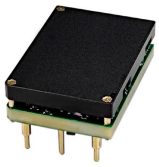
Descriptions

100W isolated，DC-DC Converter




RoHS

UL62368-1　　EN62368-1　　BS EN62368-1

Features

- Wide input voltage range: 36V-75V
- High efficiency up to 92%
- I/O isolation test voltage 1500 VDC
- Input under-voltage protection, output short circuit, over-current, over-voltage protection
- Operating ambient temperature range: -40℃ to +85℃
- Industry standard package: 1/16 brick, meet DOSA standard

Applications

- Switches
- Repeaters
- Intelligent communication gateways
- GPS synchronous clock
- 4G/5G base station etc

Selection Guide

Certification	Part No. ①	Ctrl Logic②	Input Voltage (VDC)		Output		Full Load Efficiency④ (%) Min./Typ.	Capacitive Load (uF)Max.
			Nominal (Range)	Max.③	Voltage (VDC)	Current(mA) Max./Min.		
UL/EN/BS EN	DOSB100-B4805	P	48 (36-75)	80	05	20000/0	90/92	6000
UL	DOSB100-B4805F							
EN /BS EN	DOSB100-B4812(F)				12	8333/0	90/92	2000
	DOSB100-B4828(F)				28	3571/0	88/90	1000
--	DOSB100-B4803N	N			3.3	25000/0	88/90	15000
UL/EN/BS EN	DOSB100-B4805(F)N				05	20000/0	90/92	6000
	DOSB100-B4812(F)N				12	8333/0	90/92	2000
EN/BS EN	DOSB100-B4815(F)N				15	6667/0	90/92	2000
	DOSB100-B4828N				28	3571/0	88/90	1000
--	DOSB100-B4828FN							

Notes:
①Use suffix "F" for the heat sink package;
② "P" means positive logic, "N" means negative logic;
③Exceeding the maximum input voltage may cause permanent damage;
④Efficiency is measured in nominal input voltage and rated output load;
⑤Product 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)		Nominal input voltage	5/12/15V output	--	2264/10	2315/30	mA
				3.3/28V output	--	2315/10	2367/30	
	Reflected Ripple Current				--	30	--	
	Surge Voltage (1sec. max.)				-0.7	--	80	VDC
	Start-up Voltage				--	--	36	
	Input Under-voltage Protection				26	29	--	
	Start-up Time		Nominal input voltage & constant resistance load		--	--	100	ms
	Input Filter				Pi filter			
	Hot Plug				Unavailable			
	Ctrl①	Positive logic	Module on		Ctrl pin open or pulled high (TTL 4.5-12VDC)			
			Module off		Ctrl pin pulled low to -Vin (0-1.2VDC)			
			Input current when off		--	3	10	mA
		Negative logic	Module on		Ctrl pin pulled low to -Vin (0-1.2VDC)			
			Module off		Ctrl pin open or pulled high (TTL 4.5-12VDC)			
			Input current when off		--	3	10	mA
Output Specifications	Voltage Accuracy		5%-100% load		--	±1	±3	%Vo
	Linear Regulation		Input voltage variation from low to high at full load		--	±0.2	±0.5	
	Load Regulation②		5%-100% load		--	±0.5	±0.75	
	Transient Recovery Time		25% load step change		--	200	500	μs
	Transient Response Deviation		25% load step change	5V output	--	±3	±8	%Vo
				Others	--	±3	±7	
	Temperature Coefficient		Full load		--	--	±0.03	%/℃
	Ripple & Noise③		20MHz bandwidth, nominal input voltage, 5%-100% load		--	100	150	mVp-p
	Trim				90	--	110	%Vo
	Sense				--	--	105	
	Over-voltage Protection		Input voltage range		110	125	160	
	Over-current Protection				110	140	190	%Io
	Short-circuit Protection				Continuous, self-recovery			
General Specifications	Isolation Voltage		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 Fig1		-40	--	+85	℃
	Storage Temperature				-55	--	+125	
	Storage Humidity		Non-condensing		5	--	95	%RH

