

DCMA_ZP-6W Series



CE Report

RoHS



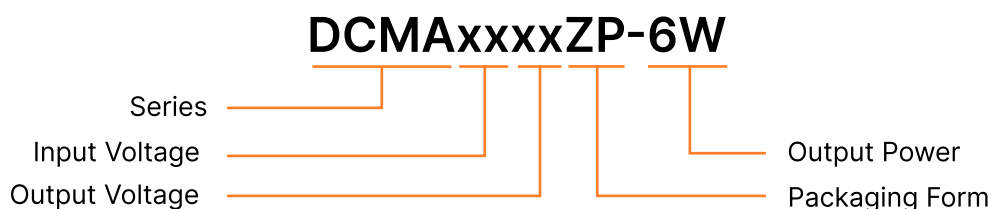
FEATURES

- Wide 2:1 input voltage range
- No-load power consumption as low as 0.09W
- Input under-voltage protection, output short- circuit, over-current, over-voltage protection
- High efficiency up to 88%
- Working temperature range: -40°C to +85°C
- I/O isolation test voltage 1.5k VDC
- Industry standard pin-out
- 3 Years Warranty

DESCRIPTION

DC-DC module power supply, Wide voltage input, Power 6W, Isolated, Regulated, Positive and negative dual output, DIP packaging.

MODEL NUMBERING



SELECTION GUIDE

Product model	Input Voltage Standard Value (range)	Output Voltage (Vdc)	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μF)
DCMA0505ZP-6W	5VDC (4.5-9)	±5VDC	±600/0	76/78	1000
DCMA0512ZP-6W		±12VDC	±250/0	82/84	470
DCMA0515ZP-6W		±15VDC	±200/0	82/84	220
DCMA0524ZP-6W		±24VDC	±125/0	82/84	100

DC-DC CONVERTERS

6 WATTS

Product model	Input Voltage Standard Value (range)	Output Voltage (Vdc)	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μ F)
DCMA1205ZP-6W	12VDC (9-18)	$\pm$ 5VDC	$\pm$ 600/0	78/80	680
DCMA1212ZP-6W		$\pm$ 12VDC	$\pm$ 250/0	82/84	330
DCMA1215ZP-6W		$\pm$ 15VDC	$\pm$ 200/0	83/85	220
DCMA1224ZP-6W		$\pm$ 24VDC	$\pm$ 125/0	82/84	100
DCMA2405ZP-6W	24VDC (18-36)	$\pm$ 5VDC	$\pm$ 600/0	81/83	680
DCMA2412ZP-6W		$\pm$ 12VDC	$\pm$ 250/0	84/86	330
DCMA2415ZP-6W		$\pm$ 15VDC	$\pm$ 200/0	85/87	220
DCMA2424ZP-6W		$\pm$ 24VDC	$\pm$ 125/0	83/85	100
DCMA4805ZP-6W	48VDC (36-75)	$\pm$ 5VDC	$\pm$ 600/0	81/83	680
DCMA4812ZP-6W		$\pm$ 12VDC	$\pm$ 250/0	85/87	330
DCMA4815ZP-6W		$\pm$ 15VDC	$\pm$ 200/0	83/85	220
DCMA4824ZP-6W		$\pm$ 24VDC	$\pm$ 125/0	83/85	100

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Input current (Rated Load)	Nominal voltage input 5VDC	--	1429	1579	mA
	Nominal voltage input 12VDC	--	607	641	mA
	Nominal voltage input 24VDC	--	296	313	mA
	Nominal voltage input 48VDC	--	147	155	mA

Parameter	Conditions	Min.	Typ.	Max.	Units
Input current (No-load)	Nominal voltage input 5VDC	--	10	30	mA
	Nominal voltage input 12VDC	--	7	25	mA
	Nominal voltage input 24VDC	--	7	25	mA
	Nominal voltage input 48VDC	--	7	25	mA
Reflected ripple current	Nominal voltage input 5VDC	--	50	--	mA
	Nominal voltage input 12,24, 48VDC	--	20	--	mA
Input impulse voltage (1sec. max.)	5VDC input	-0.7	--	16	VDC
	12VDC input	-0.7	--	25	VDC
	24VDC input	-0.7	--	50	VDC
	48VDC input	-0.7	--	100	VDC
Starting voltage	5VDC input	--	--	4.5	VDC
	12VDC input	--	--	9	VDC
	24VDC input	--	--	18	VDC
	48VDC input	--	--	36	VDC
Under voltage protect	5VDC input	3	3.5	--	VDC
	12VDC input	5.5	6.5	--	VDC
	24VDC input	13	15	--	VDC
	48VDC input	26	30	--	VDC
Input Filter		Pi filter			

