

DCME_S-3W Series



CE Report

RoHS



FEATURES

- Wide voltage range input (2:1)
- Working temperature range: -40°C to +85°C
- Up to 85% efficiency
- Standby power consumption: 0.3W
- Output short circuit, overcurrent, overload protection
- 3 Years Warranty

APPLICATIONS

- Industrial control
- Home appliances
- Communication
- Power
- Instrumentation
- Civil applications

DESCRIPTION

DC-DC module power supply, Wide voltage input, Power 3W, Isolated, Regulated, Positive and negative dual output, SIP packaging, 3KV isolation voltage.

MODEL NUMBERING

DCMExxxxS-3W



SELECTION GUIDE

Product Model	Input Voltage Standard Value(range)	Output Voltage (Vdc)	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μF)
DCME0505S-3W	5VDC (4.5-9)	±5VDC	±250/±13	72/74	1000
DCME0512S-3W		±12VDC	±104/±5	75/77	470
DCME0515S-3W		±15VDC	±83/±4	75/77	330

DC-DC CONVERTERS

3 WATTS

Product Model	Input Voltage Standard Value(range)	Output Voltage (Vdc)	Output Current (mA) (Max./Min.)	Efficiency % (Min./Typ.)	Maximum capacitive load (μ F)
DCME1205S-3W	12VDC (9-18)	$\pm$ 5VDC	$\pm$ 300/ $\pm$ 15	76/78	1000
DCME1212S-3W		$\pm$ 12VDC	$\pm$ 125/ $\pm$ 6	77/79	470
DCME1215S-3W		$\pm$ 15VDC	$\pm$ 100/ $\pm$ 5	78/80	330
DCME2405S-3W	24VDC (18-36)	$\pm$ 5VDC	$\pm$ 300/ $\pm$ 15	77/79	1000
DCME2409S-3W		$\pm$ 9VDC	$\pm$ 167/ $\pm$ 8	79/81	680
DCME2412S-3W		$\pm$ 12VDC	$\pm$ 125/ $\pm$ 6	81/83	470
DCME2415S-3W		$\pm$ 15VDC	$\pm$ 100/ $\pm$ 5	81/83	330
DCME4805S-3W	48VDC (36-75)	$\pm$ 5VDC	$\pm$ 300/ $\pm$ 15	77/79	1000
DCME4812S-3W		$\pm$ 12VDC	$\pm$ 125/ $\pm$ 6	80/82	470
DCME4815S-3W		$\pm$ 15VDC	$\pm$ 100/ $\pm$ 5	80/82	330

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Input current (Rated Load)	Nominal voltage input@5VDC	--	800	846	mA
	Nominal voltage input@12VDC	--	277	338	mA
	Nominal voltage input@24VDC	--	140	163	mA
	Nominal voltage input@48VDC	--	69	85	mA
Input current (No-load)	Nominal voltage input@5VDC	--	60	65	mA
	Nominal voltage input@12VDC	--	25	30	mA
	Nominal voltage input@24VDC	--	8	13	mA
	Nominal voltage input@48VDC	--	3	10	mA

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Reflected ripple current		20	--	55	mA
Input impulse voltage	1sec. max.	-0.7	--	12	VDC
		-0.7	--	25	VDC
		-0.7	--	50	VDC
		-0.7	--	100	VDC
Starting voltage	Nominal voltage input	--	--	4.5	VDC
		--	--	09	VDC
		--	--	18	VDC
		--	--	36	VDC
Under voltage protect	Nominal voltage input	03	3.5	--	VDC
		5.5	6.5	--	VDC
		12	15.5	--	VDC
		26	30	--	VDC
Start Time		--	10	--	ms
Remote control foot (Some models are applicable)	Module On	Ctrl hovering or connected to TTL high level (3.5 12VDC)			
	Module shutdown	Ctrl connected to GND or low level (0 1.2VDC)			
	Input current during shutdown	--	06	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	--	±1	±3	%
Line regulation rate	Input voltage variation+/- 1%	--	--	±1.5	%
Load regulation rate	Input voltage variation+/- 1%	--	±0.5	±1.5	%

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Ripple & Noise	20MHz bandwidth	--	40	150	mVp p
Dynamic response step deviation	25% load step change	--	±2.5	±5	%
Dynamic response recovery time		--	0.5	3	ms
Temperature drift coefficient	100% load	--	±0.03	--	%/°C
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	3000	--	--	VDC
Insulation resistance	Input output, Insulation voltage 500VDC	1000	--	--	MΩ
Isolation capacitance	Input output, 100KHz/0.1V	--	30	50	pF
Working temperature	Temperature ≥ 71 °C for derating (See Figure 4)	-40	--	+85	°C
Storage temperature		-55	--	+125	°C
Storage humidity	Non condensing	--	--	95	%RH
Housing temperature rise during operation	Ta=25°C,Nominal input, Full output	--	+25	--	°C
Soldering temperature resistance of pins	The distance from the welding spot to the shell is 1.5mm, 10 seconds	--	--	300	°C
Switching frequency	Full load, Nominal input voltage	--	250	--	kHz
Mean time between faliures 【MTBF】	MIL HDBK-217F@25°C	1000	--	--	kHours

