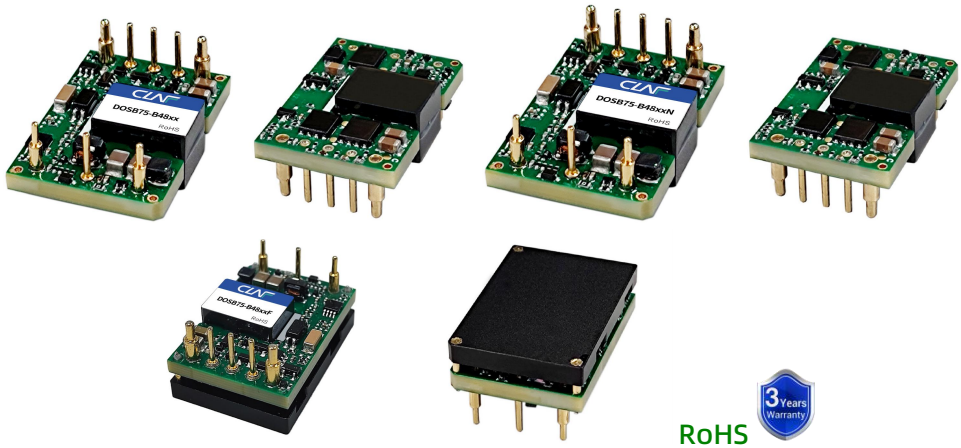
Descriptions

75W isolated，DC/DC Converter



RoHS

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

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

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.		
EN /BS EN	DOSB75-B4805	P	48 (36-75)	80	05	15000/0	90/92	6000
	DOSB75-B4812				12	6250/0	90/92	2000
	DOSB75-B4828				28	2678/0	88/90	1000
	DOSB75-B4805F				05	15000/0	90/92	6000
	DOSB75-B4812F				12	6250/0	90/92	2000
	DOSB75-B4828F				28	2678/0	88/90	1000
	DOSB75-B4805N	N			05	15000/0	90/92	6000
	DOSB75-B4812N				12	6250/0	90/92	2000
	DOSB75-B4828N				28	2678/0	88/90	1000
	DOSB75-B4805FN				05	15000/0	90/92	6000
	DOSB75-B4812FN				12	6250/0	90/92	2000
	DOSB75-B4828FN				28	2678/0	88/90	1000

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.

Specifications

Product Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Current (full load / no-load)			--	1699/10	1776/30	mA
	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	DOSB75-B48xx(F)	Module on	Ctrl pin open or pulled high (TTL 4.5-12VDC)			
			Module off	Ctrl pin pulled low to GND (0-1.2VDC)			
			Input current when off	--	3	10	mA
		DOSB75-B48xx(F)N	Module on	Ctrl pin pulled low to GND (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	us
	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	Input voltage range		90	--	110	%Vo
	Sense			--	--	105	
	Over-voltage Protection			110	125	160	%Vo
	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 ①	PWM mode	--	300	--	kHz
	MTBF	MIL-HDBK-217F@25℃	500	--	--	k hours
Mechanical Specifications	Dimensions	DOSB75-B4805/12(N)	33.02 × 22.86 × 9.75 mm			
		DOSB75-B4805/12F(N)	33.02 × 22.86 × 12.70 mm			
		DOSB75-B4828(N)	33.02 × 22.86 × 10.05 mm			
		DOSB75-B4828F(N)	33.02 × 22.86 × 13.00 mm			
	Weight	DOSB75-B48xx(N)	14.60g (Typ.)			
		DOSB75-B48xxF(N)	21.40g (Typ.)			
	Cooling method	Natural convection or forced air convection				

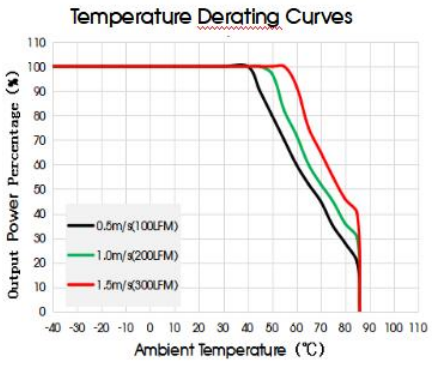
Note:
①The Ctrl pin voltage is referenced to input GND;
②Linear Regulation at 0%-100% load is ±3% max;
③The "Tip and barrel" method is used for ripple and noise test, Ripple & Noise at <5% load is 5%Vo max, Ripple & Noise at 28V output is 2%Vo max;
④Switching frequency is measured at full load. The module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