Remarks: This product does not support hot plug

OUTPUT CHARACTERISTIC

Parameter	Conditions		Min.	Typ.	Max.	Units
Output voltage accuracy	5VDC input, 0%-100% load	Vo1	--	±1	±2	%
		Vo2	--	±1	±3	%
	12VDC,24VDC, 48VDC Input	Vo1	--	±1	±3	%
		Vo2	--	±1	±3	%

Parameter	Conditions		Min.	Typ.	Max.	Units
Line regulation rate	Input voltage variation from low to high at full load	Vo1	--	±0.2	±0.5	%
		Vo2	--	±0.5	±1	%
Load regulation rate	5VDC input, 0%-100% load	Vo1	--	--	±1	%
		Vo2	--	--	±1.5	%
	other input, 5%-100% load ②	Vo1	--	±0.5	±1	%
		Vo2	--	±0.5	±1.5	%
Cross Regulation	Dual output, Vo1 load at 50%, Vo2 load at range of 10%-100%		--	--	±5	%
Dynamic Response Recovery Time	25% load step change, Nominal input voltage		--	300	500	μs
Transient Response Step Deviation		±5V output	--	±5	±8	%
		Others	--	±3	±5	%
Temperature Coefficient	Full load		--	--	±0.03	%/°C
Ripple & Noise	20MHz bandwidth, 5%-100% load		--	--	100	mVp-p
Over-voltage Protection	Full voltage range input		110	--	160	%Vo
Over-current Protection	Full voltage range input		110	140	190	%Io
Short-circuit Protection	Full voltage range input		Sustainable, Self-healing			

Note: *Ripple & Noise at < 5% load is 300mV max. The "parallel cable" method is used for Ripple and Noise test.

GENERAL CHARACTERISTIC

Parameter	Conditions	Min.	Typ.	Max.	Units
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	--	--	VDC
Insulation resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
Isolation capacitance	Input-output capacitance at 100kHz/0.1V	--	1000	--	pF
Working temperature	See Fig. 1	-40	--	+85	°C

Parameter	Conditions	Min.	Typ.	Max.	Units
Storage temperature		-55	--	+125	°C
Storage humidity	Non condensing	5	--	95	%RH
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	--	300	--	kHz
MTBF	MIL-HDBK-217F@25°C	1000	--	--	khours
Vibration		10-150Hz, 5G, 30 Min. alongX, YandZ			

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

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	5VDC input	CISPR32/EN55032	CLASS B (see Fig.3-② for recommended circuit)	
		Others	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)	
		Others	CISPR32/EN55032	CLASS A (without external components)/ CLASS B (see Fig.4-② for recommended circuit)	
EMS	ESD	Others	IEC/EN61000-4-2	Contact ±4kV	perf. Criteria B

Parameter	Category		Content		
EMS	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
		Others	IEC/EN61000-4-4	±2kV (see Fig.4-① for recommended circuit)	perf. Criteria B
	Surge	5VDC input	IEC/EN61000-4-5	line to line ±2kV (see Fig.3-① for recommended circuit)	perf. Criteria B
		Others	IEC/EN61000-4-5	line to line ±2kV (see Fig.4-① for recommended circuit)	perf. Criteria B
	CS		IEC/EN61000-4-6	3 Vr.m.s	perf. Criteria A