PHYSICAL CHARACTERISTICS

Parameter	Conditions
Housing material	Black flame retardant and heat resistant plastic (UL94V 0)
Overall dimensions	22.00 × 9.50 × 12.00 mm
Weight	4.7g(Typ.)
Cooling mode	Natural air cooling

EMC CHARACTERISTICS

Parameter	Category	Content	
EMI	CE	CISPR32/EN55032 CLASS B (see Fig. 3-② for recommended circuit)	
	RE	CISPR32/EN55032 CLASS B (see Fig. 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. 3-① for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±2kV (see Fig. 3-① for recommended circuit)	perf. Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-29 0%, 70%	perf. Criteria B

CIRCUIT DESIGN AND APPLICATION

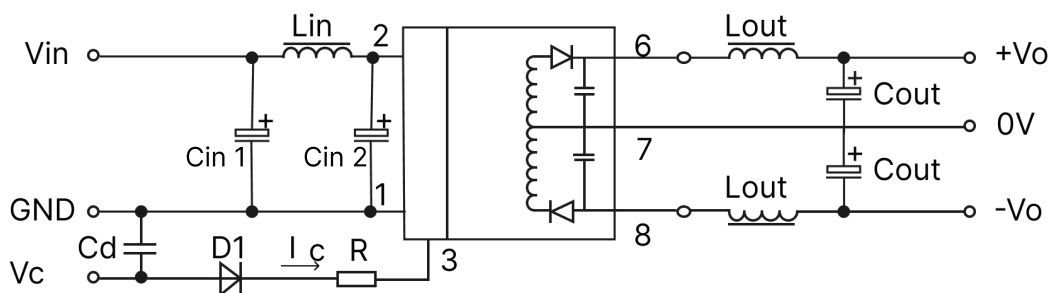


Figure 1: Application circuit

DC-DC CONVERTERS

Table 1:
Recommended Capacitive Load Values

Vin	5 & 12VDC	24 & 48VDC
Cin1	100μF/25VDC	10μF/100VDC
Cin2	47μF/25VDC	1μF/100VDC
Lin	4.7μH-12μH	
Cout	100μF/50VDC(Typ.)	
Cd	47μF/100V	

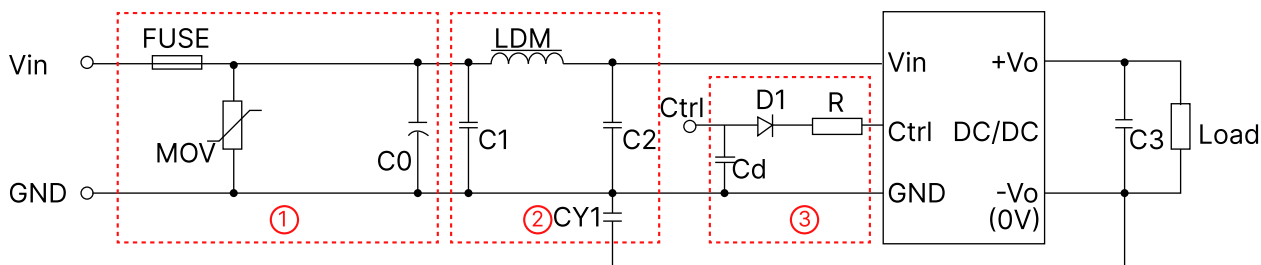


Fig.3

Model	Vin: 5VDC	Vin:12VDC	Vin: 24VDC	Vin: 48VDC
FUSE	Selecting based on needs			
MOV	--	S14K20	S20K30	S14K60
LDM1	12μH	12μH	12μH	12μH
C0	680μF/25V		330μF/50V	330μF/100V
C1	4.7μF/100V			4.7μF/100V
C2	4.7μF/100V			4.7μF/100V
C3	Refer to the Cout in Fig.2			
CY1	1nF/3kV			
D1	RB160M-60V/1A			
R	In accordance with the formula: $R = \frac{V_c - V_D - 1.0}{I_c} - 300$			
Cd	47nF/100V			

