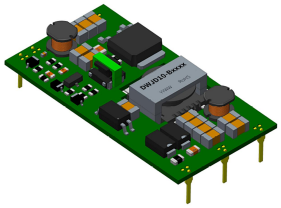
Descriptions

10W isolated，DC/DC Converter



RoHS

3 Years Warranty

c UL us Report UL62368-1

CE Report EN 62368-1

UKCA Report BS EN 62368-1

Features

- Ultra-wide 4:1 input voltage range
- Ultra-thin DIP/SMD Package
- High efficiency up to 88%
- No-load power consumption as low as 0.096W
- I/O isolation test voltage 500VAC/1500VDC
- Operating ambient temperature range: -40℃ to +85℃
- Input under-voltage protection, output short circuit, over-current, over-voltage protection

Applications

- Industrial Control
- Electricity
- Instrumentations
- Communication

Selection Guide

Certification	Part No.	Input Voltage (VDC)		Output		Full Load Efficiency③ (%) Min./Typ.	Capacitive Load (μF)Max.
		Nominal (Range)	Max.②	Voltage(VDC)	Current (mA) Max./Min.		
UL/EN	DWJD10-B2405	24 (9-36)	40	5	2000/0	82/84	2200
--	DWJD10-B2406			6	1667/0	81/83	2000
EN/BS EN	DWJD10-B2412			12	833/0	85/87	680
EN/BS EN	DWJD10-B2415			15	667/0	86/88	470
--	DWJD10-B2424			24	417/0	85/87	220

Notes
①Exceeding the maximum input voltage may cause permanent damage;
②Efficiency 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)	Nominal input voltage	5VDC output	--	496/4	508/40	mA
			6VDC output	--	502/4	515/40	
			12VDC output	--	479/4	490/12	
			15VDC output	--	474/4	485/15	
			24VDC output	--	479/4	490/17	
	Reflected Ripple Current	Nominal input voltage		--	40	--	
	Surge Voltage (1sec. max.)			-0.7	--	50	VDC
	Start-up Voltage			--	--	9	
	Input Under-voltage Protection			5.5	6.5	--	
	Input Filter			Pi filter			
	Hot Plug			Unavailable			
	Ctrl①	Operating temperature range	Module on	Ctrl pin pulled low to GND (0-1.2VDC)			
			Module off	Ctrl pin open or pulled high (2.4-12VDC)			
		Normal temperature @25℃	Input current when switched off	--	6	--	mA
Output Specifications	Voltage Accuracy	0% -100% load		--	±1	±3	%
	Linear Regulation	Input voltage variation from low to high at full load		--	±0.2	±0.5	
	Load Regulation②	5% -100% load		--	±0.5	±1	
	Transient Recovery Time	25% load step change, nominal input voltage		--	300	500	μs
	Transient Response Deviation			--	±3	±5	%
	Temperature Coefficient	Full load		--	--	±0.03	%/℃
	Ripple & Noise③	20MHz bandwidth, 5% -100% load		--	50	100	mVp-p
	Trim	Nominal input voltage		--	±5	--	%Vo
	Over-voltage Protection	Input voltage range		110	--	160	
	Over-current Protection			110	140	200	%Io
	Short-circuit Protection			Hiccup, continuous, self-recovery			
General Specifications	Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 5mA max		500	--	--	VAC
		Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max		1500	--	--	VDC
	Insulation Resistance	Input-output resistance at 500VDC, Ta=25℃, humidity=70%RH		100	--	--	MΩ
	Isolation Capacitance	Input-output capacitance at 100kHz/0.1V		--	1000	--	pF

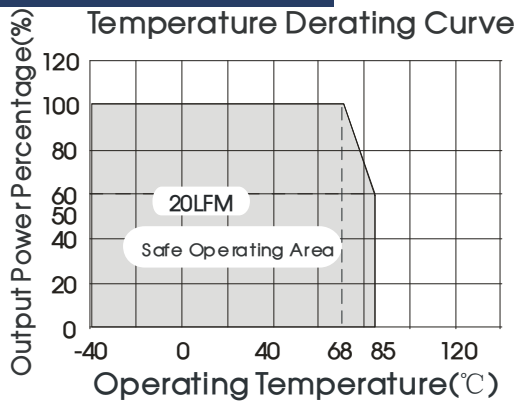
	Operating Temperature	See Fig. 1	-40	--	+85	℃
	Storage Humidity	Non-condensing	5	--	95	%RH
	Storage Temperature		-55	--	+125	℃
	Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	
	Reflow soldering Temperature	Only for DWJ(M)T10-Bxxxx series products	Peak temp.≤245℃, maximum duration time≤60s over 217℃. For actual application, please refer to IPC/JEDEC J-STD-020D.1.			
	Vibration		10-150Hz, 5G, 90Min. along X, Y and Z			
	Switching Frequency ④	PWM mode	--	350	--	kHz
	MTBF	MIL-HDBK-217F@25℃	1000	--	--	k hours
	Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1	Level 1			
Mechanical Specifications	Case Material	Aluminum alloy				
	Dimensions	39.20 × 20.80 × 6.10mm				
	Weight	4.7g(Typ.)				
	Cooling method	Free air convection（20LFM）				

Note:
①The Ctrl pin voltage is referenced to input GND;
②Load regulation for 0%-100% load is ±5%;
③Under 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;
④Switching frequency is measured at full load. The module reduces the switching frequency for light load (below 50%) efficiency improvement.

