Descriptions

6W isolated，DC-DC Converter



RoHS

Report EN62368-1

Report BS EN62368-1

Features

- Wide 2:1 input voltage range
- High efficiency up to 86%
- No-load power consumption as low as 0.09W
- I/O isolation test voltage 1.5k VDC
- Operating ambient temperature range: -40℃ to +85℃
- Meets CISPR32/EN55032 CLASS A, without extra components (except for 5VDC input)
- Input under-voltage protection, output short
- circuit, over-current, over-voltage protection
- Industry standard pin-out

Applications

- Industrial control
- Electric power
- Instruments
- 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	DEZP6-B0505	5 (4.5-9)	12	5	1200/0	76/78	1000
	DEZP6-B0512			12	500/0	82/84	470
	DEZP6-B0515			15	400/0	82/84	220
	DEZP6-B0524			24	250/0	82/84	100
	DEZP6-B2403	24 (18-36)	40	3.3	1500/0	76/78	1800
	DEZP6-B2405			5	1200/0	80/82	1000
	DEZP6-B2412			12	500/0	83/85	470
	DEZP6-B2415			15	400/0	84/86	220
	DEZP6-B2424			24	250/0	84/86	100

Notes:
①The input voltage must not exceed this value, otherwise permanent irreparable damage may be caused;
②The above efficiency values are measured at the input nominal voltage and the output rated load;
③The positive and negative outputs have the same capacitive loads;
④Product 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)	5VDC input	5V output	--	1539/10	1579/30	mA
			Others	--	1429/10	1464/30	
		24VDC input	3.3V output	--	265/7	272/25	
			Others	--	296/7	313/25	
	Reflected Ripple Current	5VDC input		--	50	--	
		24VDC input		--	20	--	
	Surge Voltage (1sec. max.)	5VDC input		-0.7	--	16	VDC
		24VDC input		-0.7	--	50	
	Start-up Voltage	5VDC input		--	--	4.5	
		24VDC input		--	--	18	
	Input Under-voltage Protection	5VDC input		3	3.5	--	
		24VDC input		13	15	--	
	Input Filter			Pi filter			
	Hot Plug			Unavailable			
Output Specifications	Voltage Accuracy①	5VDC input, 0%-100% load ①	Vo1	--	±1	±2	%
			Vo2	--	±1	±3	
		24VDC input,0%-100% load	Vo1	--	±1	±3	
			Vo2				
	Linear Regulation	Input voltage variation from low to high at full load	Vo1	--	±0.2	±0.5	
			Vo2	--	±0.5	±1	
	Load Regulation②	5VDC input, 0%-100% load	Vo1	--	--	±1	
			Vo2	--	--	±1.5	
		24VDC input, 5%-100% load ②	Vo1	--	±0.5	±1	
			Vo2	--	±0.5	±1.5	
	Transient Recovery Time	25% load step change, Nominal input voltage		--	300	500	μs
	Transient Response Deviation		3.3V/5V output	--	±5	±8	%
			Others	--	±3	±5	
	Temperature Coefficient	Full load		--	--	±0.03	%/℃
	Ripple & Noise③	20MHz bandwidth, 5%-100% load		--	--	100	mVp-p
	Over-voltage Protection	Input voltage range		110	--	160	%Vo
	Over-current Protection			110	140	190	%Io
	Short-circuit Protection			Continuous, self-recovery			
General Specifications	Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.		1500	--	--	VDC
		Input/output-case Electric Strength Test for 1 minute with a leakage current of 1mA max.		1500	--	--	

	Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
	Isolation Capacitance	Input-output capacitance at 100kHz/0.1V	--	1000	--	pF
	Operating Temperature	See Fig. 1	-40	--	85	℃
	Storage Temperature		-55	--	+125	
	Storage Humidity	Non-condensing	5	--	95	%RH
	Pin Soldering Resistance Temperature④	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, 30 Min. along X, Y and Z			
	Switching Frequency⑤	PWM mode	--	300	--	kHz
	MTBF	MIL-HDBK-217F@25℃	1000	--	--	k hours
Mechanical Specifications	Case Material	Aluminum alloy				
	Dimensions	32.00 × 20.00 × 10.80mm				
	Weight	12.0g(Typ.)				
	Cooling Method	Free air convection				

Note:

①load regulation for 0%-100% load is ±5%;

②Under 0% -5% load conditions, ripple & noise does not exceed 5%Vo. The " parallel cable" method is used for ripple and noise test;

③Switching frequency is measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.

