

DCMA_ZP-10W Series



CE RoHS



FEATURES

- Working temperature range: -40°C to +85°C
- Wide 2:1 input voltage range
- High efficiency up to 88%
- No-load power consumption as low as 0.11W
- I/O isolation test voltage 1.5k VDC
- Input under-voltage protection, output short-circuit, over-current, over-voltage protection
- Industry standard pin-out
- 3 Years Warranty

DESCRIPTION

DC-DC module power supply, Wide voltage input, Power 10W, Isolated, Regulated, Positive and negative dual output, DIP packaging

MODEL NUMBERING

DCMAxxxxZP-10W



SELECTION GUIDE

Product model	Input Voltage (Vdc) Standard Value(range)	Output Voltage (Vdc)	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μF)
DCMA1205ZP-10W	12 (9-18)	±5	±1000/0	81/83	1000
DCMA1212ZP-10W		±12	±416/0	84/86	470
DCMA1215ZP-10W		±15	±333/0	84/86	330
DCMA2405ZP-10W	24 (18-36)	±5	±1000/0	81/83	1000
DCMA2412ZP-10W		±12	±416/0	85/87	470
DCMA2415ZP-10W		±15	±333/0	85/87	330

Product model	Input Voltage (Vdc) Standard Value (range)	Output Voltage (Vdc)	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μ F)
DCMA4812ZP-10W	48 (36-75)	± 12	$\pm 416/0$	85/87	470
DCMA4815ZP-10W		± 15	$\pm 333/0$	85/87	330

INPUT CHARACTERISTICS

Parameter	Operating Conditions	Min.	Typ.	Max.	Units
Input Current (full load)	Nominal voltage input 12VDC	--	980	1028	mA
	Nominal voltage input 24VDC	--	490	515	mA
	Nominal voltage input 48VDC	--	245	258	mA
Input current (No-load)	Nominal voltage input 12VDC	--	9	15	mA
	Nominal voltage input 24VDC	--	5	12	mA
	Nominal voltage input 48VDC	--	4	8	mA
Reflected Ripple Current		30	40	50	mA
Input impulse 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
Starting voltage	Nominal voltage input 12VDC	--	--	9	VDC
	Nominal voltage input 24VDC	--	--	18	VDC
	Nominal voltage input 48VDC	--	--	36	VDC
Under voltage protect	Nominal voltage input 12VDC	5.5	6.5	--	VDC
	Nominal voltage input 24VDC	12	15.5	--	VDC
	Nominal voltage input 48VDC	25	30.5	--	VDC
Input Filter		Pi filter			
Remote control foot (Ctrl)	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

Remarks: This product does not support hot plug

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Output voltage accuracy	0% -100% Load	--	±0.5	±3	%
Line regulation rate	Full load, the input voltage is from low voltage to high voltage	--	±0.2	±1	%
Load regulation rate	5% - 100% load	--	±0.5	±1.5	%
Ripple & Noise	20MHz bandwidth, 5%-100% load	--	40	100	mVp-p
Cross Load Regulation	Dual output, main circuit with 50% load, auxiliary circuit with 25%-100% load	--	--	±5	%
Dynamic response step deviation	25% load step change, Nominal input voltage	--	±3	±5	%
Dynamic response recovery time	25% load step change, Nominal input voltage	--	300	500	μs
Temperature drift coefficient	100% load	--	--	±0.03	%/°C
Output over voltage protection	Voltage range input	110	--	160	%Vo
Output over current protection	Voltage range input	110	140	190	%Io
Short circuit protection	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, test time 1 minute, leakage current less than 1 mA	1500	--	--	VDC
Insulation resistance	Input-output, Insulation voltage 500VDC	1000	--	--	MΩ
Isolation capacitance	Input-output, 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

DC-DC CONVERTERS

10 WATTS

Parameter	Conditions	Min.	Typ.	Max.	Units
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
Soldering temperature resistance of pins	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	°C
	Wave soldering, 10 seconds	255	260	265	°C
Switching frequency	PWM mode	--	350	--	kHz
Mean time between failures 【MTBF】	MIL-HDBK-217F@25°C	1000	--	--	kHours

PHYSICAL CHARACTERISTICS

Parameter	Contents
Housing material	Aluminum 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 CLASS A (without external components) / CLASS B (see Fig.2-Ⓑ for recommended circuit)
	RE	CISPR32/EN55032 CLASS A (without external components) / CLASS B (see Fig.2-Ⓑ for recommended circuit)
EMC	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.2-Ⓐ for recommended circuit) perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±2kV (see Fig.2-Ⓐ for 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