CIRCUIT DESIGN AND APPLICATION

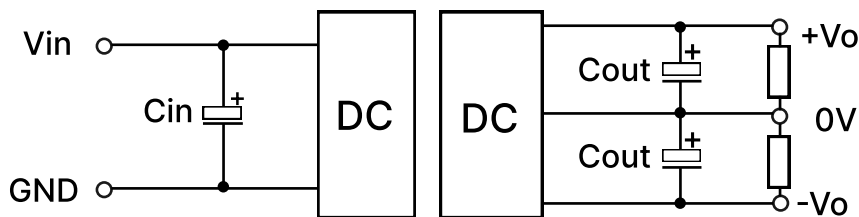


Fig. 2

Vin (VDC)	Vout (VDC)	Cin	Cout
5	±5	100μF/16V	10μF/16V
	±12/±15		10μF/25V
	±24		10μF/50V
12	±5	100μF/35V	10μF/16V
	±12/±15		10μF/25V
	±24		10μF/50V
24	±5	100μF/50V	10μF/16V
	±12/±15		10μF/25V
	±24		10μF/50V
48	±5	10μF - 47μF/100V	10μF/16V
	±12/±15		10μF/25V
	±24		10μF/50V

5VDC input

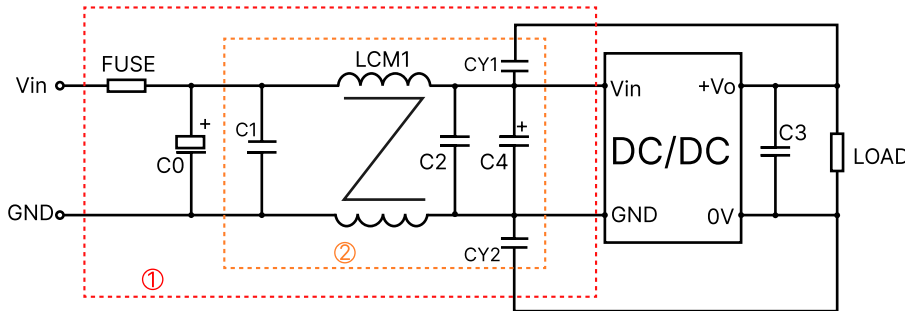


Fig: 3

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

Component	Value
FUSE	Select fuse value according to actual input current
C0	2200 μ F/35V
C1/C2	4.7 μ F/50V
C3	Refer to the Cout in Fig.2
C4	100 μ F/35V
LCM1	2.2mH
CY1/CY2	2.2nF/2kV