	Shock and Vibration Test		10-55Hz, 10G, 30Min. along X, Y and Z			
	Switching Frequency ④	PWM mode	--	300	--	kHz
	MTBF	MIL-HDBK-217F@25℃	500	--	--	k hours
Mechanical Specifications	Dimensions	DOSB100-B4803/05/12/15(N)	33.02 × 22.86 × 9.75 mm			
		DOSB100-B4805/12/15F(N)	33.02 × 22.86 × 12.70 mm			
		DOSB100-B4828(N)	33.02 × 22.86 × 10.05 mm			
		DOSB100-B4828F(N)	33.02 × 22.86 × 13.00 mm			
	Weight	DOSB100-B48xx(N)	14.60g (Typ.)			
		DOSB100-B48xxF(N)	21.40g (Typ.)			
	Cooling method	Natural convection or forced air convection				

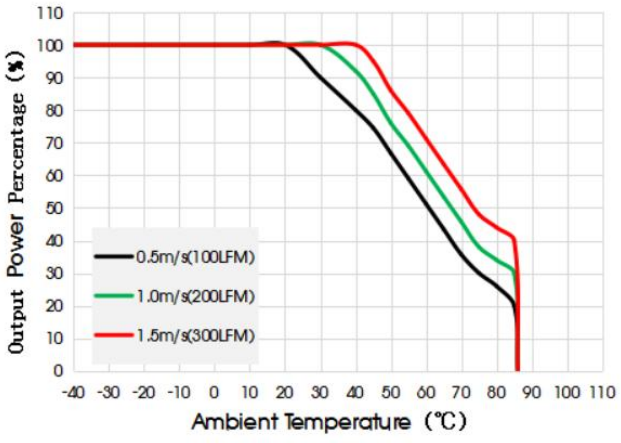
Note:
①The Ctrl pin voltage is referenced to input -Vin;
②Linear Regulation at 0%-100% load is ±3% max;
③The "Tip and barrel" method is used for ripple and noise test, Ripple & Noise at <5% load is 5%Vo max, Ripple & Noise at 28V output is 2%Vo max;
④Switching frequency is measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.

Electromagnetic Compatibility (EMC)

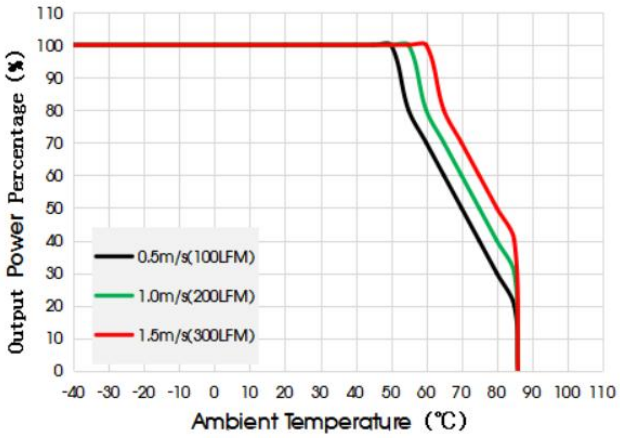
Emissions	CE	CISP2/EN55032	CLASS A (see Fig.4 for recommended circuit)/CLASS B (see Fig.5 for recommended circuit)
	RE	CISP2/EN55032	CLASS A (see Fig.4 for recommended circuit)/CLASS B (see Fig.5 for recommended circuit)
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m perf. Criteria B
	EFT	IEC/EN61000-4-4	100kHz ±2kV (see Fig.4 for recommended circuit) perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line ±2kV (see Fig.4 for recommended circuit) perf. Criteria B
	CS	IEC/EN61000-4-6	3 Vr.m.s perf. Criteria B

Characteristic Curve

DOSB100-B48xx(N) Temperature Derating Curves

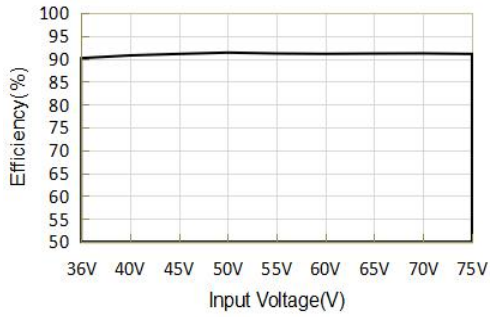


DOSB100-B48xxF(N) Temperature Derating Curves



DOSB100-B4805(F)