CIRCUIT DESIGN AND APPLICATION

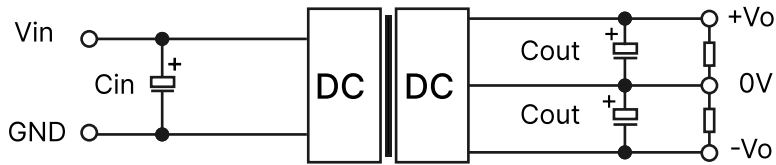


Fig 1: Application circuit

Table 1: Recommended Capacitive Load Values

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
48	±12/±15	10μF ~ 47μF/100V	10μF/25V

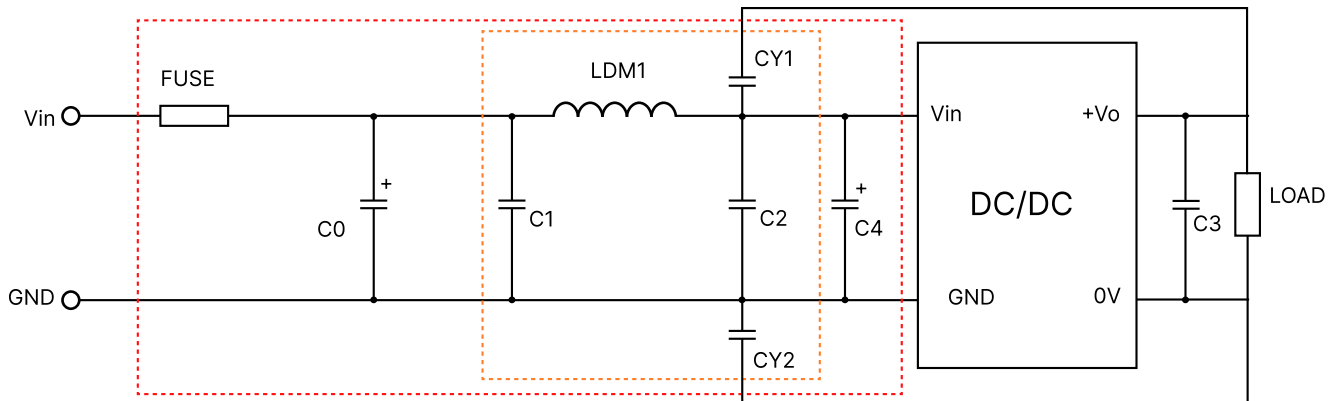


Fig 2: EMC Typical Recommended Circuits

Table 2: Recommended Circuit Parameter Values

Component	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		
CY1, CY2	1nF/2kV		

PRODUCT CHARACTERISTIC CURVE

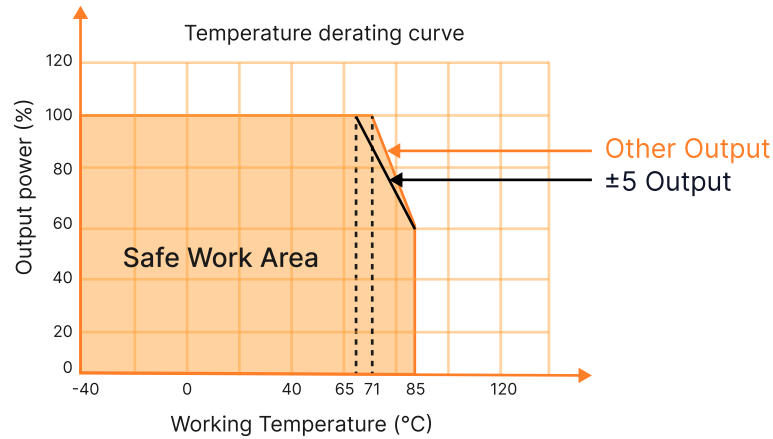


Fig 3. Temperature Derating Curve

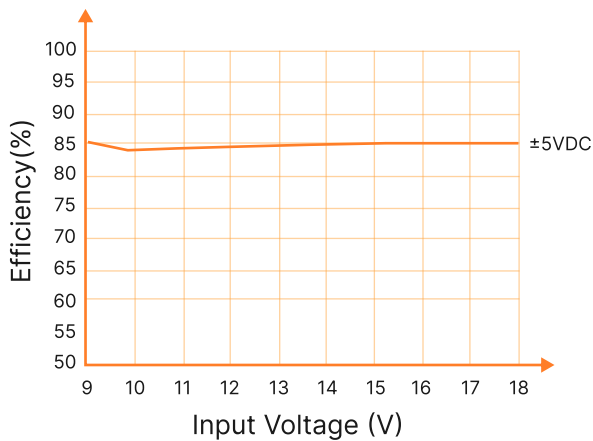


Fig. 4: Efficiency Vs Input Voltage (Full Load)

