

FEATURES:

10W isolated DC-DC converter in DIP package
Wide input and regulated dual/ single output

- ◆ Wide 2:1 input voltage range
- ◆ High efficiency up to 88%
- ◆ No load power consumption as low as 0.12W
- ◆ I/O isolation test voltage 1500V_{DC}
- ◆ Input under-voltage protection, output short-circuit, over-current, over-voltage protection
- ◆ Operating ambient temperature range:-40℃ to +70℃
- ◆ Meets CISPR32/EN55032 CLASS A, without extra components
- ◆ Input reverse polarity protection available with chassis(Z1) or Din-Rail mounting(Z) version
- ◆ Industry standard pin-out
- ◆ Three year warranty period



Selection Guide							
Certification	Part No. ^①	Input Voltage(V _{DC})		Output		Full Load Efficiency ^④ (%) Min./Typ.	Capacitive Load ^⑤ (μF)Max.
		Nominal ^② (Range)	Max. ^③	Voltage(V _{DC})	Current(mA) Max./Min.		
	CFDA10-6D05	5 (4.5-9)	12	±5	±1000/0	76/78	1000
	CFDA10-6D12			±12	±417/0	81/83	470
	CFDA10-6D15			±15	±334/0	82/84	330
	CFDA10-6D24			±24	±209/0	81/83	100
	CFDA10-6S03			3.3	2500/0	82/84	470
	CFDA10-6S05			5	2000/0	83/85	470
	CFDA10-6S12			12	834/0	81/83	470
	CFDA10-6S15			15	667/0	82/84	330
	CFDA10-6S24			24	417/0	81/83	100
Note: ①Use “Z1” suffix for chassis mounting and “Z” suffix for Din-Rail mounting; ②The Z1 and Z Model’s start-up and minimum input voltages are increased by 0.5V _{DC} due to the input reverse polarity protection circuit; ③Exceeding the maximum input voltage may cause permanent damage; ④Efficiency is measured at nominal input voltage and rated output load; efficiencies for Z1 and Z Model’s is decreased by 2% due to the input reverse polarity protection circuit. The efficiencies of CFDA6-6S05 Z1 and Z Model’s efficiency is decreased by 4%, and that of efficiencies CFDA6-6S05 Z1 and Z Model’s efficiency is decreased by 7%; ⑤The specified maximum capacitive load value for Vo1 and Vo2 output is identical;							

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load/no load)	5Vdc nominal input series, nominal input voltage	3.3V output	--	1964/100	2012/150	mA
		5V output	--	2353/100	2410/150	
		Others	--	2500/10	2564/30	
Reflected Ripple Current	5Vdc		--	50	--	
Surge Voltage(1sec.max.)	5Vdc nominal input series		-0.7	--	16	Vdc
Start-up Voltage	5Vdc nominal input series		--	--	4.5	
Input Under-voltage Protection	5Vdc nominal input series		3	3.5	--	
Start-up Time	Nominal input voltage/constant resistance load		--	10	--	ms
Input Filter			Pi filter			
Hot Plug			Unavailable			
CNT *	Module on		CNT pin open or pulled high TTL (3.5-12Vdc)			
	Module off		CNT pin pulled low to GND (0-1.2Vdc)			
	Input current when off		--	6	10	mA
Note:*The CNT pin voltage is referenced to input GND						

Note:*The CNT pin voltage is referenced to input GND

Output Specifications

Item	Operating Conditions			Min.	Typ.	Max.	Unit
Voltage Accuracy	0%-100% load	5Vdc input,3.3Vdc output		--	±1	±3	%
		5Vdc input, other output	Positive output	--	±1	±2	
			Negative output	--	±1	±3	
		Others		--	±1	±3	
Linear Regulation	Input voltage variation from low to high at full load	5Vdc input	Singe output	--	--	±0.5	
			Dual output	--	--	±1	
		Others		--	±0.2	±0.5	
Load Regulation ^①	0%-100% load	5Vdc input,3.3Vdc output		--	--	±2	
		5Vdc input, other output	Singe output	--	--	±1	
			Dual output	--	--	±1.5	
	5%-100% load	CFDA10-6S03		--	--	±1	
Cross Regulation	Input voltage range,25%-100% load			--	--	±5	
Transient Recovery Time	25%load step change,nominal input voltage			--	300	500	μs

Transient Response Deviation	25% load step change, nominal input voltage	±5V output	--	±5	±8	%
		Others	--	±3	±5	
Temperature Coefficient	Full load		--	--	±0.03	%/°C
Ripple/Noise ^②	20MHz bandwidth,5%-100% load		--	40	100	mVp-p
Over-voltage Protection	Input voltage range		110	--	160	%Vo
Over-current Protection			110	140	190	%Io
Short-circuit Protection			Continuous,self-recovery			
Note: Under 0% -5% load conditions, ripple/noise does not exceed 5%Vo. The "parallel cable" method is used for Ripple and Noise test, please refer to DC-DC Converter Application Notes for specific information.						

