve

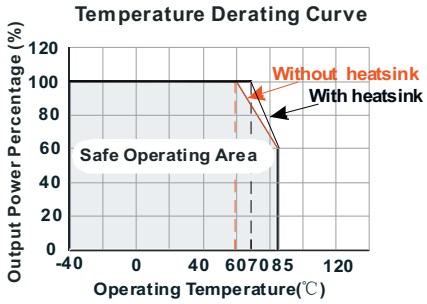
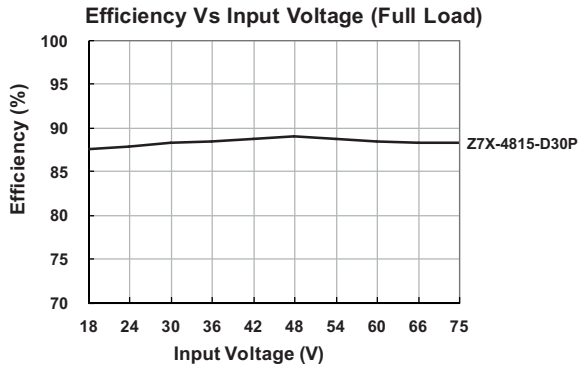
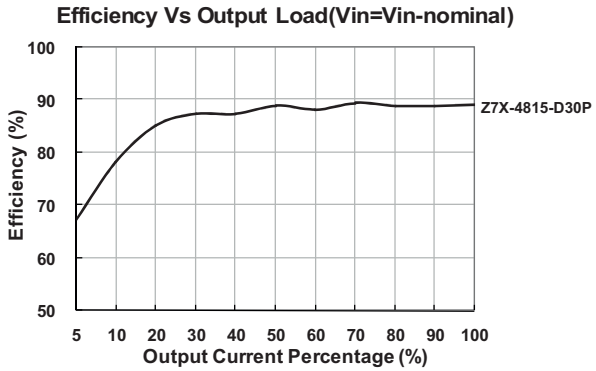
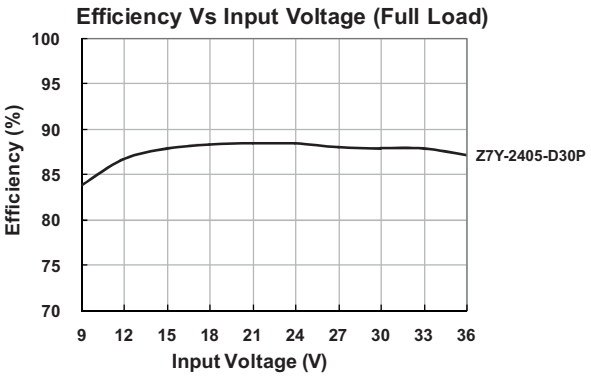
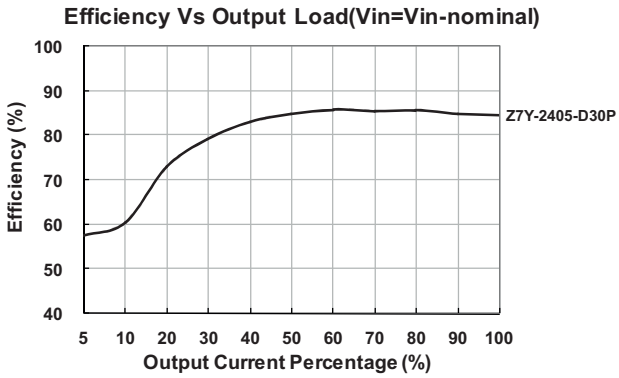


Fig. 1









Design Reference

1. Typical application

All the DC/DC converters of this series are tested according to the recommended circuit (see Fig. 2) before delivery.

If it is required to further reduce input and output ripple, properly increase the input & output of additional capacitors Cin and Cout or select capacitors of low equivalent impedance provided that the capacitance is no larger than the max. capacitive load of the product.

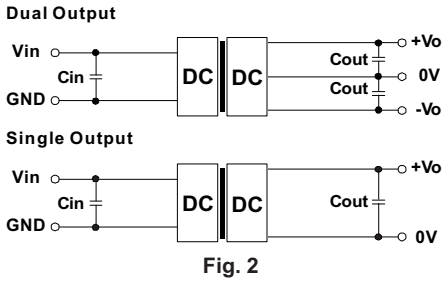


Fig. 2

Vout(VDC)	Cin(μF)	Cout(μF)
5	10	10
12/15		4.7

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2. EMC solution-recommended circuit

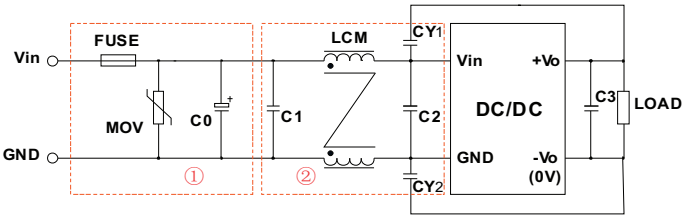


Fig. 3

Notes: Part① in the Fig. 3 is used for EMS test and part②for EMI filtering; selected based on needs.