Efficiency Vs Input Voltage (Full Load)



DOSB100-B4805(F)

Efficiency VsOutput Load (Vin=48V)

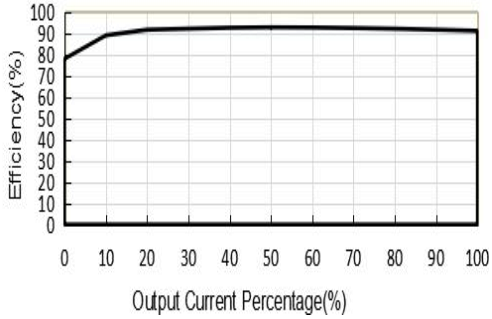
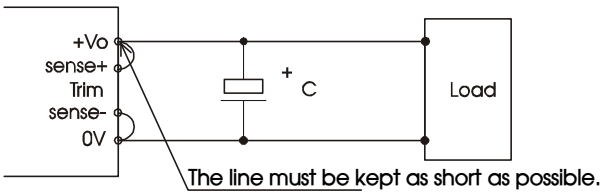


Fig.1

Note: For preliminary evaluation only.

Remote Sense Application

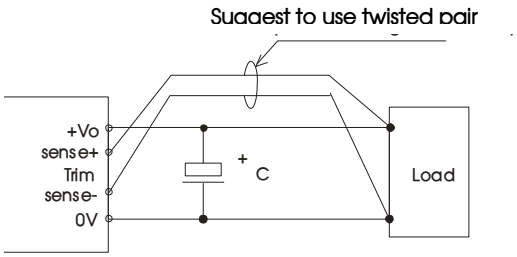
1. Remote Sense Connection if not used



Notes:

1. If the sense function is not used for remote regulation the user must connect the +Sense to + Vo and -Sense to 0V;
2. The connections between Sense lines and their respective power lines must be kept as short as possible, otherwise they may be picking up noise, interference and/or causing unstable operation of the power module.

2. Remote Sense Connection used for Compensation



Notes:

1. Using remote sense with long wires may cause unstable output, please contact technical support if long wires must be used.
2. PCB-tracks or cables/wires for Remote Sense must be kept as short as possible. Twisted pair or shielded wairs are suggested for remote compensation and must be kept as short as possible.
3. We recommend using adequate cross section for PCB-track layout and/or cables to connect the power supply module to the load in order to keep the voltage drop below 0.3V and to make sure the power supply's output voltage remains within the specified range.
4. Note that large wire impedance may cause oscillation of the output voltage and/or increased ripple. Consult technical support or factory for further advice of sense operation.

Design Reference

1. Ripple & Noise

All the DC-DC converters of this series are tested before delivery using the recommended circuit shown in Fig. 2.

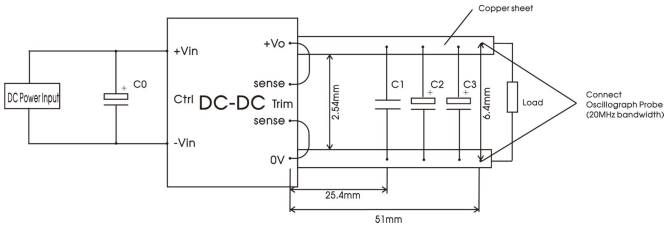


Fig. 2

Capacitors value / Output voltage	C0	C1	C2	C3
3.3/5VDC	100μF/ 100V	1μF/ 50V	10μF/ 50V	330μF/ 63V
12/15VDC				
28VDC				

2. Typical application

①We recommended using EMC circuit, otherwise please ensure that at least a 100μF electrolytic capacitors is connected at the input in order to ensure adequate voltage surge suppression and protection.