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output 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
Operating Temperature	See Fig.1	-40	--	+70	°C
Storage Temperature		-55	--	+125	
Storage Humidity	Non-condensing	5	--	95	%RH
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	+300	°C
Vibration		10-150Hz, 5G, 90Min. along X, Y and Z			
Switching Frequency*	PWM mode	--	350	--	kHz
MTBF	MIL-HDBK-217F@25°C	1000	--	--	k hours
Note: *Switching frequency is measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.					

Mechanical Specifications

Case Material	Aluminum alloy		
Dimensions	Horizontal package		25.4×25.4×11.7mm
	Z1 chassis mounting		76.0×31.5×21.2mm
	Z DIN-rail mounting		76.0×31.5×25.8mm
Weight	CFDA10-6S05	Horizontal package/Z1 wiring package/Z rail package	15.0g/38.5g/58.5g(Typ.)
	CFDA10-6S03		
	Others		12.5g/36.0g/56.0g(Typ.)
Cooling Method	Free air convection		

Electromagnetic Compatibility(EMC)

Emissions	CE	5Vdc nominal input	CISPR32/EN55032 CLASS B(see Fig.5-② for recommended circuit)		
	RE	5Vdc nominal input	CISPR32/EN55032 CLASS B(see Fig.5-② for recommended circuit)		
Immunity	ESD	5Vdc nominal input	IEC/EN61000-4-2	Contact ±6kV	perf.Criteria B
		Others	IEC/EN61000-4-2	Contact ±4kV	perf.Criteria B

Immunity	RS		IEC/EN61000-4-3	10V/m	perf.Criteria A
	EFT	5Vdc nominal input	IEC/EN61000-4-4	±2kV(see Fig.5-①for recommended circuit)	perf.Criteria B
	Surge	5Vdc nominal input	IEC/EN61000-4-5	line to line ±2kV(see Fig.5-①for recommended circuit)	perf.Criteria B
	CS		IEC/EN61000-4-6	3Vr.m.s	perf.Criteria A

