

DCMB_ZP-10W Series



CE Report

RoHS



FEATURES

- Wide 2:1 input voltage range
- Input under-voltage protection, output short-circuit, over-current, over-voltage protection
- No-load power consumption as low as 0.11W
- I/O isolation test voltage 1.5k VDC
- Meet CISPR32/EN55032 CLASS A without extra components
- High efficiency up to 88%
- Operating ambient temperature range: -40°C to +85°C
- 3 Years Warranty

DESCRIPTION

DC-DC module power supply, Wide voltage input, Power 10W, Isolated, Regulated, Single output, DIP packaging.

MODEL NUMBERING

DCMBxxxxZP-10W



SELECTION GUIDE

Product Model	Input Voltage Standard Value(range)	Output Voltage	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μF)
DCMB1203ZP-10W	12 (9-18)	3.3	2400/0	84/86	1200
DCMB1205ZP-10W		5	2000/0	84/86	1000
DCMB1212ZP-10W		12	833/0	85/87	470
DCMB1215ZP-10W		15	667/0	85/87	330
DCMB1224ZP-10W		24	416/0	86/88	100

DC-DC CONVERTERS

10 WATTS

Product Model	Input Voltage Standard Value(range)	Output Voltage	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μ F)
DCMB2403ZP-10W	24 (18-36)	3.3	2400/0	83/85	1200
DCMB2405ZP-10W		5	2000/0	85/87	1000
DCMB2412ZP-10W		12	833/0	84/86	470
DCMB2415ZP-10W		15	667/0	85/87	330
DCMB2424ZP-10W		24	416/0	84/86	100
DCMB4803ZP-10W	48VDC (36-75)	3.3	2400/0	84/86	1200
DCMB4805ZP-10W		5	2000/0	85/87	1000
DCMB4812ZP-10W		12	833/0	85/87	470
DCMB4815ZP-10W		15	667/0	85/87	330
DCMB4824ZP-10W		24	416/0	86/88	100

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Input current (Rated Load)	Nominal voltage input 12VDC	--	759	1028	mA
	Nominal voltage input 24VDC	--	384	515	mA
	Nominal voltage input 48VDC	--	190	258	mA
Input current (No-load)	Nominal voltage input 12VDC	--	9	30	mA
	Nominal voltage input 24VDC	--	5	25	mA
	Nominal voltage input 48VDC	--	4	20	mA
Reflected Ripple Current	Nominal voltage input	30	40	50	mA
Surge Voltage (1sec. max.)	Nominal voltage input 12VDC	-0.7	--	25	VDC
	Nominal voltage input 24VDC	-0.7	--	50	VDC
	Nominal voltage input 48VDC	-0.7	--	100	VDC

Parameter	Conditions	Min.	Typ.	Max.	
Start-up Voltage	Nominal voltage input 12VDC	--	--	9	
	Nominal voltage input 24VDC	--	--	18	VDC
	Nominal voltage input 48VDC	--	--	36	VDC
Input Under-voltage Protection	Nominal voltage input 12VDC	5.5	6.5	--	VDC
	Nominal voltage input 24VDC	12	15.5	--	VDC
	Nominal voltage input 48VDC	25	30.5	--	
Remote control foot (Some models are applicable)	Module On	Ctrl pin open or pulled high (3.5-12VDC)			
	Module shutdown	Ctrl pin pulled low to GND(0-1.2VDC)			
	Input current during shutdown	--	6	10	mA
Input filter		PI type			

Remarks: This product does not support hot plug

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Output voltage accuracy	0% -100% Load	--	±0.5	±2	%
Line regulation rate	Full load, the input voltage is from low voltage to high voltage	--	±0.2	±0.5	%
Load regulation rate	5%-100% load	--	±0.5	±1	%
Ripple & Noise	20MHz bandwidth, 5%-100% load	40	80	100	mVp-p
Dynamic response step deviation	25% load step change, Nominal input voltage	--	±3	±8	%
Dynamic response recovery time	25% load step change, Nominal input voltage	--	300	500	μs
Temperature drift coefficient	100% load	--	--	±0.03	%/°C
Output overvoltage protection	Full voltage range input	110	--	160	%Vo
Output overcurrent protection	Full voltage range input	110	150	230	%Io
Short circuit protection	Full voltage range input	Sustainable, Self healing			

Note: The testing method for ripple and noise is the parallel line testing method.