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. 3

Capacitors value / Output voltage	Cin	Cout
3.3/5VDC	100μF/100V	330μF/63V
12/15VDC		
28VDC		

3. EMC compliance recommended circuit

DOSB100-B4803/05/12/15/28(F)(N)

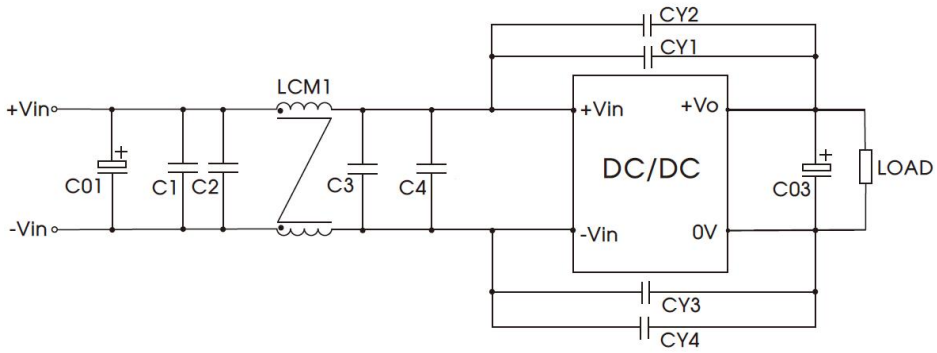
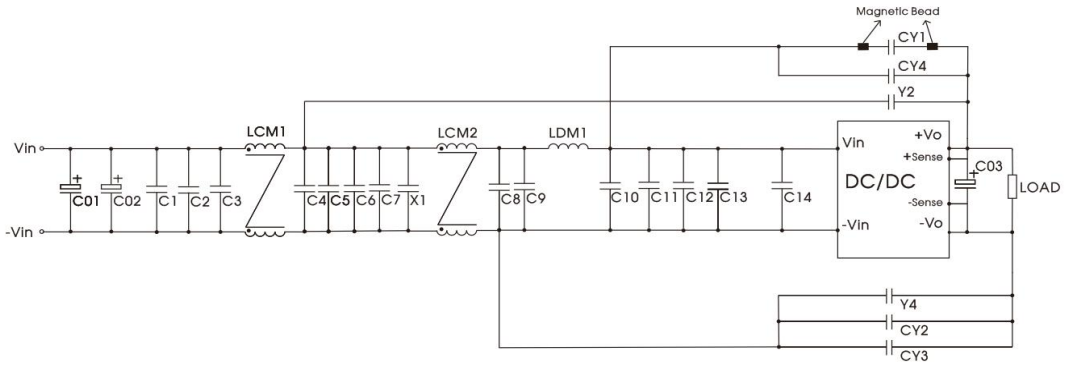


Fig. 4

C01	2000uF/100V electrolytic capacitor
C03	330uF/100V electrolytic capacitor
C1、C2、C3、C4	4.7uF/100V
CY1、CY2、CY3、CY4	222M/400V
LCM1	2.0mH

DOSB100-B4803/05/12/15(F)(N)



C01、C02	1000μF/100V/electrolytic capacitor
C03	330μF/100V/electrolytic capacitor
C1、C2、C3、C4、C5、C6、C7、C8、C9、C10、C11、C12、C13、C14	4.7μF/100V
X1	0.22μF/250V
Y1、Y3、CY3、CY4	102M/400V
Y2	332M/400V
CY1、CY2	222M/400V
LCM1	60μH/TL15
LCM2	2.2μH
LDM1	12μH
MB	B40/T3.5*1.5*2.35HP (ACME)

DOSB100-B4828(F)(N)

