Descriptions

10W isolated，DC-DC Converter



RoHS

CE Report EN 62368-1

UKCA Report BS EN 62368-1

Features

- Wide 2:1 input voltage range
- High efficiency up to 87%
- No-load power consumption as low as 0.11W
- I/O isolation test voltage 1.5k VDC
- Operating ambient temperature range: -40℃ to +85℃
- Input under-voltage protection, output short-circuit, over-current, over-voltage protection
- Meet CISPR32/EN55032 CLASS A without extra components
- Industry standard pin-out

Applications

- Industrial Control
- Electric Power
- Instrumentation
- Communication

Selection Guide

Certification	Part No.	Input Voltage (VDC)		Output		Full Load Efficiency② (%)Min./Typ.	Capacitive Load③ (μF)Max.
		Nominal (Range)	Max.①	Voltage(VDC)	Current (mA) Max./Min.		
EN/BS EN	DEZP10-A1205	12 (9-18)	20	±5	±1000/0	81/83	1000
	DEZP10-A1212			±12	±416/0	84/86	470
	DEZP10-A1215			±15	±333/0	84/86	330
	DEZP10-A2405	24 (18-36)	40	±5	±1000/0	81/83	1000
	DEZP10-A2412			±12	±416/0	85/87	470
	DEZP10-A2415			±15	±333/0	85/87	330

Note:
①Exceeding the maximum input voltage may cause permanent damage;
②Efficiency is measured at nominal input voltage and rated output load;
③The specified maximum capacitive load for positive and negative output is identical;
④We suggest to connect an external electrolytic capacitor if there is a spike voltage at the input, details please refer to application circuit;
⑤Product images are for reference only; the actual product shall prevail.

Specifications

Product Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Current (full load / no-load)	12VDC input, nominal input voltage		--	980/9	1028/15	mA
		24VDC input, nominal input voltage		--	490/5	515/12	
	Reflected Ripple Current	12VDC nominal input series, nominal input voltage		--	50	--	
		24VDC nominal input series, nominal input voltage		--	40	--	
	Surge Voltage (1sec. max.)	12VDC nominal input series		-0.7	--	25	VDC
		24VDC nominal input series		-0.7	--	50	
	Start-up Voltage	12VDC nominal input series		--	--	9	
		24VDC nominal input series		--	--	18	
	Input Under-voltage Protection	12VDC nominal input series		5.5	6.5	--	
		24VDC nominal input series		12	15.5	--	
	Input Filter			Pi filter			
	Hot Plug			Unavailable			
	Ctrl ①	Module on		Ctrl pin open or pulled high (3.5-12VDC)			
		Module off		Ctrl pin pulled low to GND (0-1.2VDC)			
		Input current when off		--	6	10	mA
Output Specifications	Voltage Accuracy②	0%-100% load	Positive output	--	±0.5	±2	%
			Negative output	--	±1	±3	
	Linear Regulation	Full load, the input voltage is from low voltage to high voltage	Positive output	--	±0.2	±0.5	
			Negative output	--	±0.5	±1	
	Load Regulation③	5%-100% load	Positive output	--	±0.5	±1	
			Negative output	--	±0.5	±1.5	
	Cross Regulation	Dual output, main circuit with 50% load, auxiliary circuit with 25%-100% load		--	--	±5	
	Transient Recovery Time	25% load step change, Nominal input voltage		--	300	500	μs
	Transient Response			--	±3	±5	%
	Temperature Coefficient	Full load		--	--	±0.03	%/℃
	Ripple & Noise④	20MHz bandwidth, 5%-100% load		--	40	100	mVp-p
	Over-voltage Protection	Input voltage range		110	--	160	%Vo
	Over-current Protection	Input voltage range		110	140	190	%Io
	Short-circuit Protection	Input voltage range		Continuous, self-recovery			
General Specifications	Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.		1500	--	--	VDC
	Insulation Resistance	Input-output resistance at 500VDC		1000	--	--	MΩ
	Isolation Capacitance	Input-output capacitance at 100kHz/0.1V		--	2000	--	pF
	Operating Temperature	see Fig. 1		-40	--	+85	℃
	Storage Temperature			-55	--	+125	
	Storage Humidity	Non-condensing		5	--	95	%RH

	Pin Soldering Resistance Temperature⑤	Soldering spot is 1.5mm away from the case, 10 seconds max.	--	--	+300	℃
		Wave soldering, maximum 10 seconds	255	260	265	
	Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
	Switching Frequency⑥	PWM mode	--	350	--	kHz
	MTBF	MIL-HDBK-217F@25℃	1000	--	--	k hours
Mechanical Specifications	Case Material	Aluminum alloy				
	Dimensions	32.00 x 20.00 x 10.80mm				
	Weight	12.0g(Typ.)				
	Cooling Method	Free air convection				