12VDC/24VDC/48VDC input

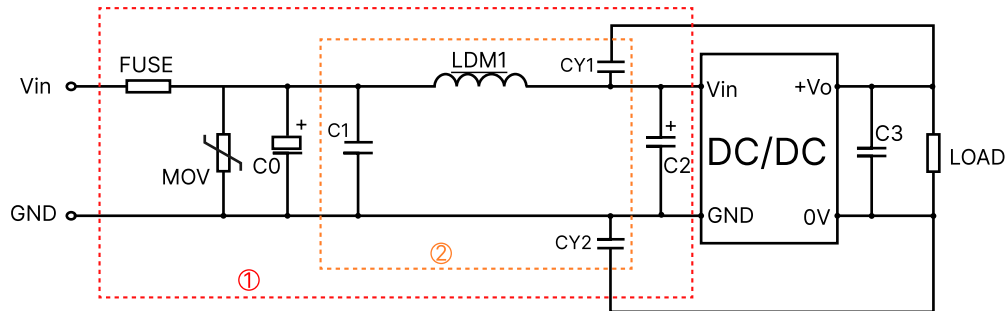
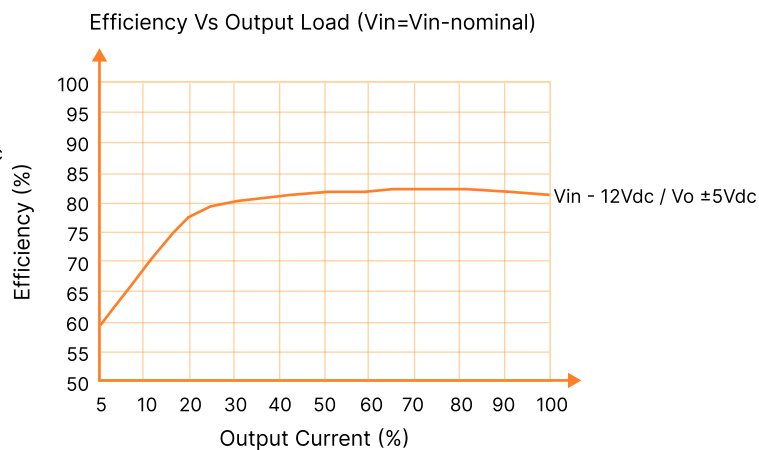
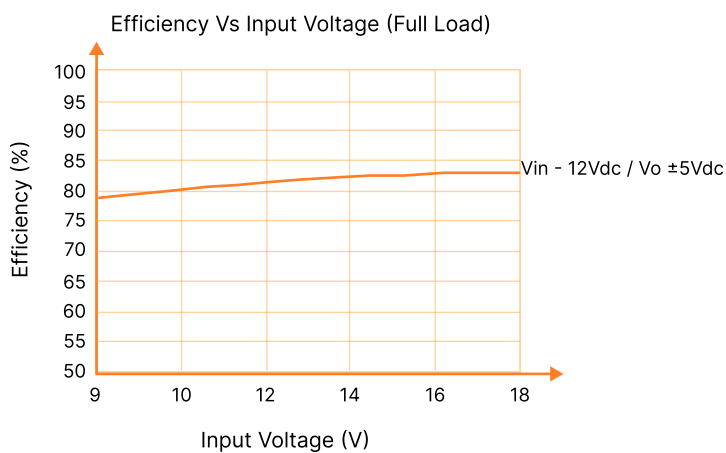
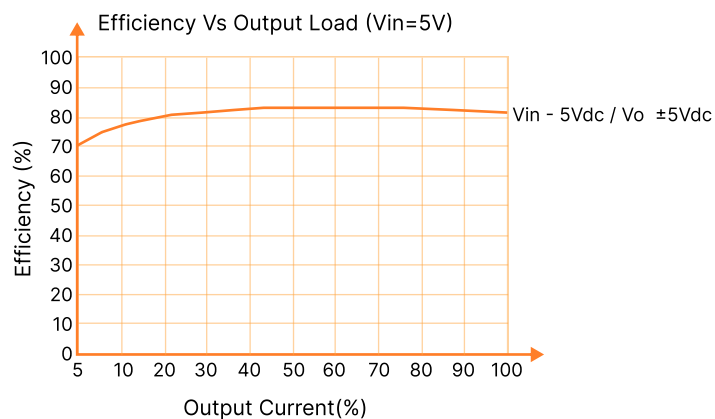
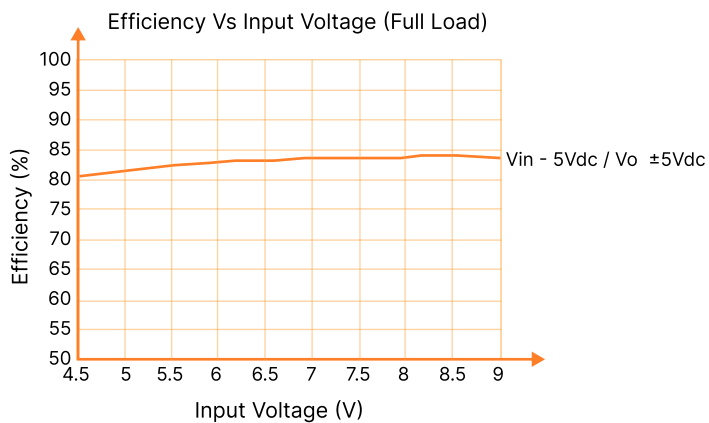
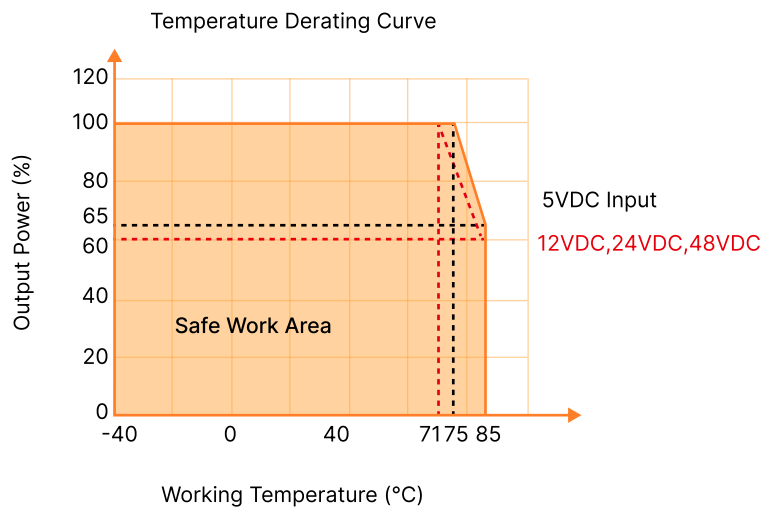


