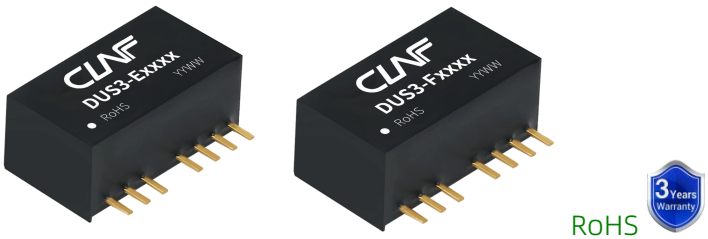
Descriptions

3W isolated, DC/DC Converter



RoHS

3 Years Warranty

c UL us Report UL62368-1

CE Report EN62368-1

UKCA Report BS EN62368-1

Features

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

Applications

- Medical care
- Industrial control
- Electric power
- Instruments
- Communication

Selection Guide

Certification	Part No.	Input Voltage (VDC)		Output		Full Load Efficiency②(%) Min./Typ.	Capacitive Load③ (μF)Max.
		Nominal (Range)	Max.①	Voltage (VDC)	Current (mA) Max./Min.		
EN/BS EN	DUS3-E1205	12 (4.5-36)	40	±5	±300	75/77	470
	DUS3-E1212			±12	±125	77/79	220
	DUS3-E1215			±15	±100	77/79	100
UL/EN/BS EN	DUS3-F1205			5	600	75/77	1000
	DUS3-F1212			12	250	77/79	330
	DUS3-F1215			15	200	77/79	220

Notes:
①Exceeding the maximum input voltage may cause permanent damage;
②Efficiency is measured at nominal input voltage and rated output load;
③The specified maximum capacitive load for positive and negative output is identical;
④Product images are for reference only; the actual product shall prevail.

Specifications

Product Specifications	Item	Operating Conditions			Min.	Typ.	Max.	Unit
Input Specifications	Input Current (full load / no-load)	5V/±5V output			--	325/8	334/16	mA
		Others			--	317/8	325/16	
	Reflected Ripple Current				--	50	--	
	Surge Voltage (1sec. max.)				-0.7	--	50	VDC
	Start-up Voltage				--	--	4.5	
	Input Under-voltage Protection				2.5	3.5	--	
	Input Filter				Capacitance Filter			
	Hot Plug				Unavailable			
Output Specifications	Voltage Accuracy	0% -100% load			--	±1	±3	%
	Linear Regulation	Input voltage variation from low to high at full load	Vo1	DUS3-E	--	--	±1	
				DUS3-F	--	--	±0.5	
			Vo2		--	--	±1	
	Load Regulation	5% -100% load	Vo1		--	--	±1	
			Vo2		--	--	±1.5	
	Cross Regulation	Dual output, Vo1 load at 50%, Vo2 load at range of 25%-100%			--	--	±5	
	Transient Recovery Time	25% load step change, nominal input voltag			--	300	500	μs
	Transient Response Deviation	25% load step change, nominal input voltage	5V/±5V output		--	±5	±8	%
			Others		--	±3	±5	
	Temperature Coefficient	Full load			--	--	±0.03	%/℃
	Ripple & Noise①	20MHz bandwidth, 5% -100% load			--	60	100	mV p-p
	Over-current Protection	Input voltage range			110	--	300	%Io
	Short-circuit Protection				Continuous, self-recovery			
General Specifications	Isolation	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
	Operating Temperature	See Fig. 1			-40	--	+105	℃
	Storage Humidity	Without condensation			5	--	95	%RH
	Storage Temperature				-55	--	+125	℃
	Pin Soldering Resistance Temperature②	Soldering spot is 1.5mm away from the case, 10 seconds max.			--	--	+300	
		Wave soldering, maximum 10 seconds			255	260	265	
	Vibration				10-150Hz, 5G, 0.75mm. along X, Y and Z			
	Switching Frequency③	PWM mode			--	300	--	kHz
	MTBF	MIL-HDBK-217F@25℃			1000	--	--	k hours
Mechanical Specifications	Case Material	Black plastic; flame-retardant and heat-resistant (UL94-V0)						
	Dimensions	22.00 × 9.50 × 12.00 mm						
	Weight	4.5g (Typ.)						
	Cooling method	Free air convection						

Note:
①Under 0% -5% load conditions, ripple & noise does not exceed 5%Vo. The "parallel cable" method is used for ripple and noise test;
②The pin soldering temperature tolerance is not the actual temperature set by the soldering iron but the temperature required for proper solder joints. The actual temperature set by the customer should be determined comprehensively based on factors such as PCB thickness, copper coverage, soldering iron power, and soldering iron tip selection;
③Switching frequency is measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.

