

DCUF12_S-3W Series



CE RoHS



FEATURES

- Ultra-wide 8:1 input voltage range
- Input under-voltage protection, output short-circuit, over-current protection
- No-load power consumption as low as 0.12W
- Industry standard pin-out
- High efficiency up to 79%
- I/O isolation test voltage 3k VDC
- Operating ambient temperature range:- 40°C to +105°C
- 3 Years Warranty

DESCRIPTION

DC-DC Module Power Supply, Ultra Wide Voltage Input, Power 3W, Isolated, Regulated, Single Output, SIP Packaging.

MODEL NUMBERING

DCUF12xxS-3W



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)
DCUF1205S-3W	12 (4.5-36)	5	600	74/76	1000
DCUF1212S-3W		12	250	77/79	330
DCUF1215S-3W		15	200	77/79	220

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Input current (Rated Load)	Nominal voltage output	--	317	334	mA
Input current (No-load)	Nominal voltage output	--	8	16	mA
Reflected ripple current		--	50	--	mA
Input impulse voltage	1sec. max.	-0.7	--	50	VDC
Starting voltage		--	--	4.5	VDC
Under voltage protect	Nominal voltage input	2.5	3.5	--	VDC
Input filter		Capacitance Filter			

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 from low to high at full load	--	±0.5	±1	%
Load regulation rate	5% - 100% load	--	±1	±1.5	%
Ripple & Noise	20MHz bandwidth, 5% - 100% load	--	60	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
Over current protection	Input voltage range	110	--	300	%Io
Short circuit protection	Input voltage range	Continuous, 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.	3000	--	--	VDC
Insulation resistance	Input-output insulation at 500VDC	1000	--	--	MΩ
Isolation capacitance	Input-output capacitance at 100kHz/0.1V	--	40	--	pF
Working temperature	See Fig.4	-40	--	+105	°C
Storage temperature		-55	--	+125	°C
Storage humidity	Without condensation	5	--	95	%RH
Soldering temperature resistance of pins	Soldering spot is 1.5mm away from case for 10 seconds	--	--	+300	°C
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
Switching frequency	PWM mode	--	300	--	kHz
MTBF	MIL-HDBK-217F@25°C	1000	--	--	k hours

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	4.5g (Typ.)
Cooling mode	Natural air cooling

EMC CHARACTERISTICS

Parameter	Category	Content
EMI	CE	CISPR32/EN55032 CLASS A (see Fig.3 for recommended circuit)/ CLASS B (see Fig.2-Ⓑ for recommended circuit)
	RE	CISPR32/EN55032 CLASS A (see Fig.3 for recommended circuit)/ CLASS B (see Fig.2-Ⓑ for recommended circuit)

Parameter	Category	Content		
EMS	ESD	IEC/EN61000-4-2	Contact $\pm 4\text{kV}$	perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	$\pm 2\text{kV}$ (see Fig.2-Ⓐ for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line $\pm 2\text{kV}$ (see Fig.2-Ⓐ for recommended circuit)	perf. Criteria B
	CS	IEC/EN61000-4-6	3 Vr.m.s	perf. Criteria A

CIRCUIT DESIGN AND APPLICATION

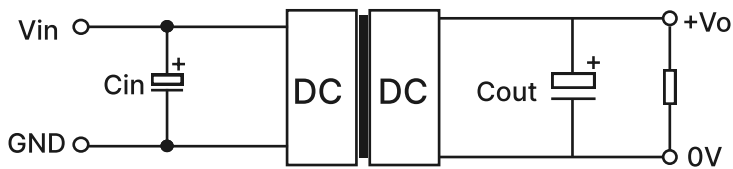


Fig.1

Vout	Cout (μF)	Cin (μF)
5/12/15	22 (25V)	100 (50V)

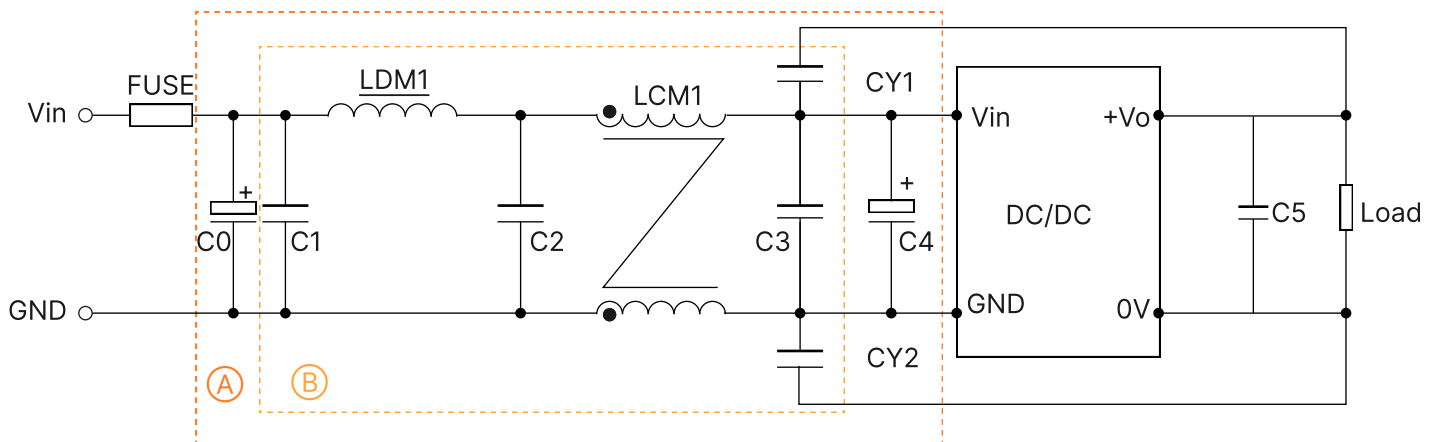


Fig.2

Note: For EMC tests we use Part Ⓐ in Fig. 2 for immunity and part Ⓑ for emissions test. Select based on needs

