FEATURES:

- Ultra-wide 4:1 input voltage range
- High efficiency up to 90%
- Reinforced I/O isolation test voltage 1500VDC
- Operating ambient temperature range-40℃to +70℃
- Input under-voltage protection,output short circuit,over-current,over–voltage protection
- Low out put ripple/noise
- EN50121-3-2/CISPR32/EN55032 CLASS A EMI compliant without external components
- EN50155/EN60950 Approval
- Designed to meet UL 62368/IEC62368 standard
- The tail fix Z(guide rail type)product model has the function of input anti reverse connection
- Industry standard pin-out

10W isolated DC-DC converter with Ultra-wide Input and Regulated Single Output

RoHS

Selection Guide

Certification	PartNo.①	InputVoltage(VDC)		Output		Full Load Efficiency ③(%) Min./Typ.	Max. Capacitive Load(μF)
		Nominal (Range)	Max. ②	Voltage(VDC)	Current(mA) Max./Min.		
	CFDA10-110S03	110 (40-160)	170	3.3	2400/0	82/84	5400
	CFDA10-110S05			5	2000/0	84/86	5400
	CFDA10-110S12			12	833/0	86/88	470
	CFDA10-110S15			15	667/0	86/88	330
	CFDA10-110S24			24	417/0	88/90	100

Note:
①Use“S”suffix for heat sink mounting,“Z”suffix for DIN-Rail mounting.Were commend to choose modules with a heat sink for enhanced heat dissipation and applications with extreme temperature requirements;
②Absolute maximum stress rating without damage(not recommended);
③Efficiency is measured at nominal input voltage and rated outputload;Z Model'sisdecreased by 2%due to the input reverse polarity protection circuit.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current(full load/no-load)	Nominal input voltage	3.3V output	--	95/3	98/8	mA
		Others	--	110/3	117/8	
Reflected Ripple Current	Nominal input voltage		--	25	--	
Surge Voltage(1sec.max.)			-0.7	--	180	VDC
Start-up Voltage	100% load		--	--	40	
Shut-down Voltage			28	33	--	
Start-up Time	Nominal input voltage/constant resistance load		--	10	--	ms
Input Filter			Pi filter			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Voltage Accuracy	0%-100%load		--	±1	±3	%
Linear Regulation	Input voltage variation from low to high at full load		--	±0.2	±0.5	
Load Regulation	0%-100% load		--	±0.5	±1	%
Transient Recovery Time	25% load step change, nominal input voltage		--	300	500	μs
Transient Response Deviation		3.3V/5V output	--	±3	±8	%
		Others	--	±3	±5	
Temperature Coefficient	Full load		--	±0.02	±0.03	%/℃
Ripple/Noise ①	20MHz bandwidth,5%-100% load		--	50	100	mVp-p
Over-voltage Protection	Input voltage range		110	--	160	%Vo
Over-current Protection			120	--	210	%Io
Short-circuit Protection			Continuous,self-recovery			

Note:①Ripple/Noiseat＜5% load is 5%Vo max.The"parallelcable"method is used for Ripple and Noise test Notes for specific info rmation.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 1 mA max.	1500	--	--	VDC
	Input/output-case Electric Strength Test for 1 minute with aleakage current of 1mA max.	1000	--	--	
Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output capacitance at 100KHz/0.1V	--	2200	--	pF
Operating Temperature	See Fig.1	-40	--	+70	℃
Storage Temperature		-55	--	+125	
Pin Soldering Resistance Temperature	Soldering spot is1.5mm away from case for 10 seconds	--	--	300	
Storage Humidity	Non-condensing	5	--	95	%RH
Vibration		IEC61373-Category 1,Grade B			
Switching Frequency ①	PWM Mode	--	300	--	KHz
MTBF	MIL-HDBK-217F@25℃	1000	--	--	K hours

Note:①Switching frequency is measured at fullload.The module reduces the switching frequency for light load (below50%)efficiency improvement.

Mechanical Specifications

Case Material	Aluminum alloy		
Dimensions	Horizontal package(without heat sink)		25.4×25.4×11.7mm
	Z Din-rail mounting(with heat sink)		76.0×31.5×29.9mm
Weight	without heat sink	Horizontalpackage Z Din-rail	26.0g/68.0g(Typ.)
Cooling Methods	Freeair convection		

Elec tromagnetic compatibility (EMC) (EN60950)

Emissions	CE	CISPR32/EN55032	CLASS A (without external components)/CLASSB(see Fig.3 or Fig.4 for recommended circuit)	
	RE	CISPR32/EN55032	CLASS A (without external components)/CLASS B(see Fig.3 or Fig.4 for recommended circuit)	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	perf.Criteria B
	RS	IEC/EN61000-4-3	20V/m	perf.Criteria A
	EFT	IEC/EN61000-4-4	±4KV(see Fig.3 or Fig.4 for re commended circuit)	perf.Criteria B
	Surge	IEC/EN61000-4-5	line to line ±2KV(2Ω18uF see Fig.3 for recommended circuit) line to ground ±4KV(12Ω9uF see Fig.3 for recommended circuit)	perf.Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s	perf.Criteria A