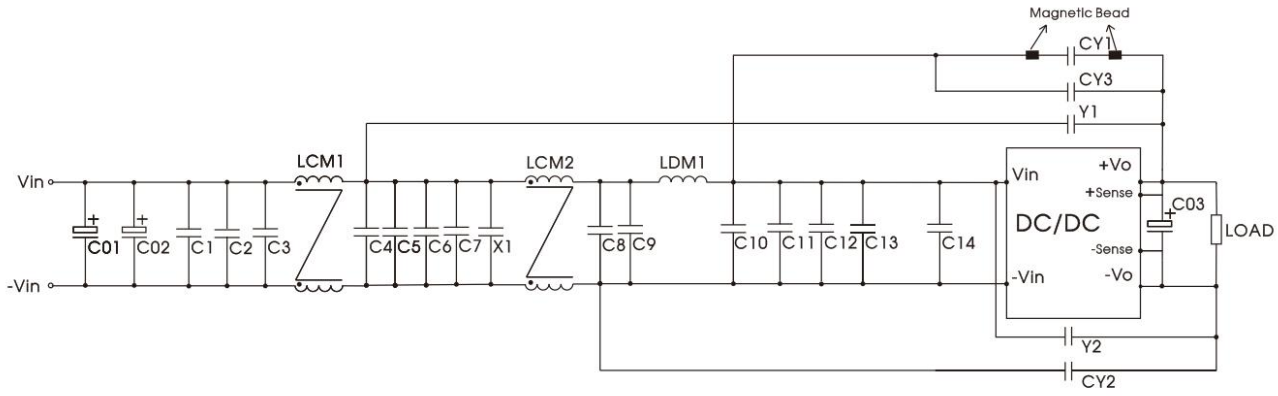
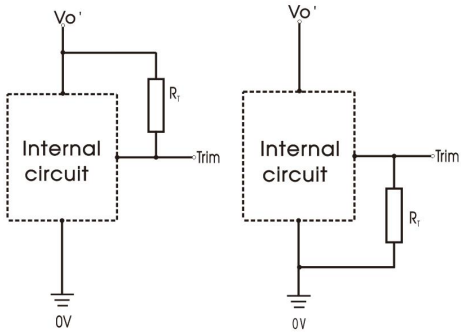


Fig.5

C01、C02	1000μF/100V/electrolytic capacitor
C03	330μF/100V/electrolytic capacitor
C1、C2、C3、C4、C5、C6、C7、C8、C9、C10、C11、C12、C13、C14	4.7μF/100V
X1	0.22μF/250V
Y1、CY3	102M/400V
Y2、CY2	332M/400V
CY1	222M/400V
LCM1	60μH/TL15
LCM2	2.2μH
LDM1	12μH
MB	B40/T3.5*1.5*2.35HP (ACME)

4. Trim Function for Output Voltage Adjustment (open if unused)



Trim up　　Trim down

TRIM resistor connection (dashed line shows internal resistor network)

Calculating Trim resistor values:

Trim up

$$R_T = \left(\frac{5.11 V_{nom}(100+\Delta\%)}{1.225\Delta\%} - \frac{511}{\Delta\%} - 10.22 \right)(k\Omega)$$

Trim down

$$R_T = \left(\frac{511}{\Delta\%} \right) - 10.22(k\Omega)$$

Note:

RT = Trim Resistor value

$$\Delta\% = \left| \frac{V_{nom} - V_{out}}{V_{nom}} \right| \times 100$$

V_{nom} = nominal output voltage

V_{out} = desired output voltage

5. Thermal test point

The thermal element is installed on the top surface of the product and dissipates heat to the surrounding environment by conduction, convection and radiation, sufficient cooling conditions shall be provided to ensure raliable operation of the product. It can be verified that cooling conditions are met by measuring the temperature of thermal test point ① in Fig.6.