Model	Vin	Model	Vin
FUSE	Choose according to actual input current	LCM1	3.3mH
C0	1000 μF /50V	LDM1	4.7 μH
C4	330 μF /50V	CY1/CY2	1nF/3kV
C1/C2/C3	10 μF /50V	C5	Refer to the Cout in Fig.1

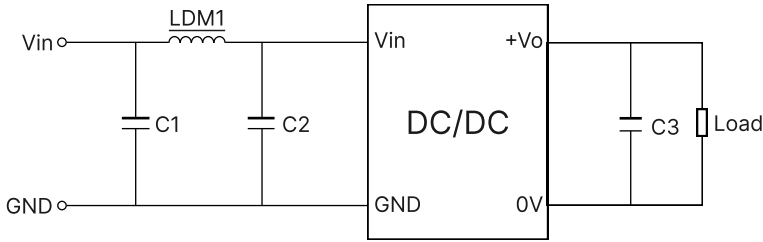


Fig.3

Component	Vin
FUSE	Choose according to actual input current
C1/C2	10 μ F/50V
LDM1	22 μ H
C3	Refer to the Cout in Fig.1

PRODUCT CHARACTERISTIC CURVE

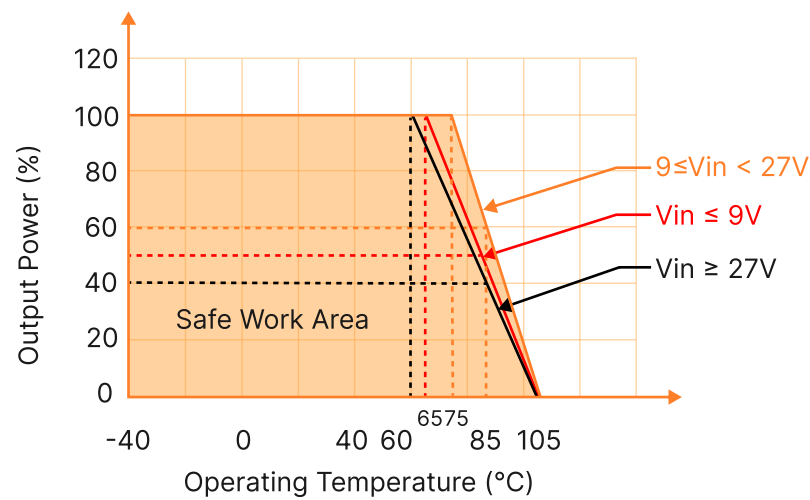
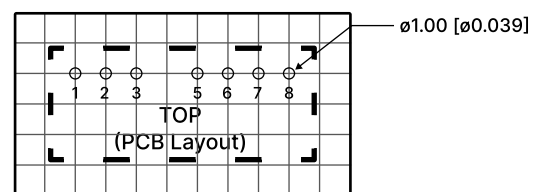
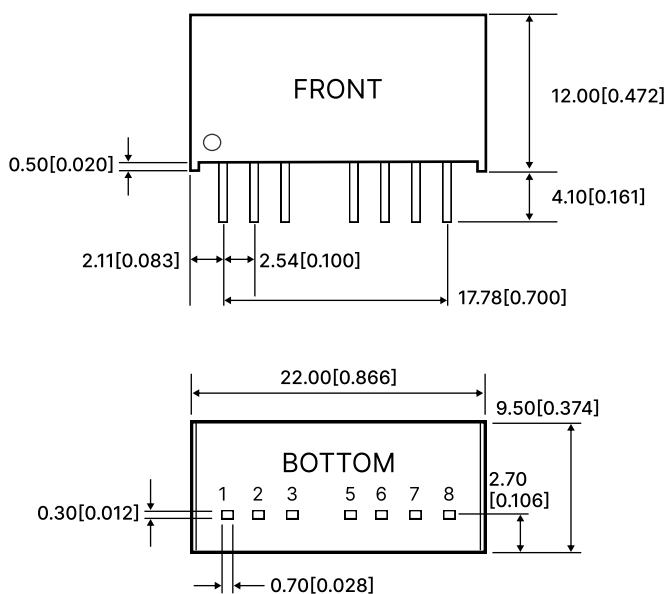


Fig.4: Temperature derating curve

OVERALL DIMENSIONS AND PIN FUNCTIONS



Note: 2.54 × 2.54mm

Table 4: Pin Function Table

Pin	Function	Pin	Function
1	GND	6	+Vo
2	Vin	7	0V
3	NC	8	NC
5	NC		

NOTES & INSTRUCTIONS

1. The maximum capacitive load offered were tested at input voltage range and full load;
2. All index testing methods in this datasheet are based on company corporate standards;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% RH with nominal input voltage and rated output load;
4. All the DC/DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 1
5. We can provide product customization service, please contact our technicians directly for specific information;
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