Elec tromagnetic Compatibility (EMC) (EN50155)

Emissions	CE	EN50121-3-2 150kHz-500kHz 99d BuV EN55016-2-1 500kHz-30MHz93d BuV	
	RE	EN50121-3-2 30MHz-230MHz 40dBuV/m at 10m EN55016-2-1 230MHz-1GHz 47dBuV/m at 10m	
Immunity	ESD	EN50121-3-2 Contact ±6KV/Air ±8KV	perf.Criteria B
	RS	EN50121-3-2 20V/m	perf.Criteria A
	EFT	EN50121-3-2 ±2kV 5/50ns 5kHz	perf.Criteria A
	Surge	EN50121-3-2 line to line ±1KV(42Ω,0.5μF) line to ground±2KV(42Ω,0.5μF)	perf.Criteria B
	CS	EN50121-3-2 0.15MHz-80MHz 10Vr.m.s	perf.Criteria A

Note:All the tests are measured under the conditions of input scapacitor 100uF/200V

Typical Charac teristic Curves

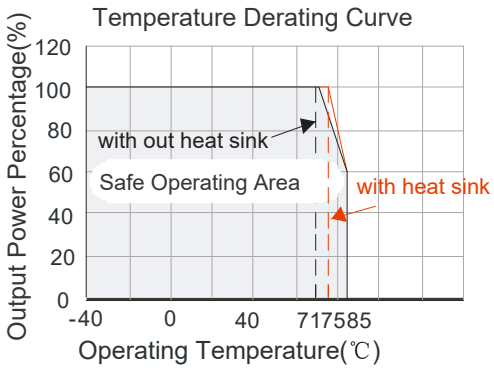


Fig.1

Design Reference

1.Typical application

All the 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 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 max. capacitive load value of the product.

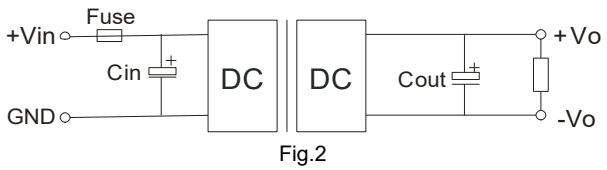


Fig.2

Vout(VDC)	Fuse	Cin	Cout
3.3/5	2A,slow blow	10μF-47μF	100μF
12/15			47μF
24			22μF

2.EMC compliance circuit

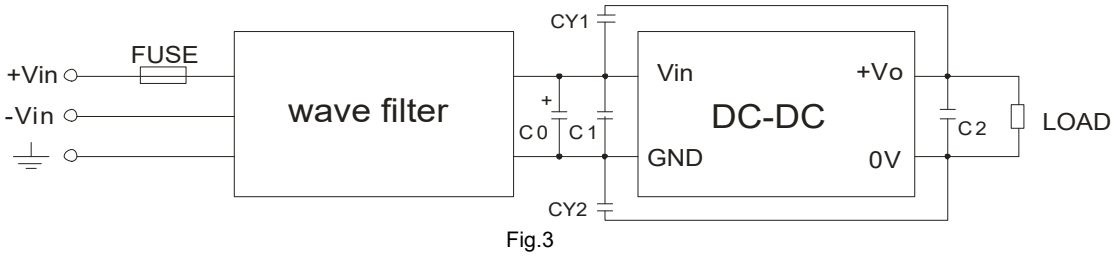


Fig.3

Fig.3 List of components:

FUSE	Choose according to actual input current
wave filter	Input voltage range:40V-160V
C0	100μF/200V
C1	Refer to the Cin in Fig.2
C2	Refer to the Cout in Fig.2
CY1, CY2	1000pF/400VAC

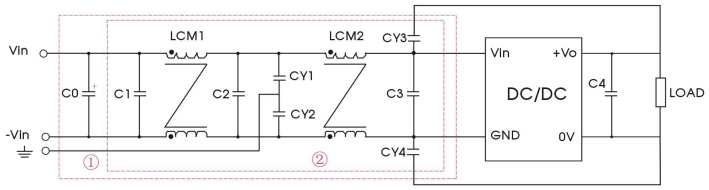


Fig.4

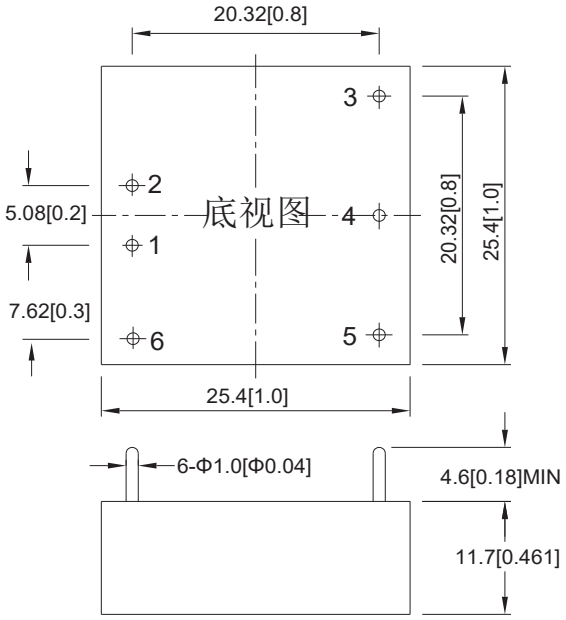
Notes:Part ①in the Fig.4 is used for EMC test and part② for EMI test