Electromagnetic Compatibility (EMC)

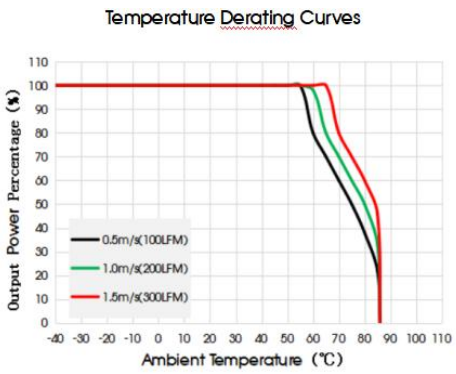
Emissions	CE	CISP2/EN55032 CLASS A (see Fig.4 for recommended circuit) /CLASS B (see Fig.5 for recommended circuit)	
	RE	CISP2/EN55032 CLASS A (see Fig.4 for recommended circuit) /CLASS B (see Fig.5 for recommended circuit)	
Immunity	ESD	IEC/EN61000-4-2 Contact ±6kV/Air ±8KV	perf. Criteria B
	RS	IEC/EN61000-4-3 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

DOSB75-B48xx

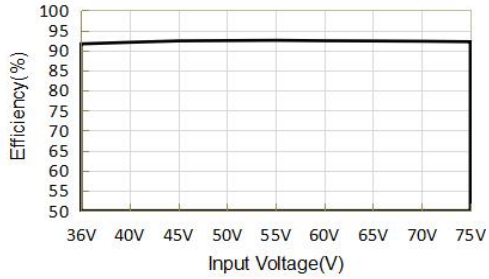


DOSB75-B48xxF



DOSB75-B4805(F)

Efficiency Vs input Voltage (Full Load)



DOSB75-B4805(F)

Efficiency Vs Output Load (Vin=48V)

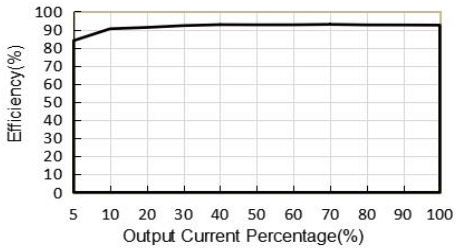
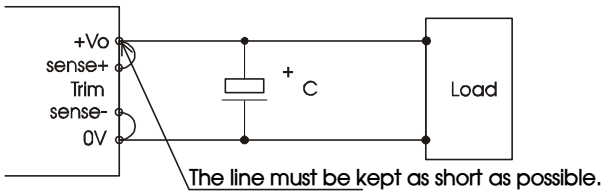


Fig.1

Note: For preliminary evaluation only.

Remote Sense Application

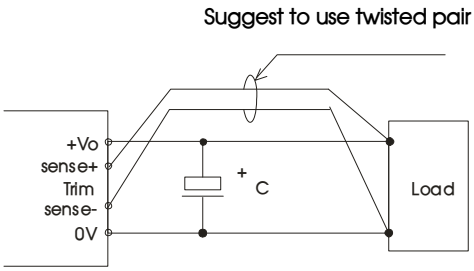
1. Remote Sense Connection if not used



Notes:

1. If the sense function is not used for remote regulation the user must connect the +Sense to + Vo and -Sense to 0V at the DC-DC converter pins and will compensate for voltage drop across pins only.
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.

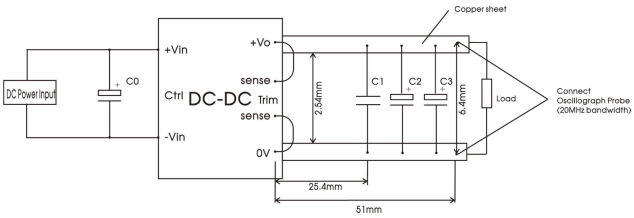


Fig. 2

Parameter explaination:

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

2. Typical application

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

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 specified max. capacitive load value of the product.