GENERAL CHARACTERISTIC

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.	1500	--	--	VDC
Insulation resistance	Input-output, Insulation voltage 500VDC	1000	--	--	MΩ
Isolation capacitance	Input-output capacitance at 100kHz/0.1V	--	2000	--	pF
Working temperature	see Fig.3	-40	--	+85	°C
Storage temperature		-55	--	+125	°C
Storage humidity	Non condensing	5	--	95	%RH
Vibration		10-150Hz,5G,0.75mm.along X,Y and Z			
Soldering temperature resistance of pins	The distance from the welding spot to the shell is 1.5mm, 10 seconds	--	--	300	°C
	Wave soldering, 10 seconds	255	260	265	°C
Switching frequency	PWM mode	--	350	--	kHz
Mean time between failiures 【MTBF】	MIL-HDBK-217F@25°C	1000	--	--	kHours

PHYSICAL CHARACTERISTICS

Parameter	Conditions
Housing material	Aluminium alloy
Overall dimensions	32.00 × 20.00 × 10.80 (mm)
Weight	12g (Typ.)
Cooling mode	Natural air cooling

EMC CHARACTERISTICS

Parameter	Category	Content		
EMI	CE	CISPR32/EN55032	CLASSA(without external components)/CLASS B(see Fig.3-② for recommended circuit)	
	RE	CISPR32/EN55032	CLASSA(without external components)/CLASS B(seeFig.3-② for recommended circuit)	
EMS	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.3-①for 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	10Vr.m.s	perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-29	0%,70%	perf. Criteria B

CIRCUIT DESIGN AND APPLICATION

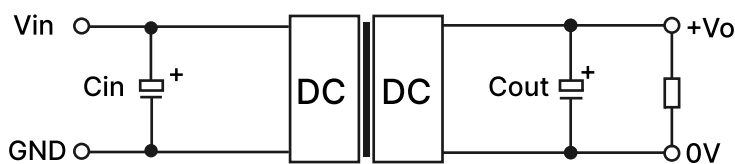
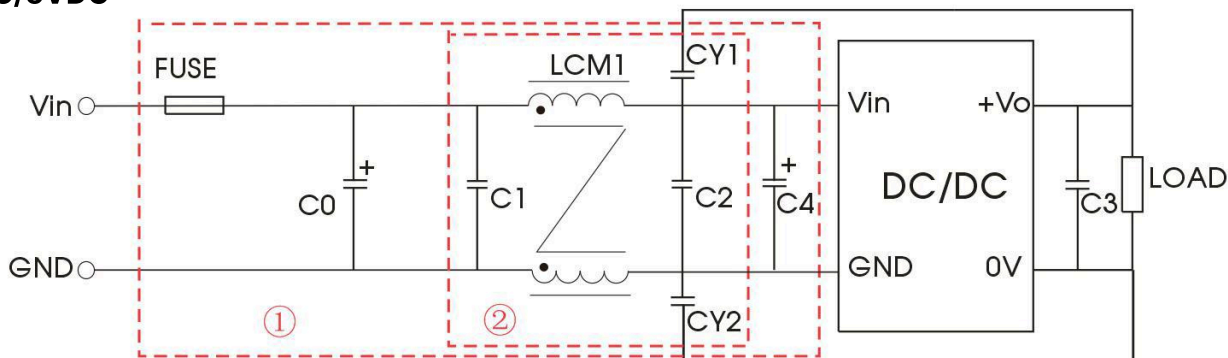


Fig.1

Vin(VDC)	Vout(VDC)	Cin	Cout
12	3.3/5	100 μ F/35V	10 μ F/16V
	12/15		10 μ F/25V
	24		10 μ F/50V
24	3.3/5	100 μ F/50V	10 μ F/16V
	12/15		10 μ F/25V
	24		10 μ F/50V
48	3.3/5	10 μ F ~47 μ F/100V	10 μ F/16V
	12/15		10 μ F/25V
	24		10 μ F/50V