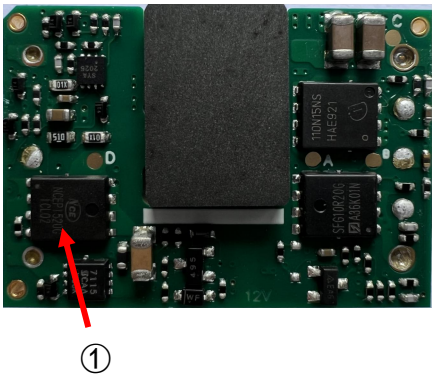


Fig. 6

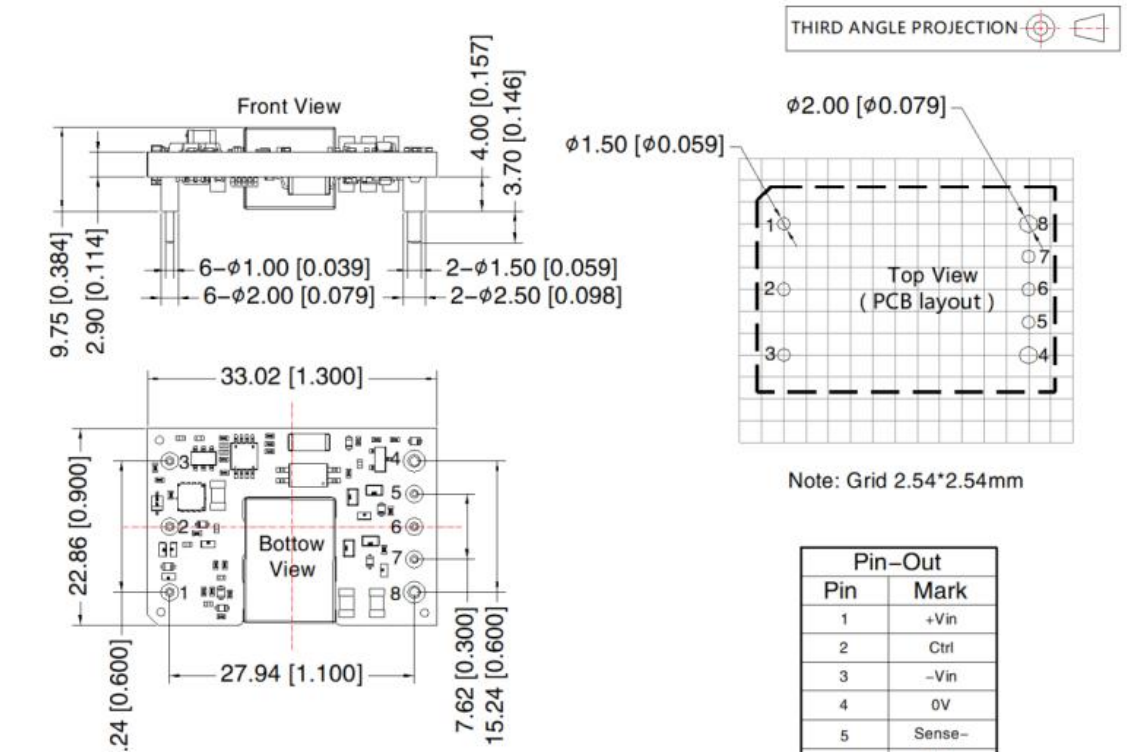
Note:

1、The temperature of the negative logic series Thermal Test Point ① cannot exceed 130℃. Othewise, the product will trigger the protection due to excessive temperature and can not work properly.

2、Positive logic series without over-temperature protection function, the temperature of Thermal Test Point ① cannot exceed 130℃. Othewise, the product will be damaged due to excessive temperature.

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

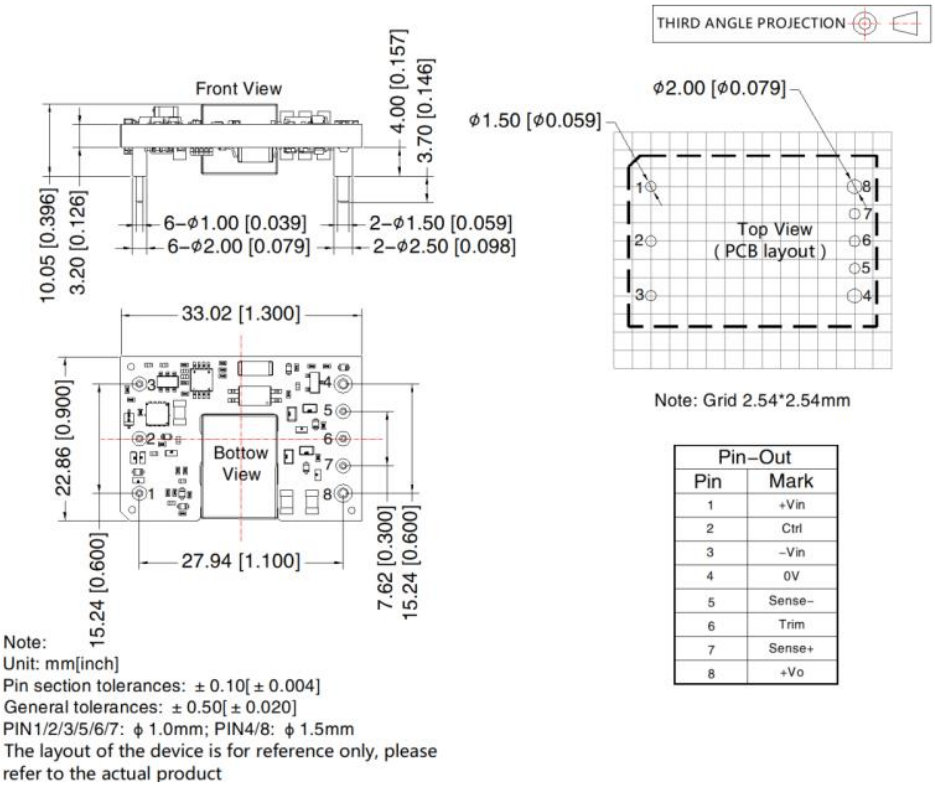
DOSB100-B4803/05/12/15(N) Dimensions and Recommended Layout