Note:
①The voltage of Ctrl pin is relative to input pin GND.
②At 0% -5% load, the Max. output voltage accuracy of ±5VDC output converter is ±5%;
③Load regulation for 0% -100% load increases to ±5%;
④Under 0% -5% load conditions, ripple & noise does not exceed 5%Vo. The "parallel cable" method is used for ripple and noise test, Ripple & Noise at <5% load is 5%Vo max.
⑤The pin soldering temperature tolerance is not the actual temperature set by the soldering iron but the temperature required for proper solder joints. The actual temperature set by the customer should be determined comprehensively based on factors such as PCB thickness, copper coverage, soldering iron power, and soldering iron tip selection;
⑥Switching frequency is measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS A (without external components)/ CLASS B (see Fig.3-② for recommended circuit)	
	RE	CISPR32/EN55032 CLASS A (without external components)/ CLASS B (see Fig.3-② for recommended circuit)	
Immunity	ESD	IEC/EN61000-4-2 Contact ±4kV	perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2kV (see Fig.3-① for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±2kV (see Fig.3-①for recommended circuit)	perf. Criteria B
	CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-29 0%, 70%	perf. Criteria B

Characteristic Curve

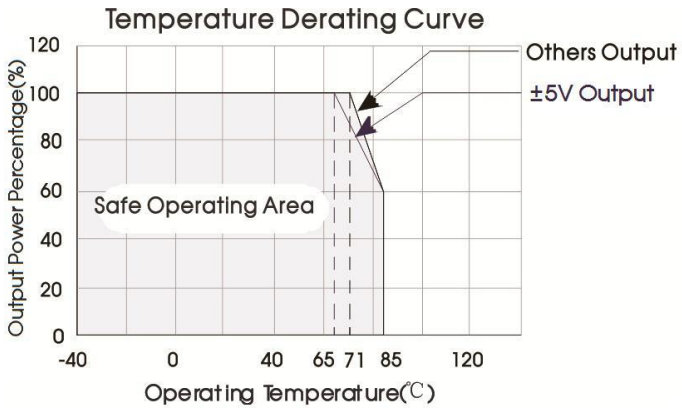
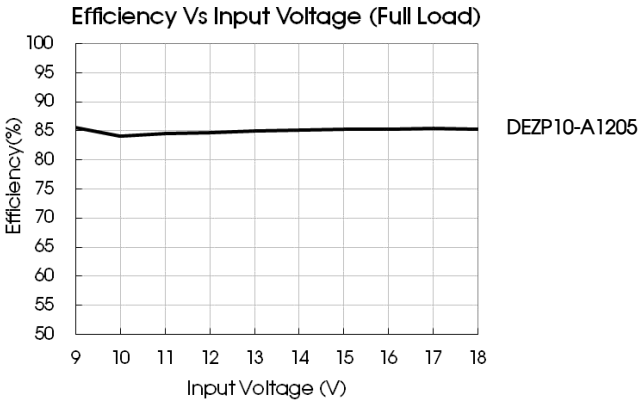
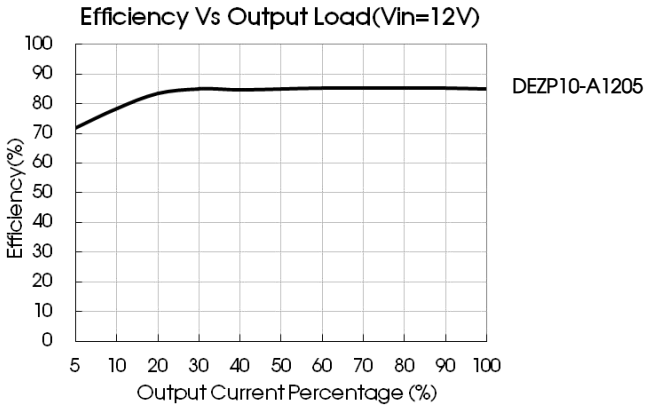
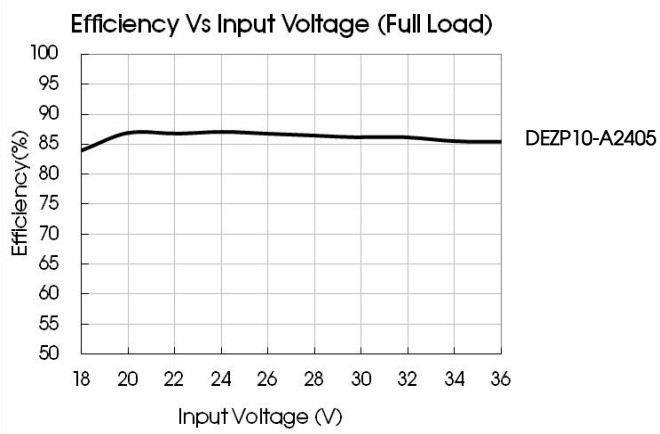
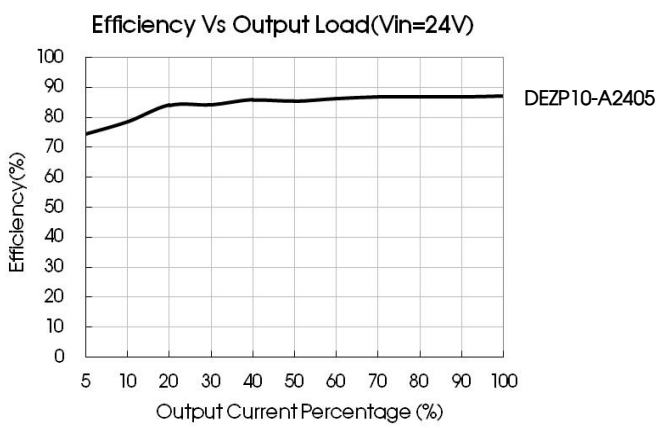