3.3VDC/5VDC



12VDC/15VDC/24VDC

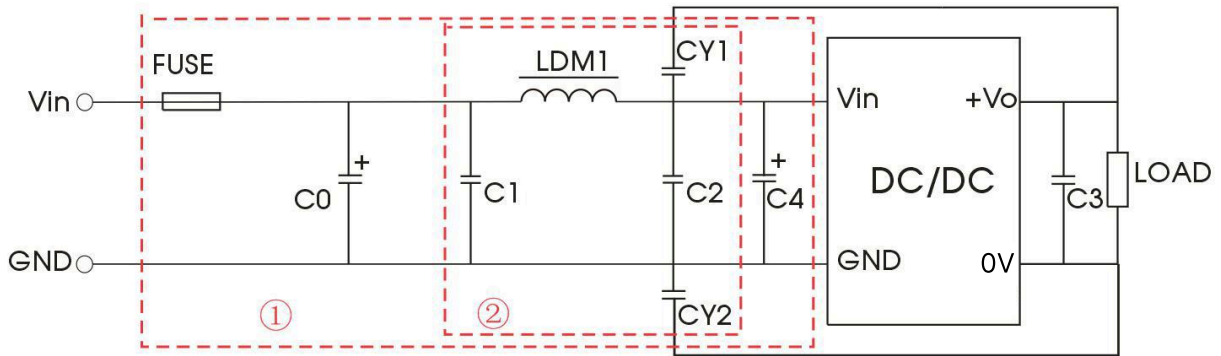


Fig.2

Model	Vin: 12VDC	Vin: 24VDC	Vin: 48VDC
FUSE	Selected based on the actual input current in application		
C0,C4	470μF/35V	330μF/50V	330μF/100V
C1,C2	10μF/50V		10μF/100V
C3	Refer to the Cout in Fig.1		
LDM1	10μH		
LCM1	1.4-1.7mH		
CY1, CY2	1nF/2kV		

PRODUCT CHARACTERISTIC CURVE

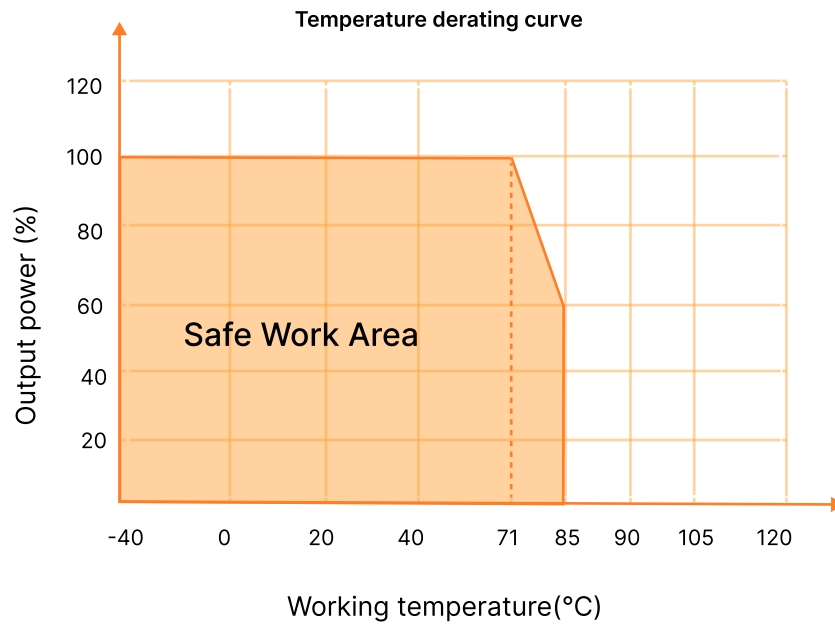
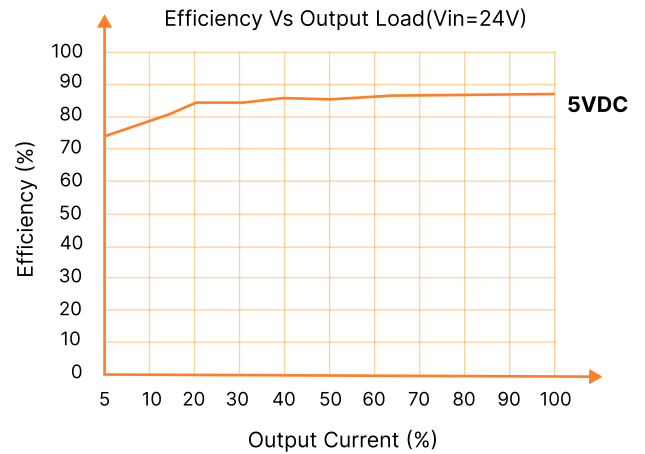
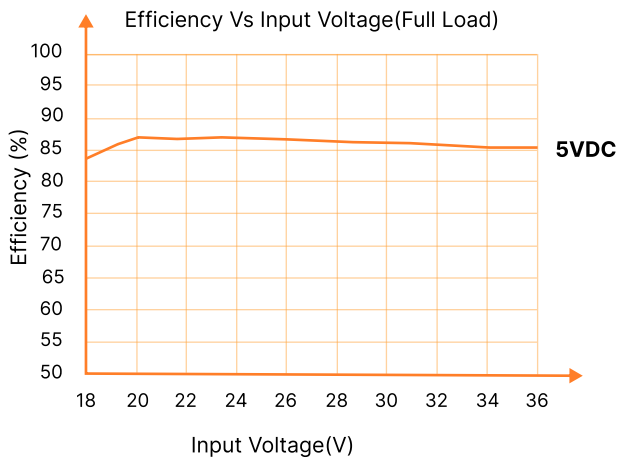
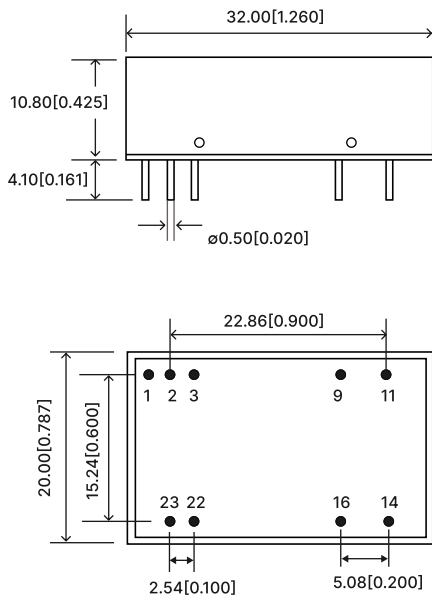