Pin-Out	
Pin	Mark
1	+Vin
2	Ctrl
3	-Vin
4	0V
5	Sense-
6	Trim
7	Sense+
8	+Vo

Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]
PIN1/2/3/5/6/7: ϕ 1.0mm; PIN4/8: ϕ 1.5mm
The layout of the device is for reference only, please refer to the actual product

DOSB100-B4828(N) Dimensions and Recommended Layout

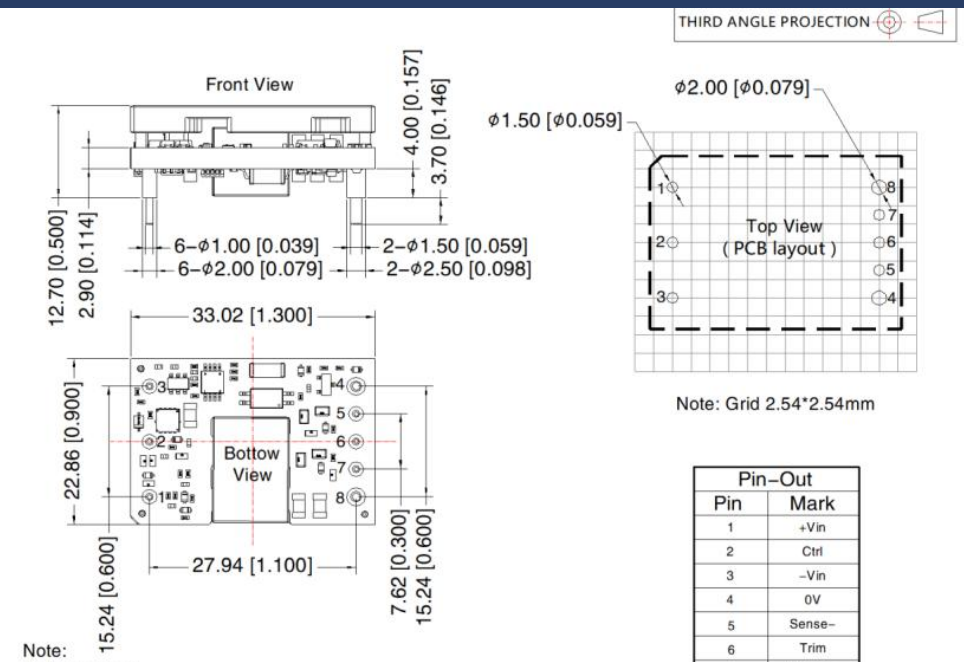


Note: Grid 2.54*2.54mm

Pin–Out	
Pin	Mark
1	+Vin
2	Ctrl
3	–Vin
4	0V
5	Sense–
6	Trim
7	Sense+
8	+Vo

Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]
PIN1/2/3/5/6/7: ϕ 1.0mm; PIN4/8: ϕ 1.5mm
The layout of the device is for reference only, please refer to the actual product