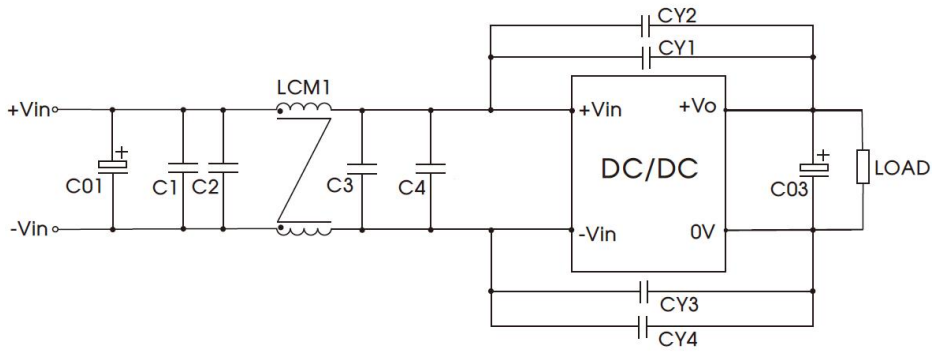
Fig. 3

Parameter explaination:

Capacitors value / Output voltage	Cin	Cout
5VDC	100uF/100V	330uF/63V
12VDC		
28VDC		

3. EMC compliance recommended circuit

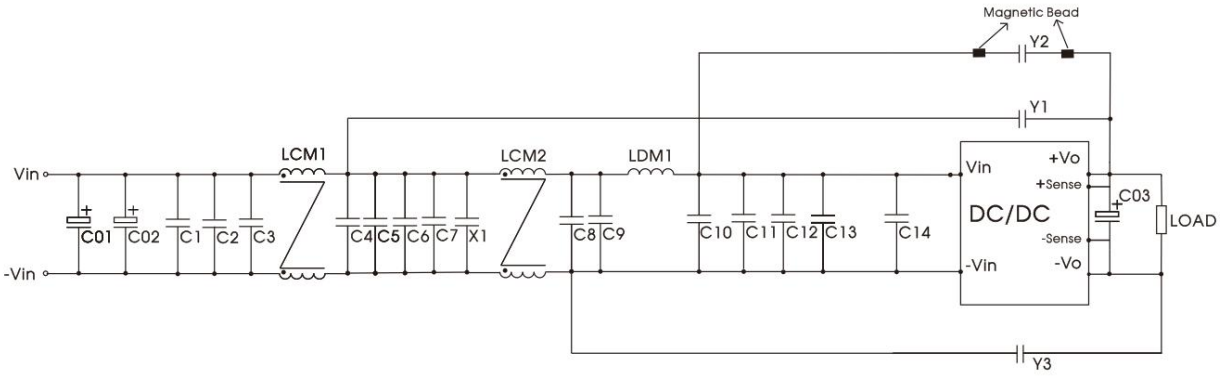
DOSB75-B4805/12/28(F)(N)



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

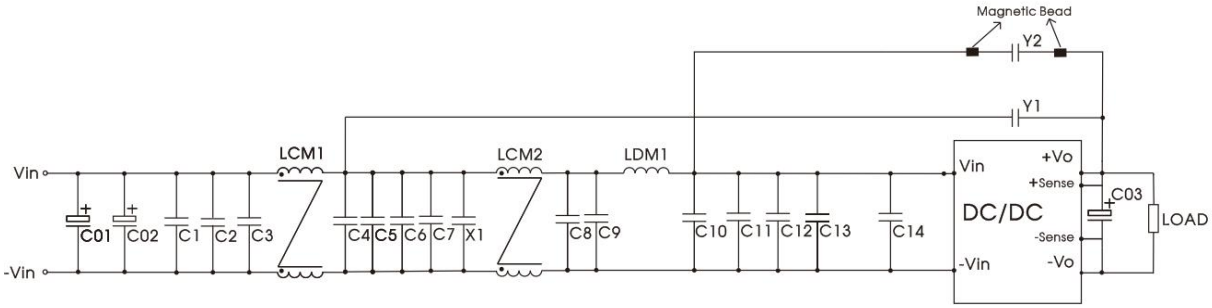
Fig. 4

DOSB75-B4805/12(F)(N)



C01、C02	1000uF/100V/electrolytic capacitor
C03	330uF/100V/electrolytic capacitor
C1、C2、C3、C4、C5、C6、C7、C8、C9、C10、C11、C12、C13、C14	4.7uF/100V
X1	0.22uF/250V
Y1、Y3	102M/400V
Y2	222M/400V
LCM1	60uH/TL15
LCM2	2.0uH
LDM1	12uH
MB	B40/T3.5*1.5*2.35HP (ACME)