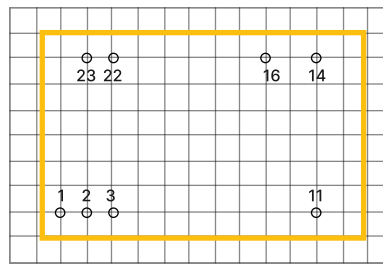
Fig.3



OVERALL DIMENSIONS AND PIN FUNCTIONS



Note: The grid distance is 2.54mm*2.54mm



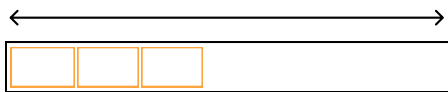
Note:
Dimensions in mm
Terminal diameter tolerance: ± 0.10
Undeclared tolerance: ± 0.50

Table 3: Pin Function Table

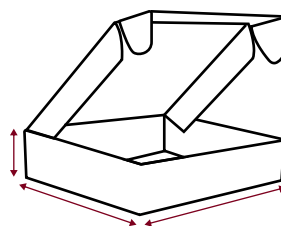
Pin	Function
1	Ctrl
2,3	GND
9	No Pin
11	NC
14	+Vo
16	0V
22,23	Vin

*NC cannot be connected to any external circuits

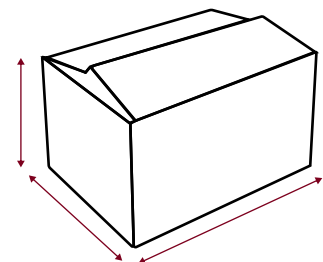
PACKAGING METHOD



50 Pieces/Tube



100 Pieces/Inner box



500 Pieces/Outer box

NOTES & INSTRUCTIONS

1. The input voltage shall not exceed the specified range value, otherwise permanent and unrecoverable damage maybe caused;
2. Unless otherwise specified, the parameters in this manual are measured at 25 °C, 40% ~ 75% humidity, input nominal voltage and output pure resistance mode under full load;
3. All index test methods are based on the company's enterprise standards.
4. The copyright and the final interpretation right of the product belong to RHENXV.