DOSB100-B4805/12/15F(N) Dimensions and Recommended Layout

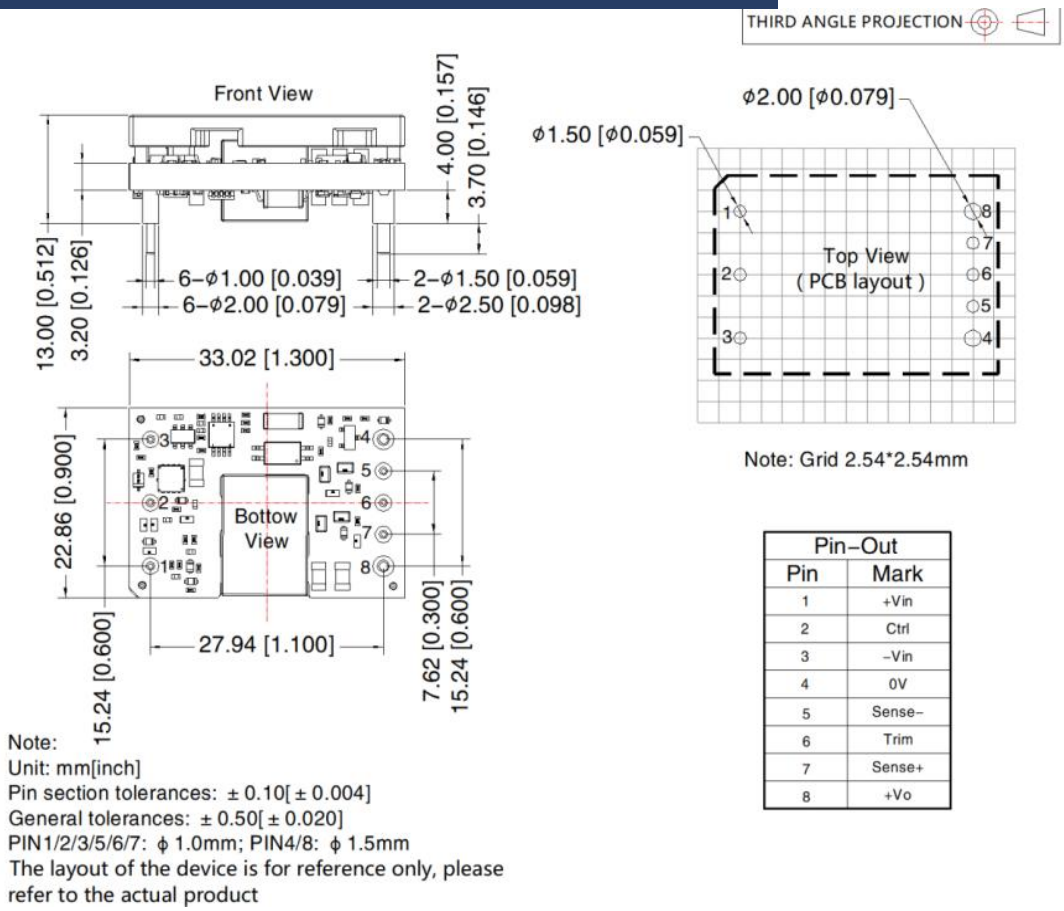


Note: Grid 2.54*2.54mm

Pin–Out	
Pin	Mark
1	+Vin
2	Ctrl
3	–Vin
4	0V
5	Sense–
6	Trim
7	Sense+
8	+Vo

Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]
PIN1/2/3/5/6/7: ϕ 1.0mm; PIN4/8: ϕ 1.5mm
The layout of the device is for reference only, please refer to the actual product

DOSB100-B4828F(N) Dimensions and Recommended



Pin–Out	
Pin	Mark
1	+Vin
2	Ctrl
3	–Vin
4	0V
5	Sense–
6	Trim
7	Sense+
8	+Vo

Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]
PIN1/2/3/5/6/7: ϕ 1.0mm; PIN4/8: ϕ 1.5mm
The layout of the device is for reference only, please refer to the actual product

Note:

1. It is recommended to use at more than 10% load. If the load is lower than 10%, the ripple of the product may exceed the specifications, but the reliability of the product is not affected.
2. If the product operates under the minimum required losd, the product performance cannot be guaranteed to meet all performance indicators in this manual.
3. The maximum capacitive load offered were tested at input voltage range and full load;
4. 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;
5. All index testing methods in this datasheet are based on company corporate standards;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. 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.