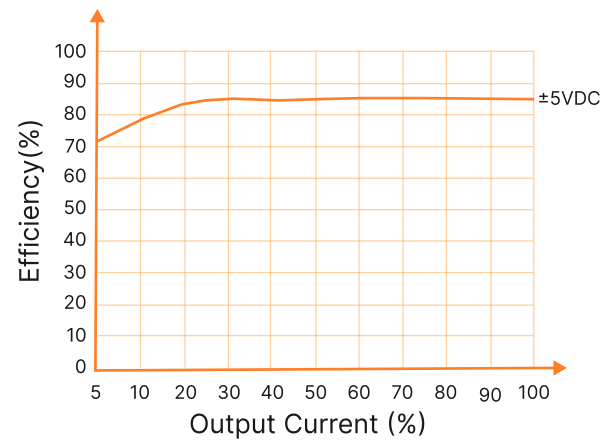


Fig. 5 Efficiency Vs Output Load (Vin=12V)

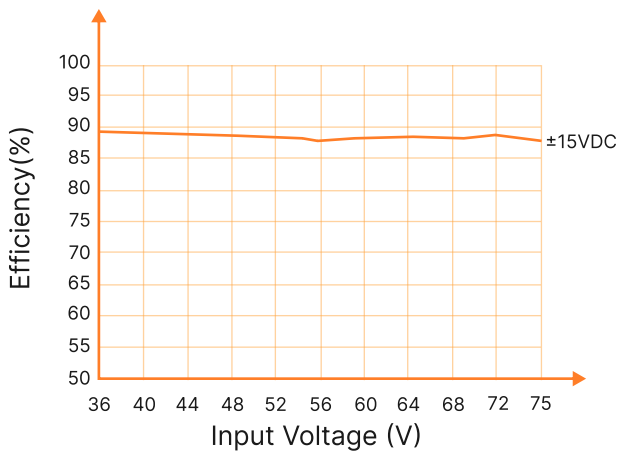


Fig. 6: Efficiency Vs Input Voltage (Full Load)

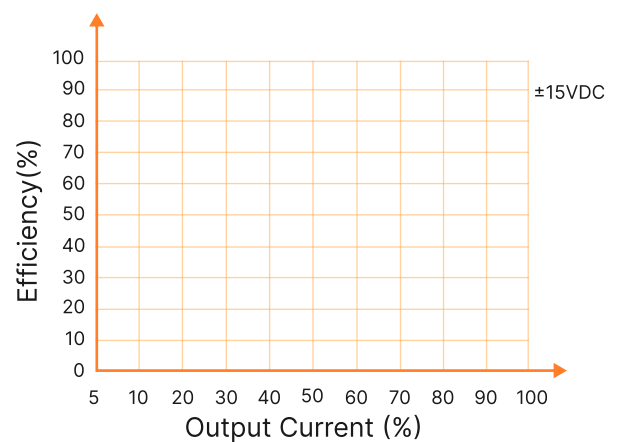


Fig. 7 Efficiency Vs Output Load (Vin=48V)

OVERALL DIMENSIONS AND PIN FUNCTIONS

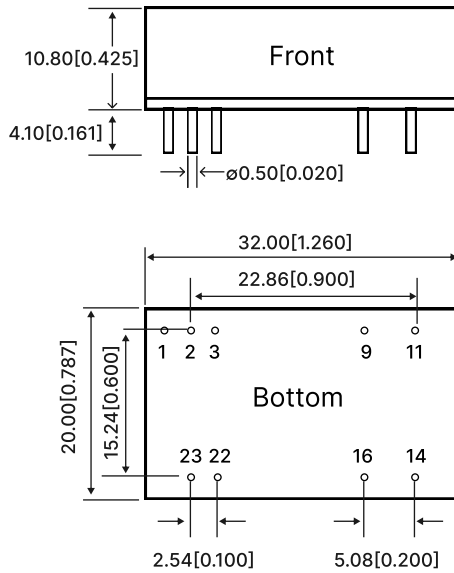
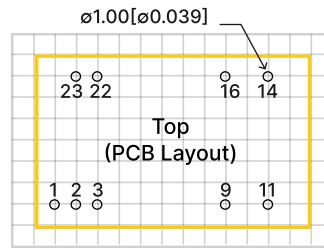


Fig. 8 Overall dimensions



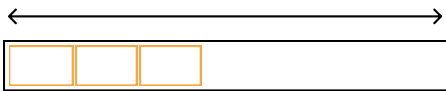
Note: The grid distance is 2.54mm * 2.54mm

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

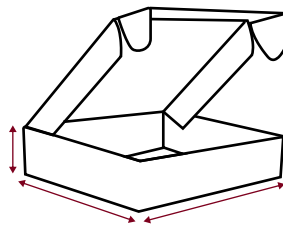
Table 3: Pin Function Table

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

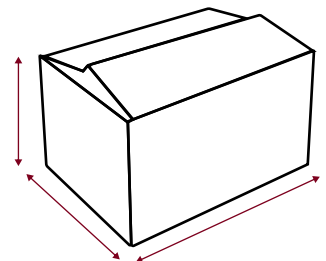
PACKAGING METHOD



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.