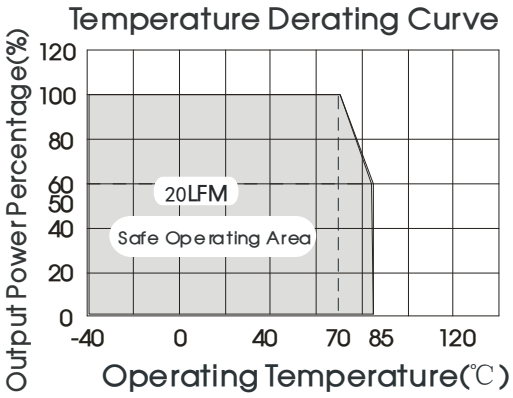
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A(without extra components)/CLASS B (see Fig.3-② for recommended circuit)	
	RE	CISPR32/EN55032	CLASS B (see Fig.3-② for recommended circuit)	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6kV	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

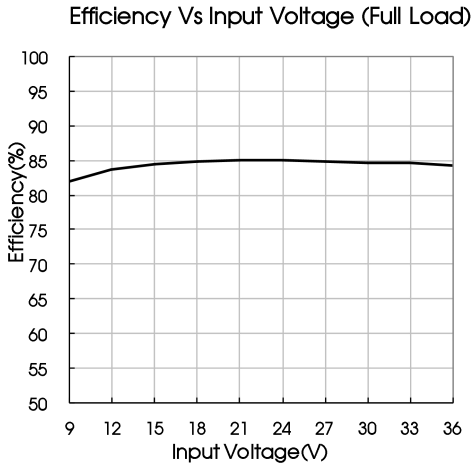


5V, 6V, 24V output

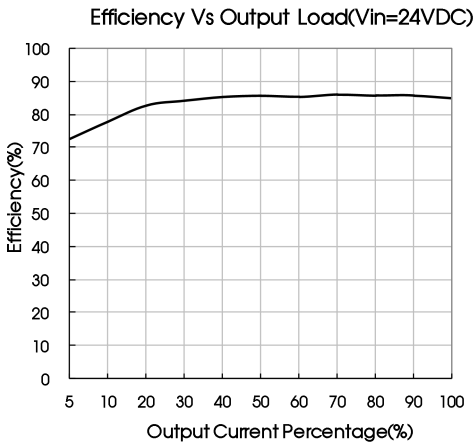


12V, 15V output

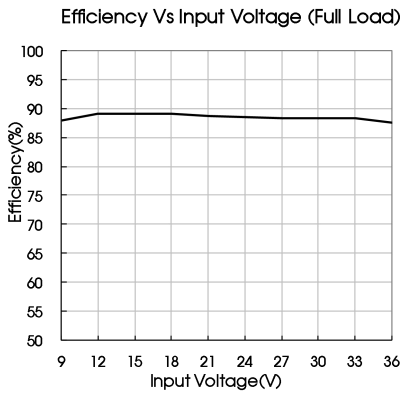
Fig. 1



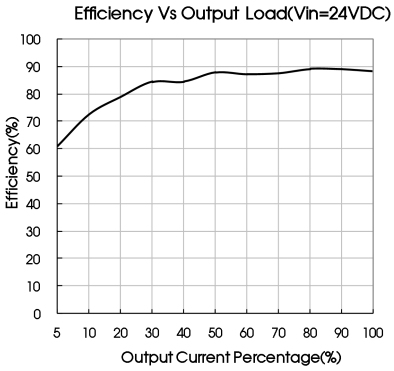
DWJD10-B2405



DWJD10-B2405



DWJD10-B2415



DWJD10-B2415

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)	Cin	Cout
5/6	100μF/50V	10μF/16V
12/15		10μF/25V
24		10μF/50V