Fig: 4

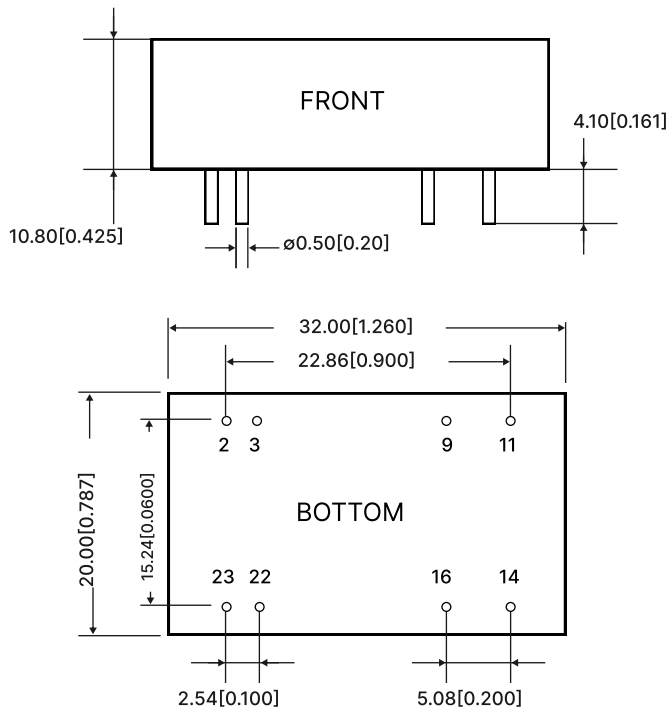
Notes: For EMC tests we use Part ① in Fig. 4 for immunity and part ② for emissions test. Select based on needs.

Component	Vin: 12VDC	Vin: 24VDC	Vin: 48VDC
FUSE	Select fuse value according to actual input current		
MOV	S14K20	S20K30	S14K60
C0	1000 μ F/35V	1000 μ F/50V	680 μ F/100V
C2	100 μ F/35V	100 μ F/50V	100 μ F/100V
C1	1 μ F/50V		1 μ F/100V
C3	Refer to the Cout in Fig.2		
LDM1	4.7 μ H		
CY1, CY2	1nF/2kV		

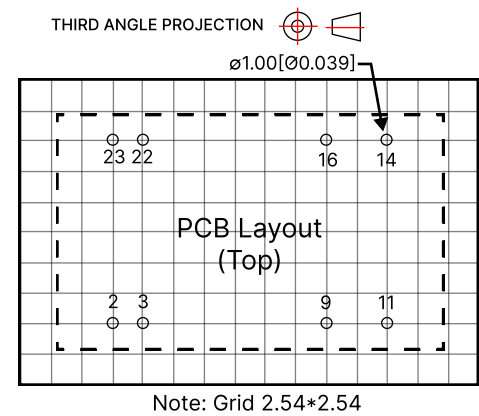
PRODUCT CHARACTERISTIC CURVE



OVERALL DIMENSIONS AND PIN FUNCTIONS



Note:
Dimensions in mm
Terminal diameter tolerance: +/-0.10
Undeclared tolerance: +/-0.50



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

NOTES & INSTRUCTIONS

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°C, 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. The products do not support parallel connection of their output