Parameter description

Model	Vin:24V	Vin:48V
FUSE	Choose according to actual input current	
MOV	S14K35	S14K60
C0	330μF/50V	330μF/100V
C1, C2	4.7μF/50V	2.2μF/100V
C3	Refer to the Cout in Fig.2	
LCM	1mH(FL2D-30-102)	
CY1, CY2	1nF/2KV	

EMC solution-recommended circuit PCB layout

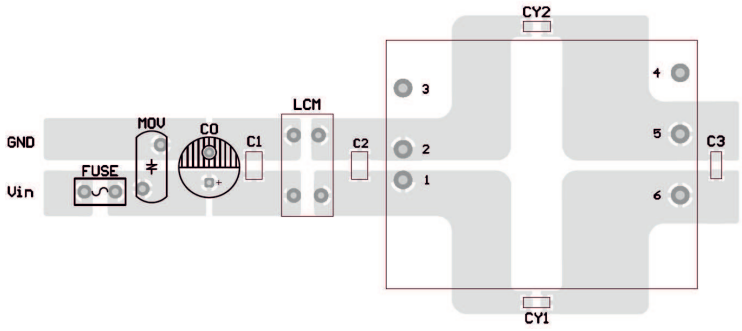


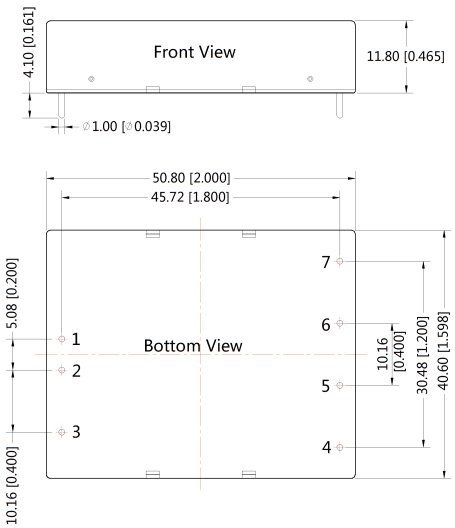
Fig. 4

Note: the min. distance of the bonding pads between input & output isolation capacitors (CY1/CY2) shall be ≥ 2mm.

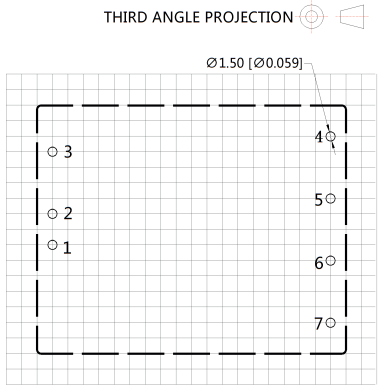
3. The product does not support output in parallel with power per liter or hot-plug use

4. For more information please find the application notes on www.zimtec-electronics.de

Horizontal Package Dimensions and Recommended Layout (without heat sink)



Note:
Unit :mm[inch]
Pin diameter tolerances :±0.10[±0.004]
General tolerances:±0.50[±0.020]



Note : Grid 2.54*2.54mm

Pin-Out		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
3	Ctrl	Ctrl
4	Trim	Trim
5	0V	-Vo
6	+Vo	0V
7	No Pin	+Vo

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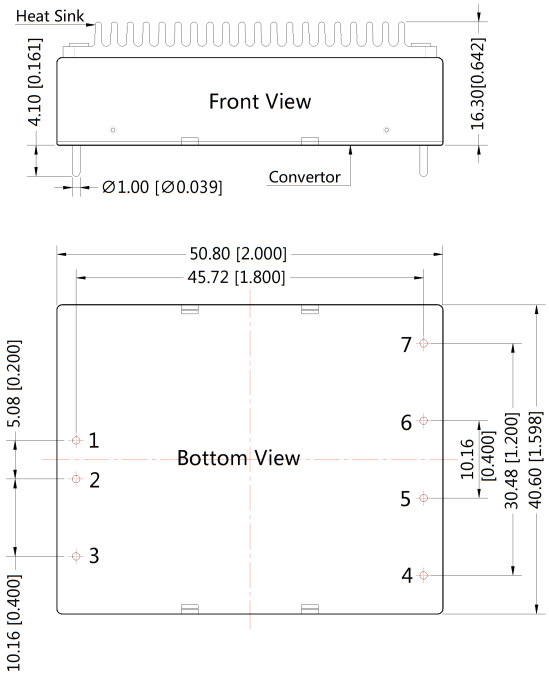
Horizontal Package Dimensions (with heat sink)

THIRD ANGLE PROJECTION



Pin-Out		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
3	Ctrl	Ctrl
4	Trim	Trim
5	0V	-Vo
6	+Vo	0V
7	No Pin	+Vo

Note:
Unit :mm[inch]
General tolerances:±0.50[±0.020]
If use heat sinks, make sure there is enough space for a specific size in the above graph.

Notes:

1. **Packing Information please refer to 'Product Packing Information'. The Packing bag number of Horizontal package :58200024 (without heatsink), 58200050(with heatsink);**
2. **Recommended used in more than 5% load, if the load is lower than 5%, then the ripple index of the product may exceed the specification, but does not affect the reliability of the product;**
3. **The unbalance degree of the recommended dual output module load: ≤ 5%; if the degree exceeds ±5%, then the product performances cannot be guaranteed to comply with all the performance indicators in the manual, and please directly contact our technicians for specific information;**
4. **The max. capacitive load should be tested within the input voltage range and under full load conditions;**
5. **Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load;**
6. **All index testing methods in this datasheet are based on our Company's corporate standards;**
7. **The performance indexes of the product models listed in this datasheet are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;**
8. **We can provide product customization service;**
9. **Specifications of this product are subject to changes without prior notice.**

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