Electromagnetic Compatibility (EMC)

Emissions (EMI)	CE	CISPR32/EN55032 CLASS B (see Fig.3-② for recommended circuit)/CLASS A(see Fig.4 for recommended circuit)	
	RE	CISPR32/EN55032 CLASS B (see Fig.3-② for recommended circuit)/CLASS A (see Fig.4 for recommended circuit)	
Immunity (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

Characteristic Curve

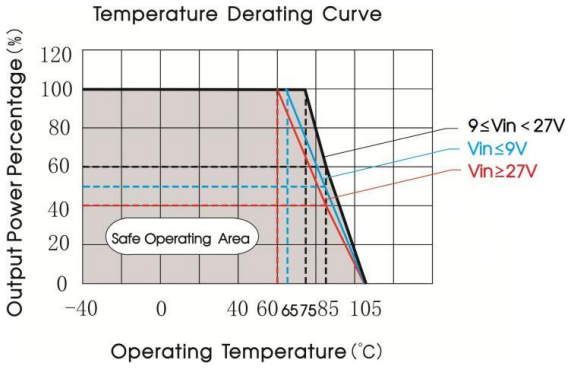


Fig. 1

Design Reference

1.Typical application

①All the DC/DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 2.
②Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values Cin and Cout and/or by selecting capacitors with a low ESR (equivalent series resistance). Also make sure that the capacitance is not exceeding the specified max. capacitive load value of the product.

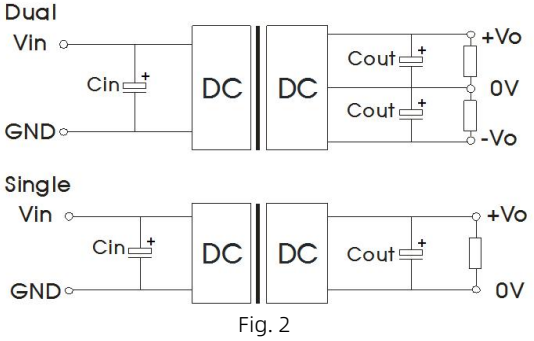


Fig. 2

Parameter description:

Single Vout (VDC)	Dual Vout (VDC)	Cout (μF)	Cin (μF)
5/12/15	±5/±12/±15	22 (25V)	100 (50V)

2.EMC compliance circuit

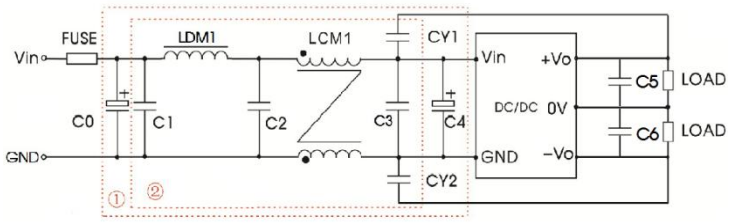


Fig. 3

Notes: For EMC tests we use Part ① in Fig. 3 for immunity and part ② for emissions test. Selecting based on needs

Parameter description:

Components	Vin: 12VDC
FUSE	Choose according to actual input current
C0	1000μF/50V
C4	330μF/50V
C1/C2/C3	10μF/50V
LCM1	3.3mH
LDM1	4.7μH
CY1/CY2	1nF/3kV
C5/C6	Refer to the Cout in Fig.2