Typical Characteristic Curves

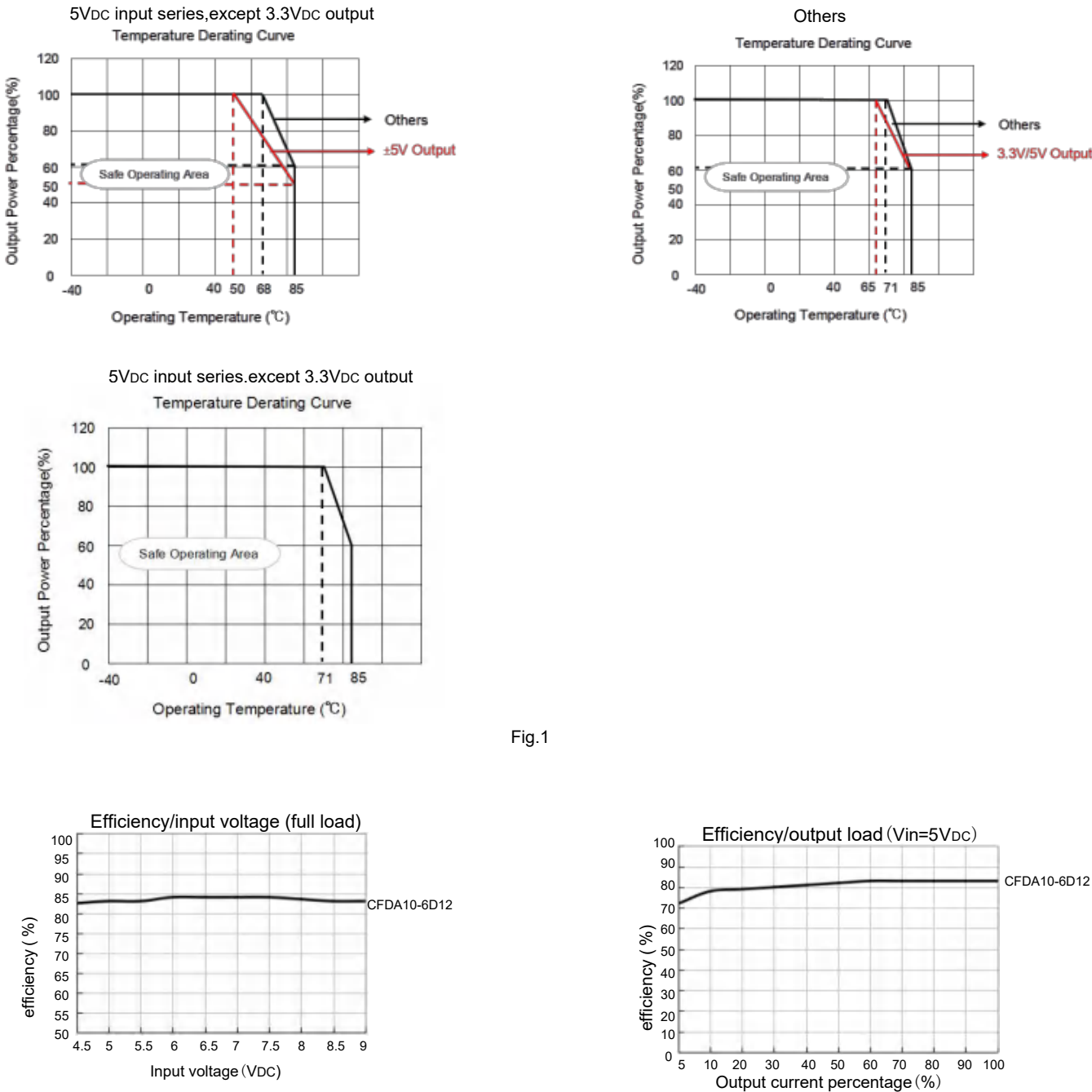
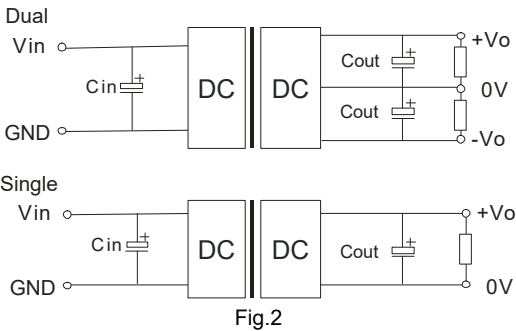


Fig.1

Design Reference

1. Typical application

All DC-DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 2. Input and/or output ripple can be further reduced by appropriately increasing the input & output capacitor values C_{in} and C_{out} 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.



Vin(V _{DC})	C _{in}	C _{out}
5	100μF/16V	Vo(3.3/5/±5):10μF/16V
		Vo(12/±12/15/±15V):10μF/25V
		Vo(24/±24V):10μF/50V