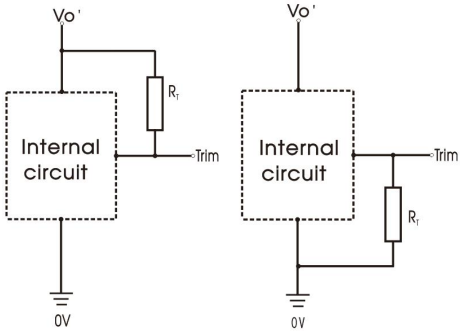
DOSB75-B4828(F)(N)



C01、C02	1000uF/100V/electrolytic capacitor
C03	330uF/100V/electrolytic capacitor
C1、C2、C3、C4、C5、C6、C7、C8、C9、C10、C11、C12、C13、C14	4.7uF/100V
X1	0.22uF/250V
Y1	102M/400V
Y2	222M/400V
LCM1	60uH/TL15
LCM2	2.0uH
LDM1	12uH
C01、C02	1000uF/100V/electrolytic capacitor
MB	B40/T3.5*1.5*2.35HP (ACME)

Fig. 5

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.

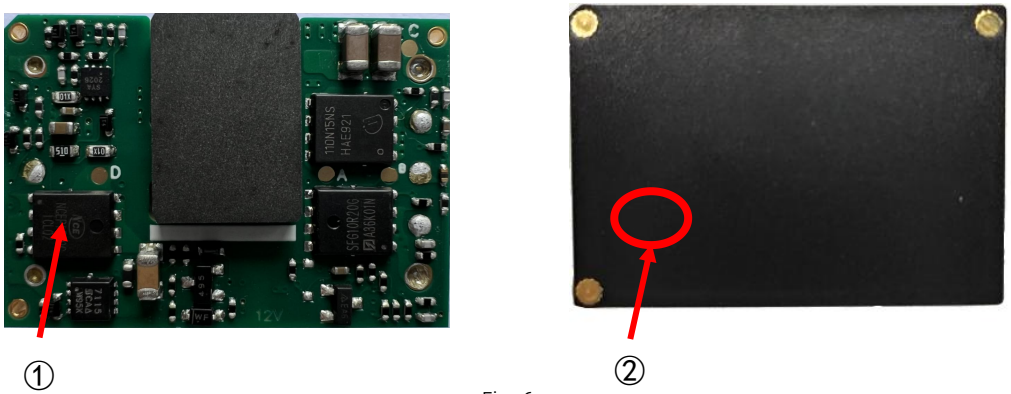


Fig. 6

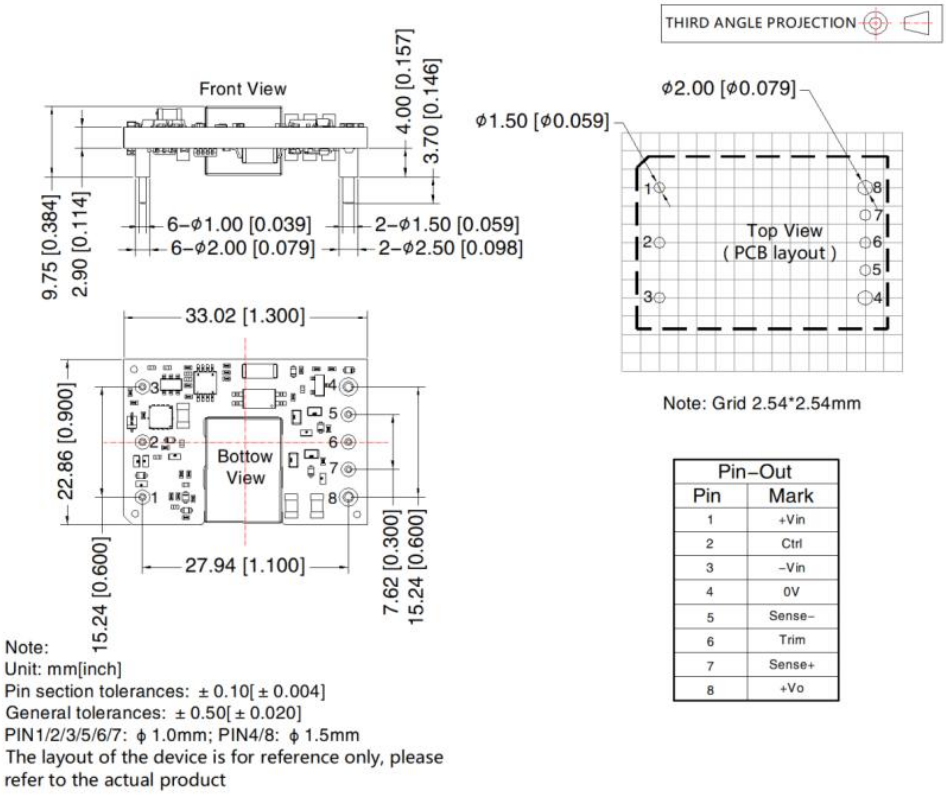
Note:

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. The positive logic series has no over-temperature protection function. The temperature of hot test point ① should not exceed 130℃, and the temperature of hot test point ② should not exceed 110℃. Otherwise, the product will be damaged due to excessive temperature.

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

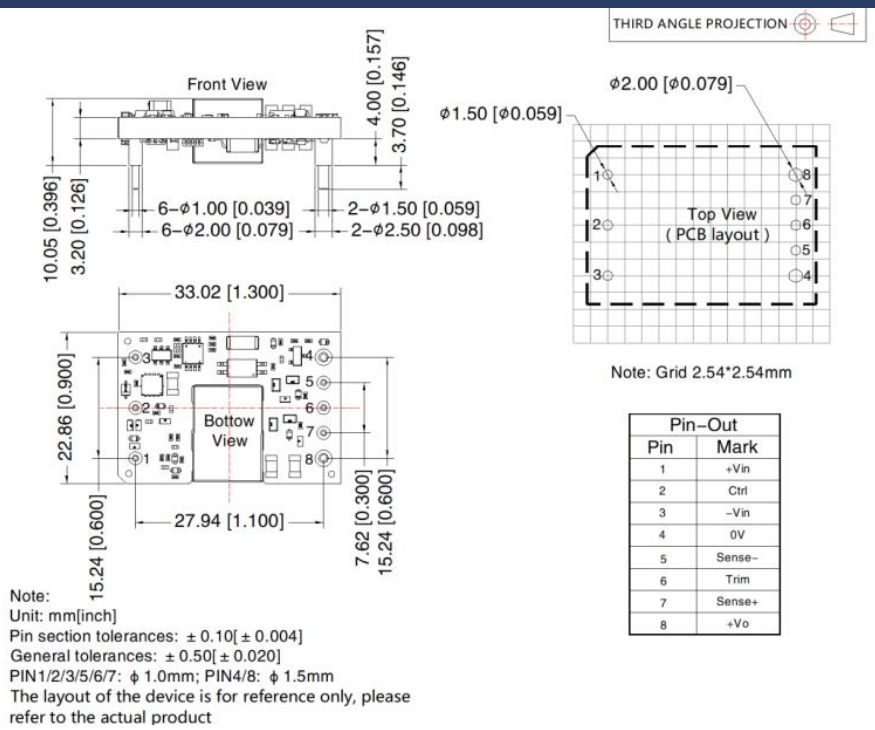
DOSB75-B4805(12)(N) Dimensions and Recommended