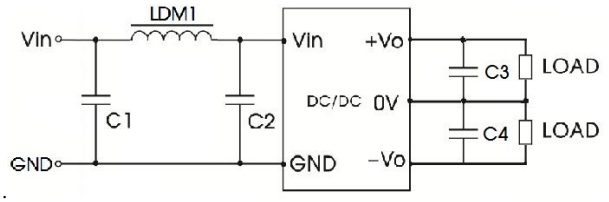


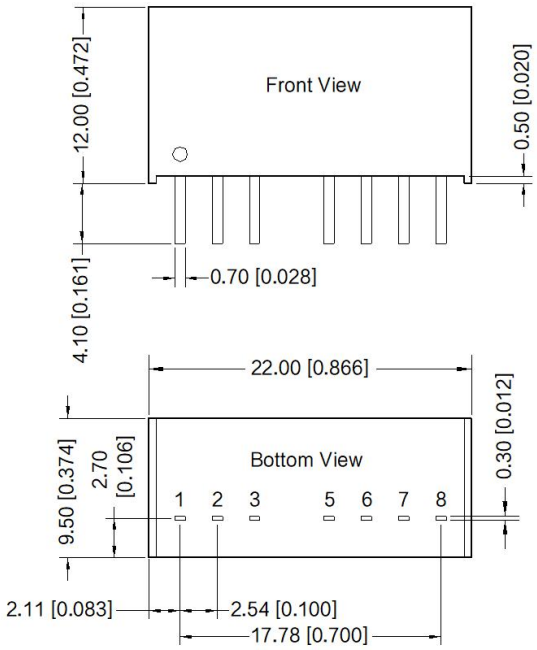
Fig. 4

Parameter description:

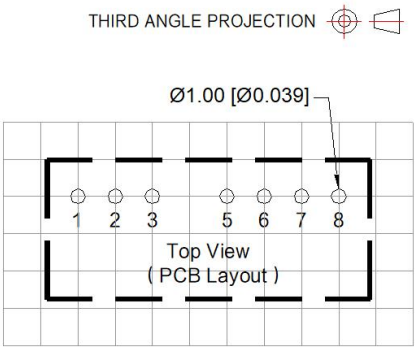
Components	Vin: 12VDC
FUSE	Choose according to actual input current
C1/C2	10μF/50V
LDM1	22μH
C3/C4	Refer to the Cout in Fig.2

3.The products do not support parallel connection of their output

DUS3-E12xx Dimensions and Recommended



Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]

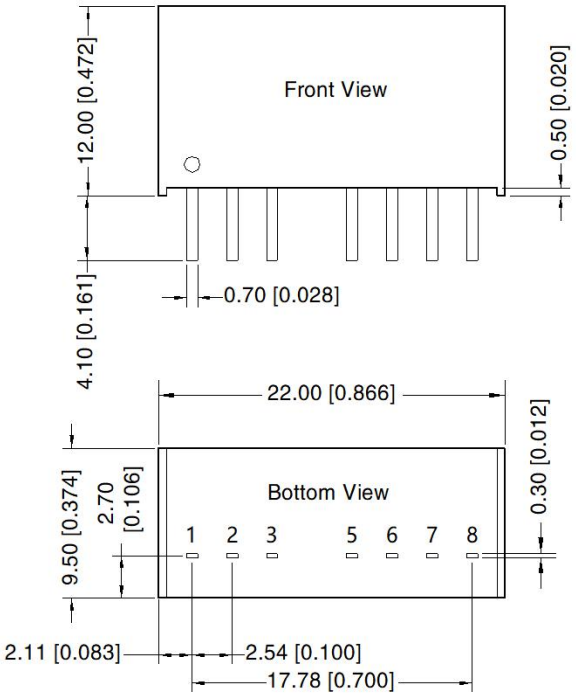


Note: Grid 2.54*2.54mm

Pin-Out	
Pin	Mark
1	GND
2	Vin
3	NC
5	NC
6	+Vo
7	0V
8	-Vo

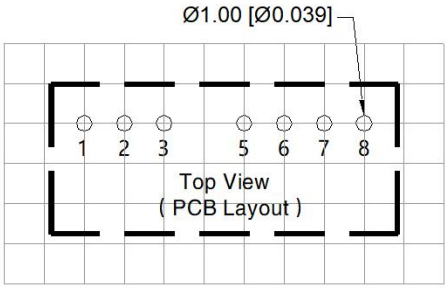
NC: Not available for electrical connection

DUS3-F12xx Dimensions and Recommended



Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]

THIRD ANGLE PROJECTION



Note: Grid 2.54*2.54mm

Pin–Out	
Pin	Mark
1	GND
2	Vin
3	NC
5	NC
6	+Vo
7	0V
8	NC

NC: Not available for electrical connection

Note:
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℃, 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. Products are related to laws and regulations: see "Features" and "EMC";
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
6. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.