④The 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;

⑤This series of products adopts frequency reduction technology, the switching frequency value is the test value at full load, when the load is reduced to less than 50%, the switching frequency decreases with the decrease of the load.

Electromagnetic Compatibility (EMC)

Emissions	CE	5VDC input	CISPR32/EN55032 CLASS B (see Fig.3-② for recommended circuit)	
		24VDC input	CISPR32/EN55032 CLASS A (without external components)/ CLASS B (see Fig.4-② for recommended circuit)	
	RE	5VDC input	CISPR32/EN55032 CLASS B (see Fig.3-② for recommended circuit)	
		24VDC input	CISPR32/EN55032 CLASS A (without external components)/ CLASS B (see Fig.4-② for recommended circuit)	
	ESD		IEC/EN61000-4-2 Contact ±4kV	perf. Criteria B
	RS		IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	5VDC input	IEC/EN61000-4-4 ±2kV (see Fig.3-① for recommended circuit)	perf. Criteria B
		24VDC input	IEC/EN61000-4-4 ±2kV (see Fig.4-① for recommended circuit)	perf. Criteria B
Immunity	Surge	5VDC input	IEC/EN61000-4-5 line to line ±2kV (see Fig.3-①for recommended circuit)	perf. Criteria B
		24VDC input	IEC/EN61000-4-5 line to line ±2kV (see Fig.4-①for recommended circuit)	perf. Criteria B
	CS		IEC/EN61000-4-6 3 Vr.m.s	perf. Criteria A

Characteristic Curve

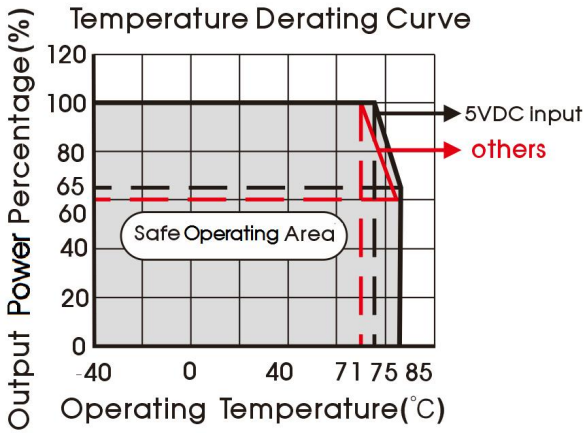
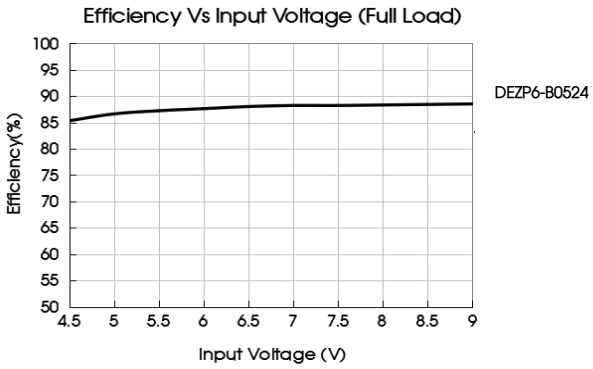
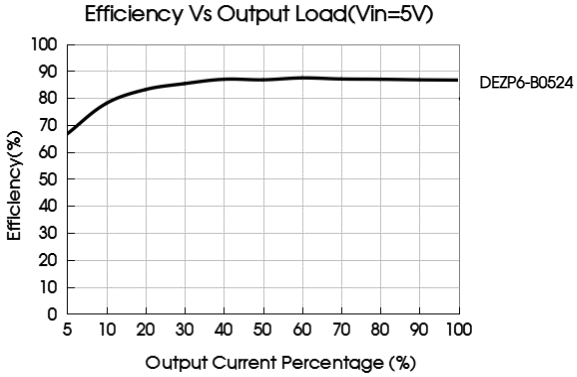


Fig. 1





Design Reference

1.Typical application

①All the 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 specified max. capacitive load value of the product.