PRODUCT CHARACTERISTIC CURVE

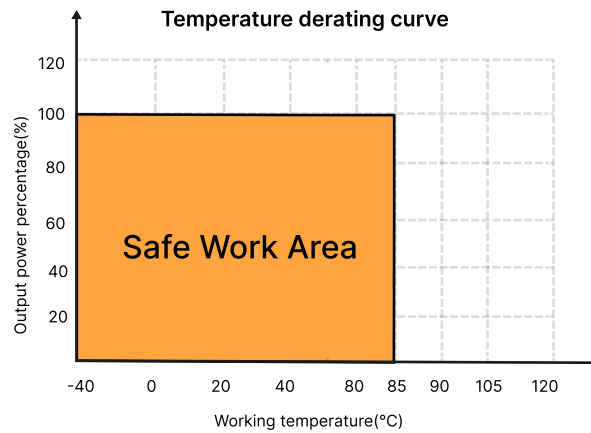


Figure 4: Temperature Derating Curve

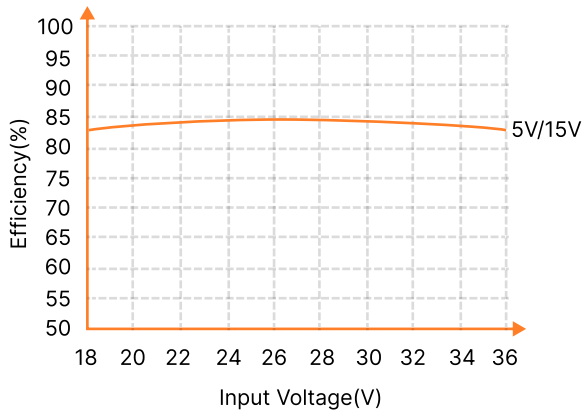


Figure 5: Efficiency vs Output Load($V_{in}=V_{in-nominal}$)

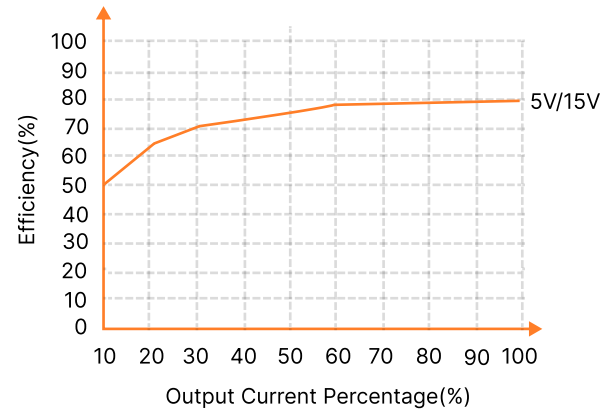
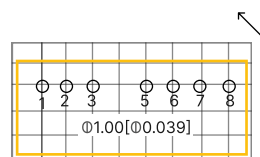
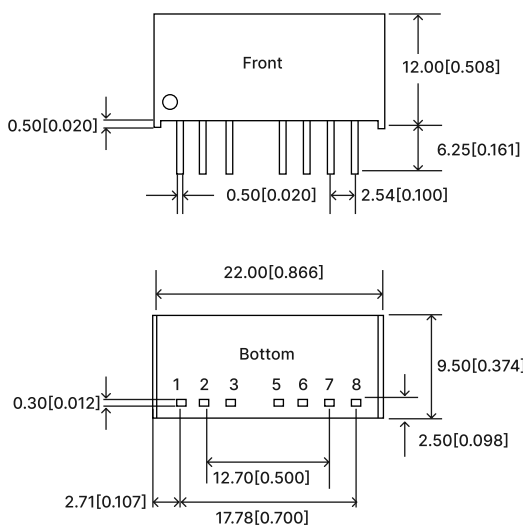


Figure 5: Efficiency vs Input Voltage(Full Load)

OVERALL DIMENSIONS AND PIN FUNCTIONS



Note: The grid distance is 2.54mm*2.54mm

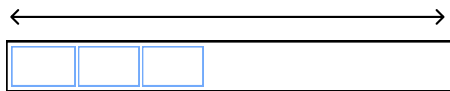
Note:
Unit : mm[inch]
Pin section tolerance:
 $\pm 0.10[\pm 0.004]$
General tolerance: $\pm 0.25[\pm 0.010]$

Table 3: Pin Function Table

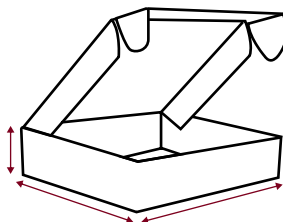
Pin	Function
1	GND
2	V_{in}
3	Ctrl
5	NC
6	$+V_o$
7	0V
8	$-V_o$

Figure 7: Overall dimensions

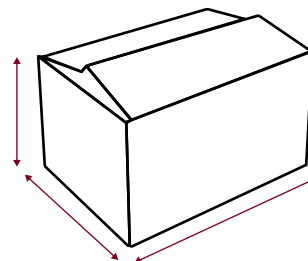
PACKAGING METHOD



16 Pieces/Tube



432 Pieces/Inner box



2160 Pieces/Outer box

NOTES & INSTRUCTIONS

1. Packing information please refer to Product Packing Information which can be downloaded from www.rhenxv.com
2. Recommend to use module with more than 5% load, if not, the ripple of the product may exceeds the specification, but does not affect the reliability of the product;
3. The recommended unbalance degree of the dual output module load is $\leq \pm 5\%$; if the degree exceeds $\pm 5\%$, than the product performance cannot be guaranteed to comply with all parameters in the datasheet. Please contact our technicians directly for specific information;
4. The maximum capacitive load offered were tested at input voltage range and full load;
5. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a = 25^\circ\text{C}$, humidity $< 75\% \text{RH}$ with nominal input voltage and rated output load;
6. All index testing methods in this datasheet are based on company corporate standards;
7. We can provide product customization service, please contact our technicians directly for specific information;
8. Specifications are subject to change without prior notice.