2. EMC compliance circuit

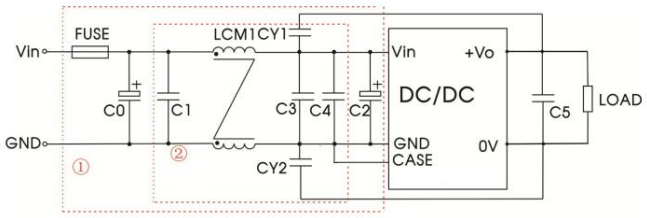


Fig. 3

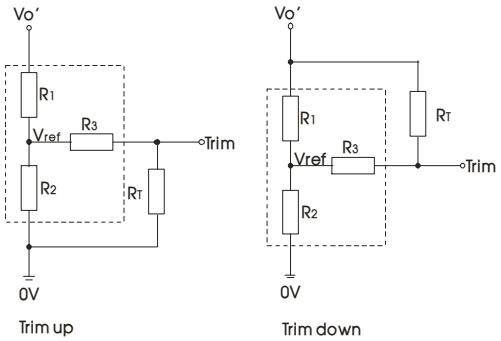
Notes: For EMC tests we use Part ① in Fig. 3 for immunity and part ② for emissions test. Selecting based on needs.

lists of components:

Model	Vin: 24VDC
FUSE	Choose according to actual input current
C0	680μF/100V
C1/C3/C4	4.7μF/50V
C2	470μF/100V
C5	10μF/25V
LCM1	3.3mH
CY1/CY2	1000pF/≥2000VDC

Note: *For DWJMD/T10-Bxxxx, the case should be connected to input pin GND when testing EMC performance

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



TRIM resistor connection (dashed line shows internal resistor network)

Calculating Trim resistor values:

up: $R_T = \frac{aR_2}{R_2-a} - R_3$ $\quad a = \frac{Vref}{Vo'-Vref} \cdot R_1$

down: $R_T = \frac{aR_1}{R_1-a} - R_3$ $\quad a = \frac{Vo'-Vref}{Vref} \cdot R_2$

R_T= Trim Resistor value;

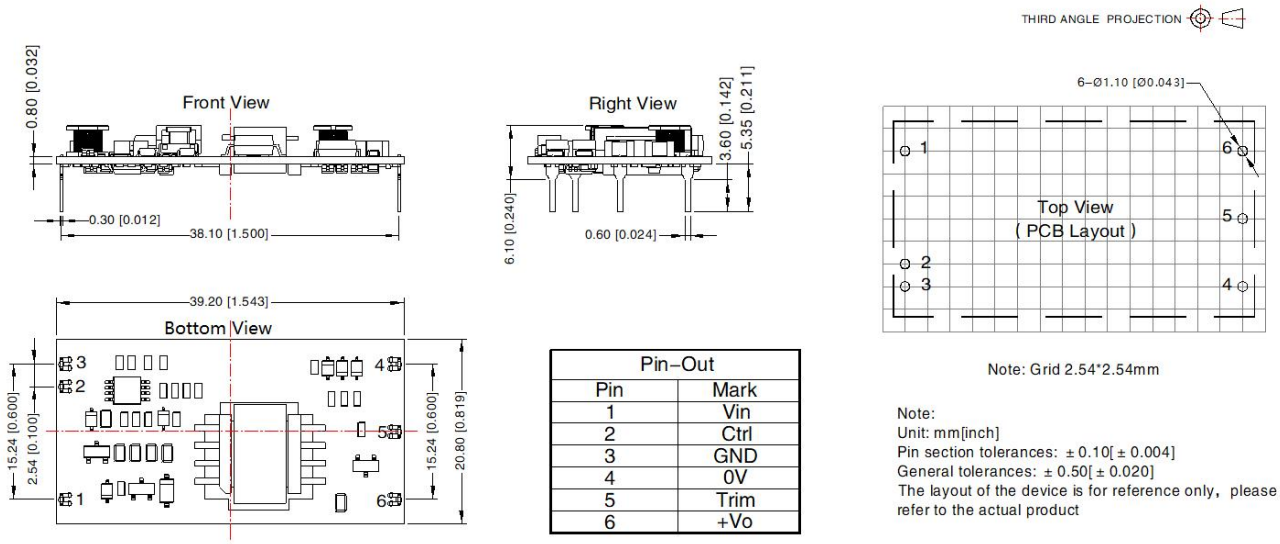
a= self-defined parameter;

Vo'=desired output voltage.

Vout(VDC)	R1(kΩ)	R2(kΩ)	R3(kΩ)	Vref(V)
5	2.94	2.87	15	2.5
6	4.06	2.87	15	2.5
12	11	2.87	17.4	2.5
15	14.5	2.87	15	2.5
24	24.87	2.87	15	2.5

4. It is not allowed to connect modules output in parallel to enlarge the power

DWJD10-Bxxxx（DIP package without case）Dimensions and Recommended Layout



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

Note: Grid 2.54*2.54mm

Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]
The layout of the device is for reference only, please refer to the actual product

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. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.