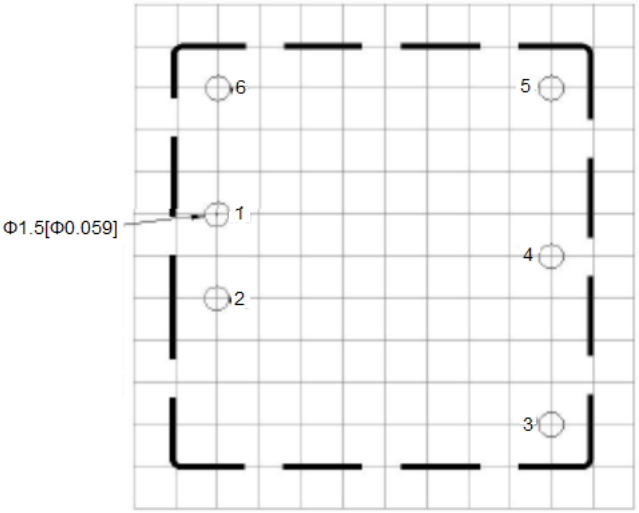
Fig.4 Lis to fcomponents:

C0	100μF/200V
C1,C2	0.22μF/250V
C3	Refer to the Cin in Fig.2
LCM1	2.2mH
LCM2	1.1mH
CY1, CY2, CY3, CY4	1000pF/400VAC
C4	Refer to the Cout in Fig.2

3.The productsdonotsupportparallelconnectionoftheir output

Horizontal Package (without heat sink) Dimensions and Recommended Layout

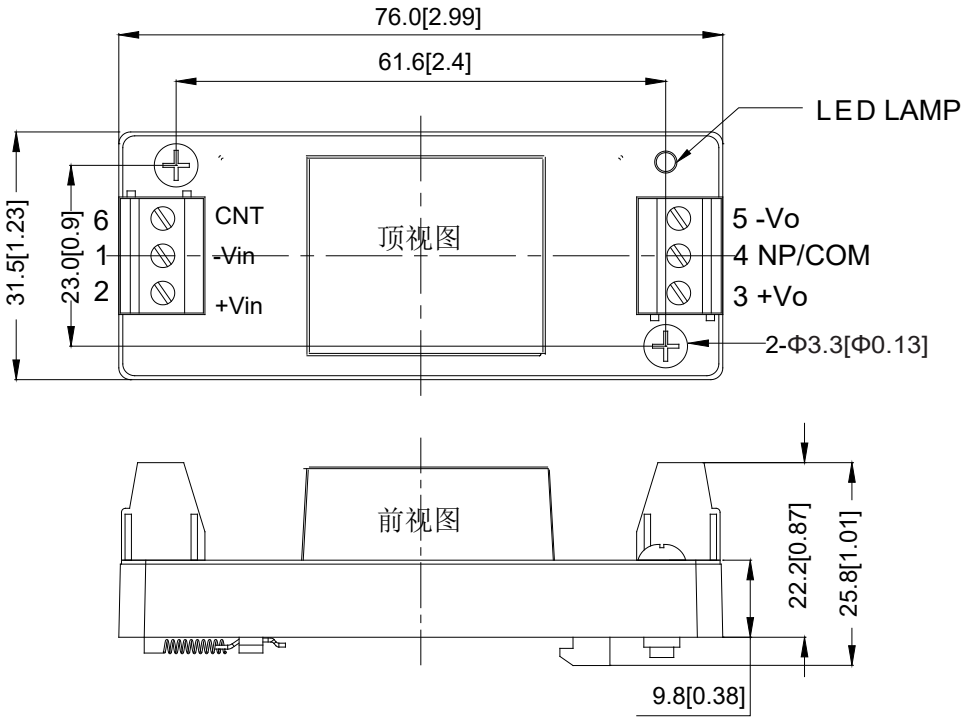




Unit:mm[Inch]
Wire range:24-12 AWG
Tolerances Inches:
X.XX=±0.02,X.XXX=±0.01
Millimeters:X.X=±0.5,X.XX=±0.25

Pin	1	2	3	4	5	6
Single	-Vin	+Vin	+Vo	NP	-Vo	CNT
Dual	-Vin	+Vin	+Vo1	COM	-Vo2	CNT

Tailing Z (rail type) size:



Unit:mm[Inches]
Mounting rail:TS35
Wire range:24-12 AWG
Tolerances Inches:
X.XX=±0.02,X.XXX=±0.01
Millimeters:X.X=±0.5,X.XX=±0.25
General tolerances:Max 0.4N·m

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