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

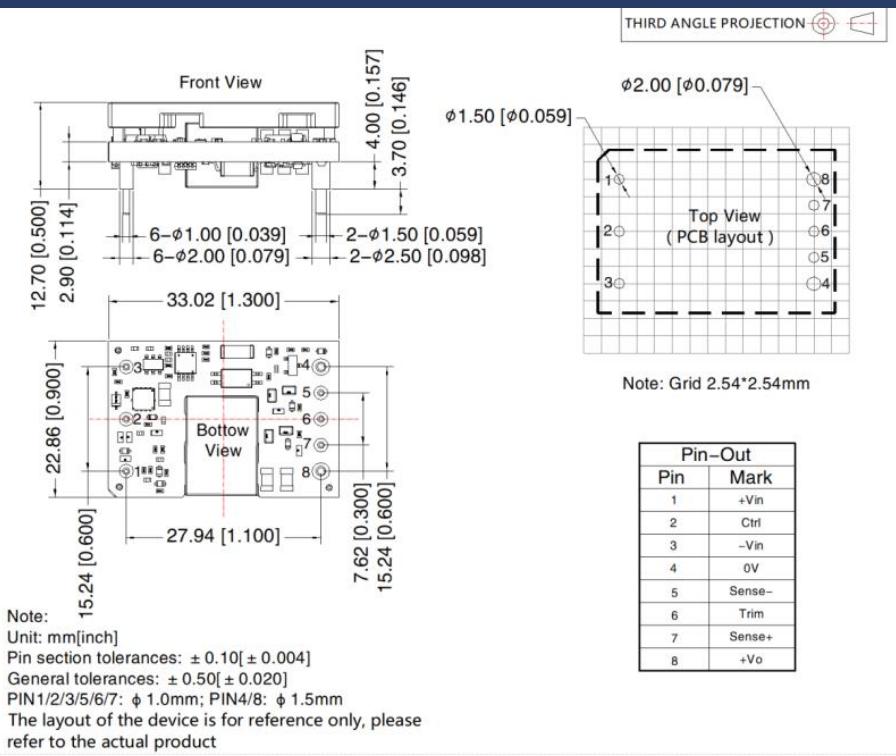
DOSB75-B4828(N) Dimensions and Recommended



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

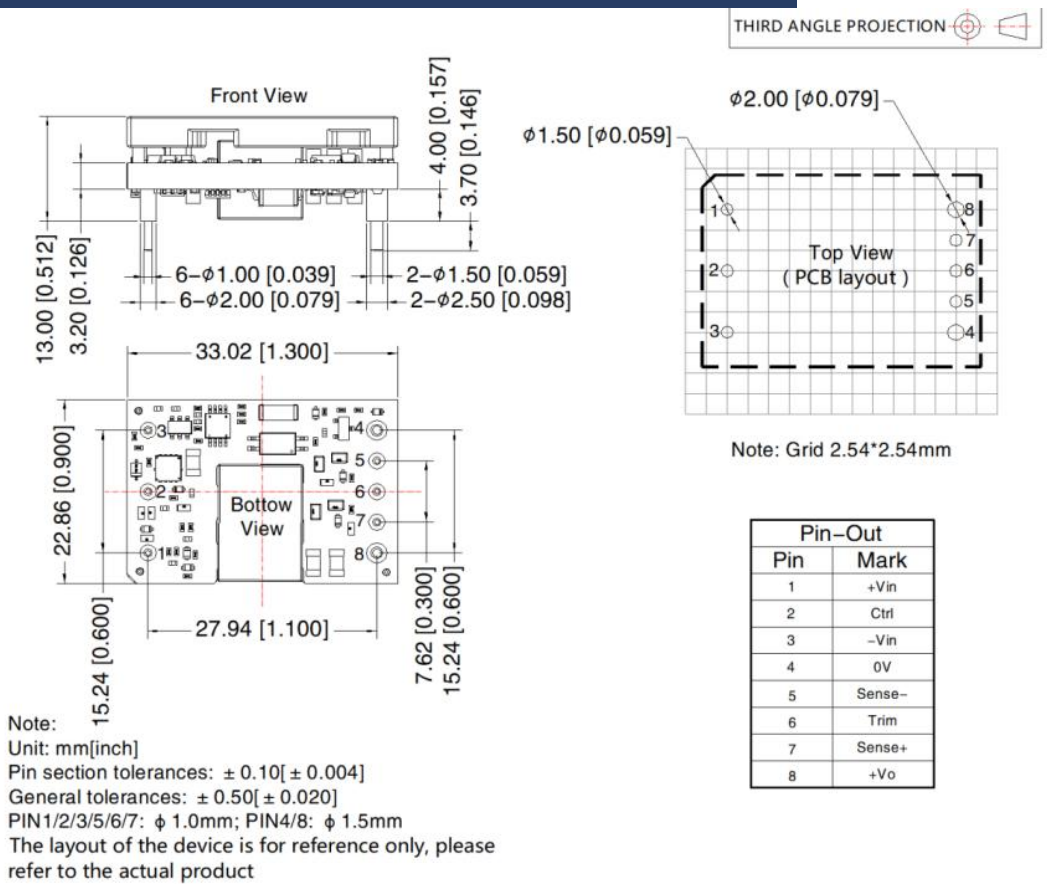
DOSB75-B4805(12)F(N) Dimensions and Recommended



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

DOSB75-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.