2. EMC compliance circuit

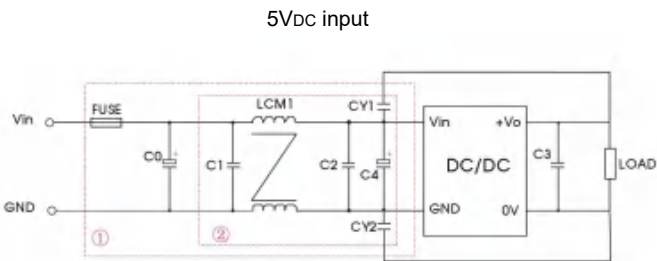


Fig.3

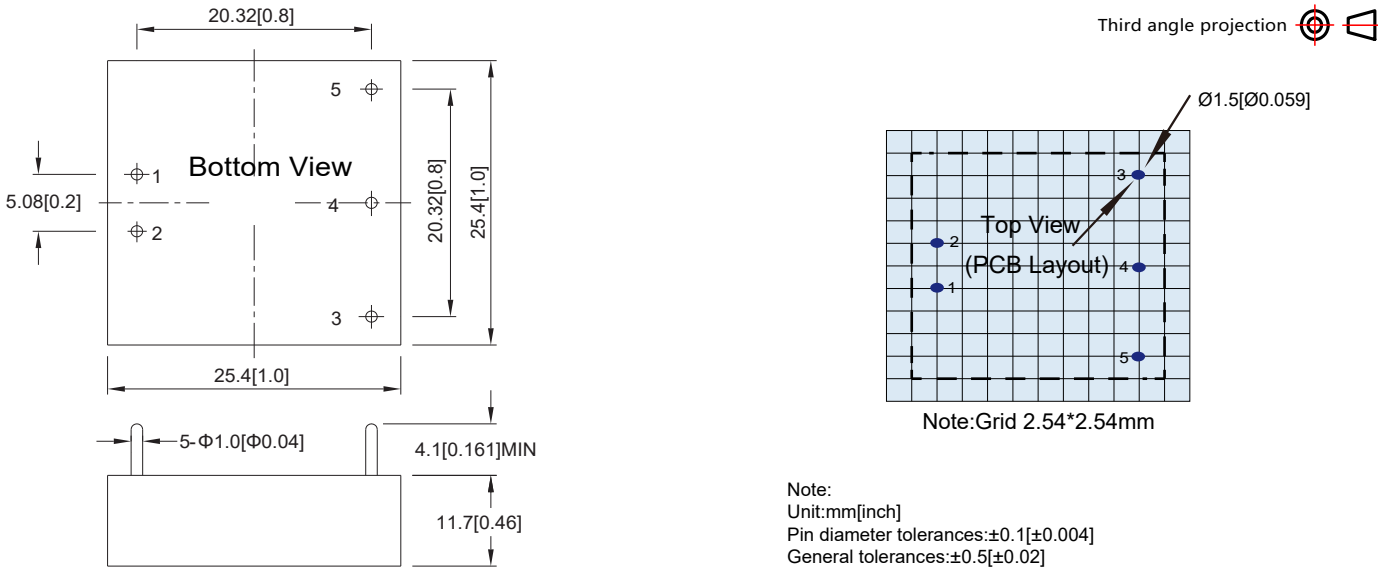
Notes:For EMC tests we use Part ① in Fig. 5 for immunity and part ② for emissions test. Selecting based on needs.

Parameter description :

Model	Vin:5V _{DC}
FUSE	Select fuse value according to actual input current
C0	2200μF/35V
C1/C2	4.7μF/50V
C3	Refer to the Cout in Fig.2
C4	1000μF/35V
LCM1	2.2mH
CY1/CY2	2.2nF/2kV

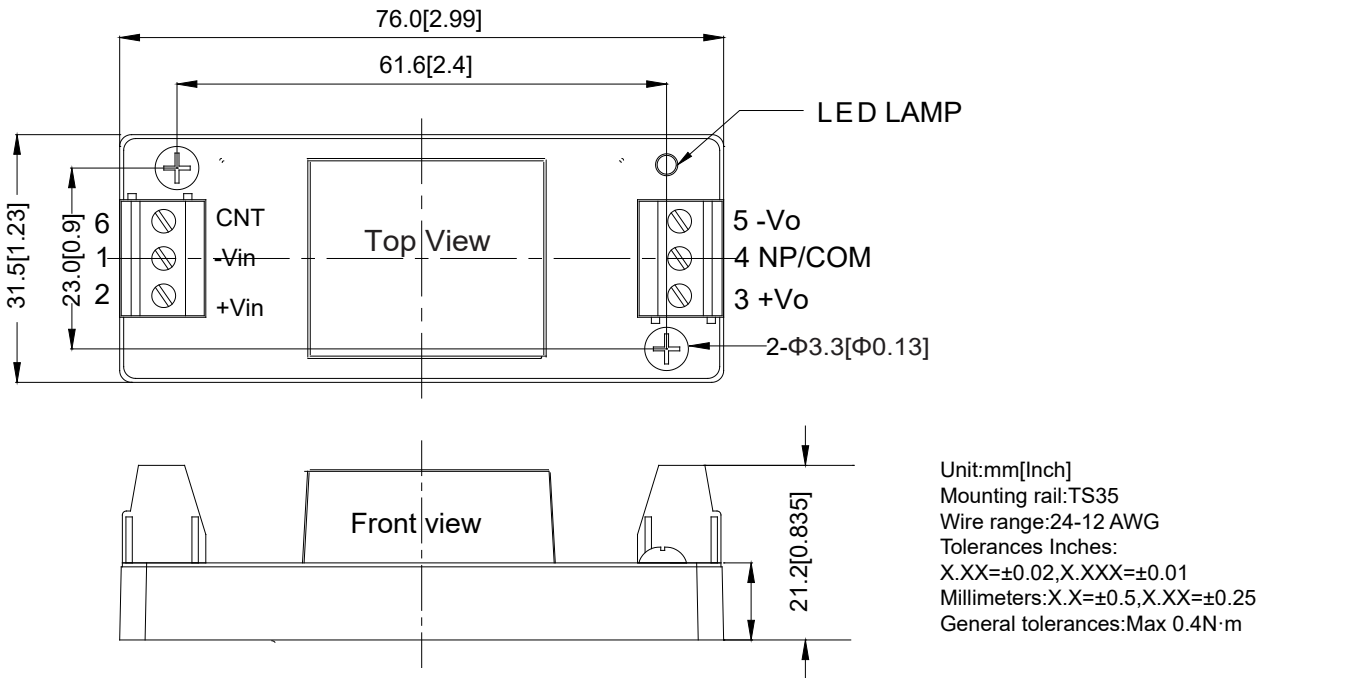
- 3. The products do not support parallel connection of their output.
- 4. For additional information please refer to DC-DC converter application notes on WWW.CHAWENS.COM