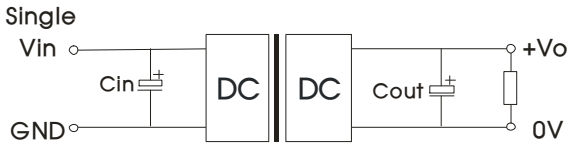


Fig. 2

Vin (VDC)	Vout (VDC)	Cin	Cout
5	5	100μF/16V	10μF/16V
	12/15		10μF/25V
	24		10μF/50V
24	3.3/5	100μF/50V	10μF/16V
	12/15		10μF/25V
	24		10μF/50V

2.EMC compliance circuit

5VDC input

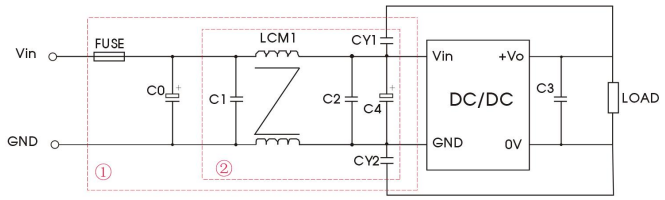


Fig. 3

Notes: For EMC tests we use Part ① in Fig. 3 for immunity and part ② for emissions test. Selecting based on needs.

Parameter description:

Model	Vin: 5VDC
FUSE	Select fuse value according to actual input current
C0	2200μF/35V
C1/C2	4.7μF/50V
C3	Refer to the Cout in Fig.2
C4	100μF/35V
LCM1	2.2mH
CY1/CY2	2.2nF/2kV

24VDC input

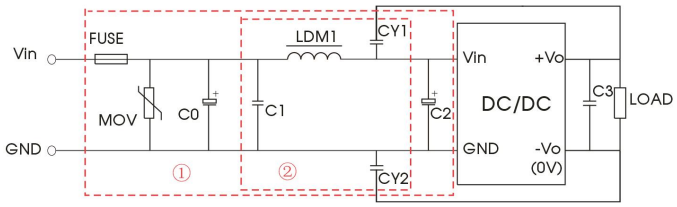


Fig. 4

Notes: For EMC tests we use Part ① in Fig. 4 for immunity and part ② for emissions test. Selecting based on needs.

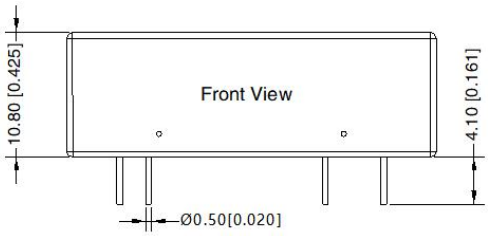
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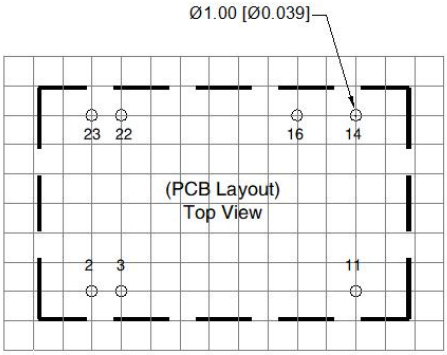
Model	Vin: 24VDC
FUSE	Select fuse value according to actual input current
MOV	S20K30
C0	1000μF/50V
C2	100μF/50V
C1	1μF/50V
C3	Refer to the Cout in Fig.2
LDM1	4.7μH
CY1, CY2	1nF/2kV

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

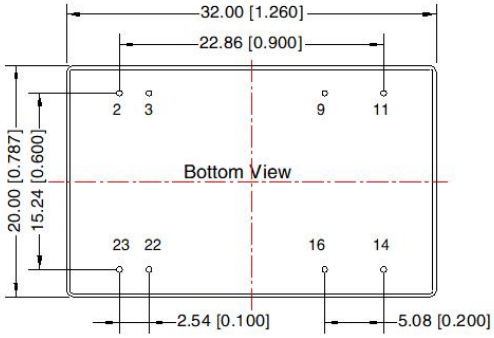
Dimensions and Recommended

THIRD ANGLE PROJECTION





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
2,3	GND
9*	No Pin
11	NC
14	+Vo
16	0V
22,23	Vin

* Note: 5V input product without 9th pin
NC: Pin to be isolated from circuit

Notes:

1. The maximum capacitive load offered were tested at input voltage range and full load;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated load;
3. All index testing methods in this datasheet are based on company corporate standards;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
6. 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.