Fig. 1









Design Reference

1. Typical application

①All DC-DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 2.

②Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values Cin and Cout and/or by selecting capacitors with a low ESR (equivalent series resistance). Also make sure that the capacitance is not exceeding the max. capacitive load value of the product.

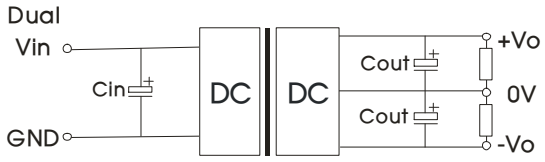


Fig. 2

Vin(VDC)	Vout(VDC)	Cin	Cout
12	±5	100μF/35V	10μF/16V
	±12/±15		10μF/25V
24	±5	100μF/50V	10μF/16V
	±12/±15		10μF/25V

2. EMC solution-recommended circuit

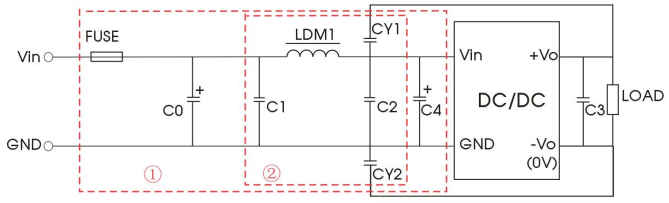


Fig. 3

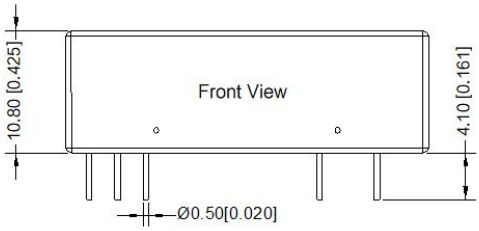
Note: Part ① in the Fig. 3 is used for EMC test and part ② for emissions filtering;Selecting based on needs.

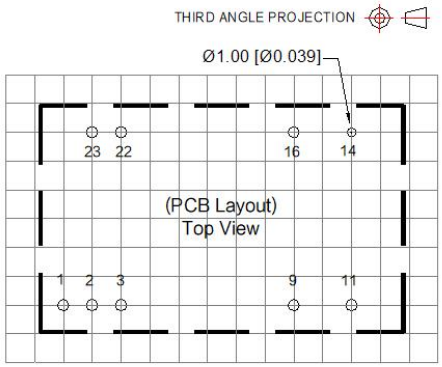
Parameter description:

Model	Vin: 12VDC	Vin: 24VDC
FUSE	Selected based on the actual input current in application	
C0, C4	470μF/35V	330μF/50V
C1, C2	10μF/50V	
C3	Refer to the Cout in Fig.2	
LDM1	10μH	
LCM1	1.4-1.7mH（TN150P-RH12.7*12.7*7.9）	
CY1, CY2	1nF/2kV	

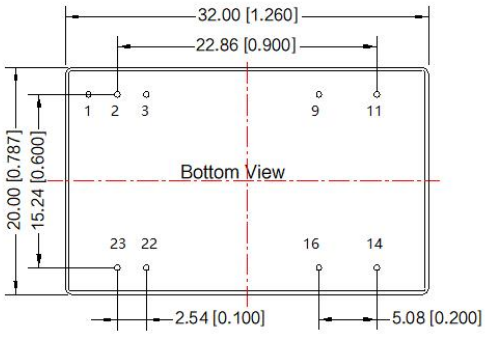
3. The products do not support parallel connection of their output

Dimensions and Recommended Layout





Note: Grid 2.54*2.54mm



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

Pin-Out	
Pin	Mark
1	Ctrl
2,3	GND
9	0V
11	-Vo
14	+Vo
16	0V
22,23	Vin

NC: Pin to be isolated from circuit

Note:

1. The maximum capacitive load offered were tested at input voltage range and full load;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
7. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.