Dimensions and Recommended Layout

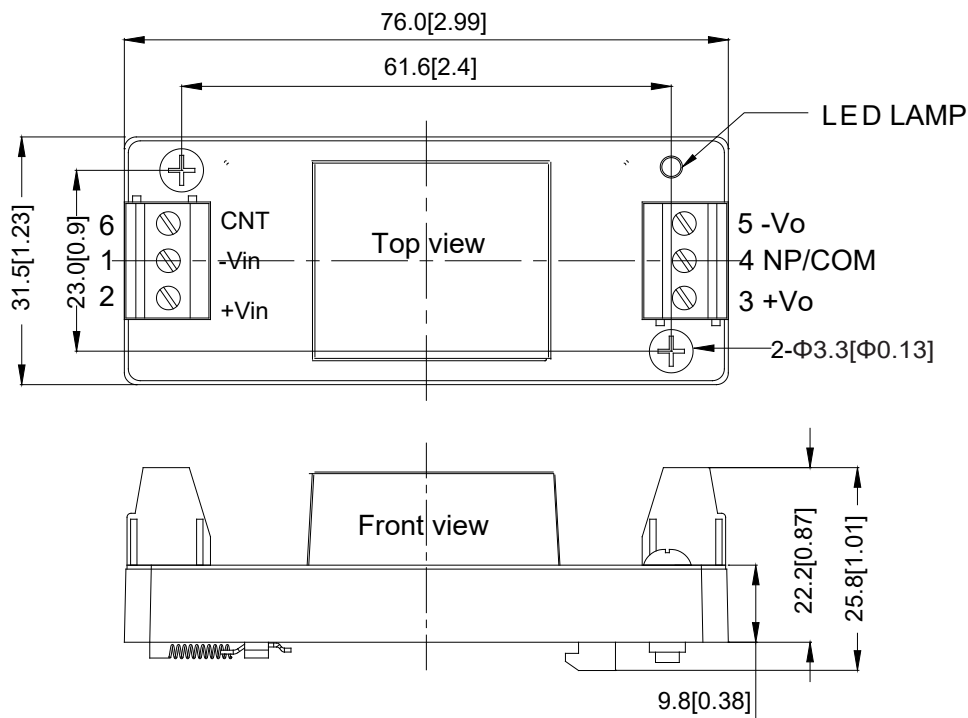


Pin	1	2	3	4	5
Single	+Vin	- Vin	- Vo	NP	+Vo
Dual	+Vin	- Vin	-Vo2	COM	+Vo1

Z1 Dimensions



Z Dimensions



1. The recommended unbalance degree of the dual output module load is $\leq 5\%$; 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;
2. The maximum capacitive load offered were tested at nominal input voltage and full load;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^\circ\text{C}$, humidity<75% with nominal input voltage and rated output load;
The maximum capacitive load offered were tested at nominal input voltage and full load;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
6. Specifications are subject to change without prior notice.



Beijing Huayang Changfeng Technology Co.,Ltd.

Address: No.25, torch South Street, Zhuzhou Development Zone, Hebei Province, people's Republic of China

Tel: 86-10-68817997

Mobile phone: 15600309099

E-mail: sales@chewins.net