DESCRIPTIONS

DC-DC Converters, 1W, Fixed input, Unregulated single output

RoHS

Report Report CB

UL62368-1 EN62368-1 BS EN62368-1 IEC62368-1

FEATURES

- Continuous short-circuit protection
- No-load input current as low as 5mA
- Operating ambient temperature range: -40 ℃ to +105℃
- High efficiency up to 85%
- Compact SMD package
- I/O isolation test voltage 1.5k VDC
- Industry standard pin-out

APPLICATIONS

- Industrial control
- Electric power
- Instruments and meters

Selection Guide

Certification	Part No.	Input Voltage (VDC)	Output		Full Load Efficiency (%) Min./Typ.	Capacitive Load (μF)Max.
		Nominal (Range)	Voltage(VDC)	Current (mA) Max./Min.		
IEC/UL/EN/BS EN	DFXT1-B0503	5 (4.5-5.5)	3.3	303/30	70/74	2400
	DFXT1-B0505		5	200/20	78/82	2400
	DFXT1-B0509		9	111/12	79/83	1000
	DFXT1-B0512		12	84/9	79/83	560
	DFXT1-B0515		15	67/7	79/83	560
	DFXT1-B0524		24	42/4	81/85	220

Specifications

Characteristic	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Current (full load / no-load)	5VDC input	3.3VDC/5VDC output	--	270/5	286/10	mA
			9VDC/12VDC output	--	241/12	254/20	
			15VDC/24VDC output	--	241/18	254/30	
	Reflected Ripple Current			--	15	--	
	Surge Voltage (1sec. max.)	5VDC input		-0.7	--	9	VDC
	Input Filter			Capacitance filter			
	Hot Plug			Unavailable			
Output Specifications	Voltage Accuracy			See output regulation curve(Fig. 1)			
	Linear Regulation	Input voltage change: ±1%	3.3VDC output	--	--	1.5	--
			Other outputs	--	--	1.2	
	Load Regulation	10%-100% load	3.3VDC output	--	15	20	%
			5VDC output	--	10	15	
			9VDC output	--	8	10	
			12VDC output	--	7	10	
			15VDC output	--	6	10	
			24VDC output	--	5	10	
	Ripple & Noise*	20MHz bandwidth	Other outputs	--	30	75	mVp-p
			24VDC output	--	50	100	
	Temperature Coefficient	100% load		--	±0.02	--	%/℃
	Short-circuit Protection			Continuous, self-recovery			
General Specifications	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		--	20	--	pF
	Operating Temperature	Derating when operating temperature≥ 100℃,(see Fig. 2)		-40	--	105	℃
	Storage Temperature			-55	--	125	
	Case Temperature Rise	Ta=25℃	3.3VDC output	--	25	--	
			Others	--	15	--	
	Storage Humidity	Non-condensing		--	--	95	%RH
	Reflow Soldering Temperature			Peak temp.≤245℃, maximum duration times≤60s over 217℃.			
	Switching Frequency	Full load, nominal input voltage		--	270	--	kHz
	MTBF	MIL-HDBK-217F@25℃		3500	--	--	k hours
	Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1		Level 1			

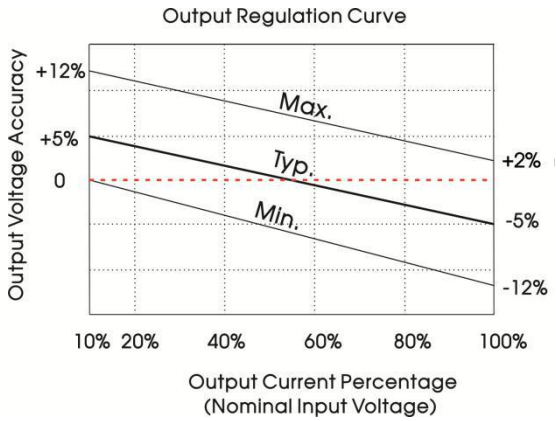
Mechanical Specifications	Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
	Dimensions	13.20 x 11.40 x 7.25 mm
	Weight	1.4g(Typ.)
	Cooling Method	Free air convection
Note:*The "parallel cable" method is used for Ripple and Noise test.		

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions	CE	CISPR32/EN55032 CLASS B (see Fig. 4 for recommended circuit)
		RE	CISPR32/EN55032 CLASS B (see Fig. 4 for recommended circuit)
	Immunity	ESD	IEC/EN61000-4-2 Air ±8kV, Contact ±4kV perf. Criteria B

Characteristic Curve

3.3VDC output



Others

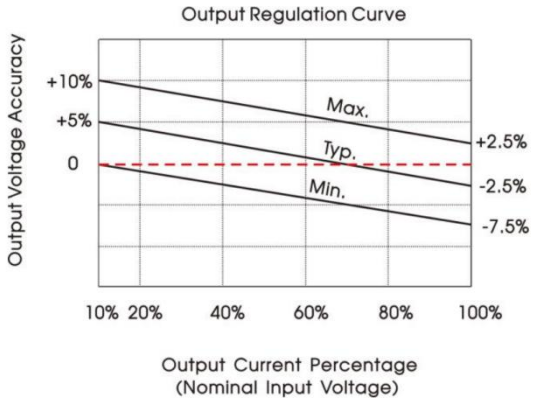
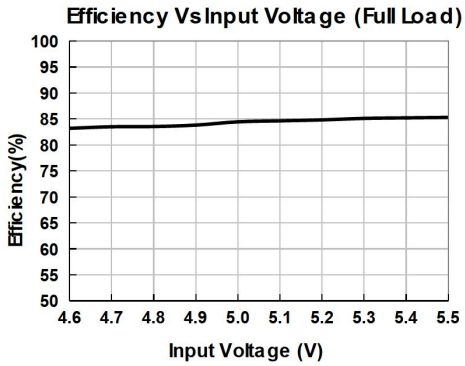


Fig. 1

DFXT1-B0505



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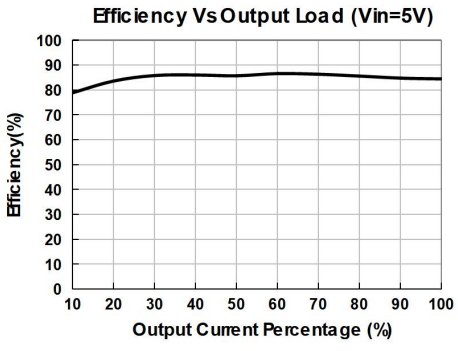


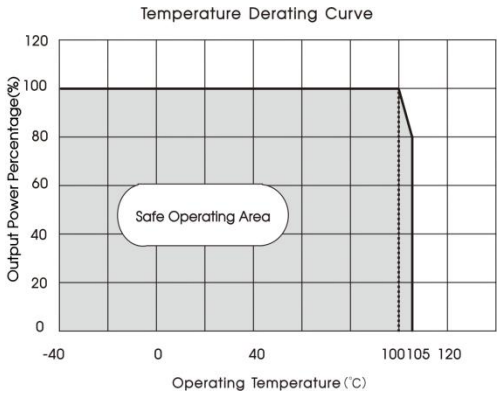


Fig. 2

Design Reference

1. Typical application

Input and/or output ripple can be further reduced, by connecting a filter capacitor from the input and/or output terminals to ground as shown in Fig. 3.

Choosing suitable filter capacitor values is very important for a smooth operation of the modules, particularly to avoid start-up problems caused by capacitor values that are too high. For recommended input and output capacitor values refer to Table 1.

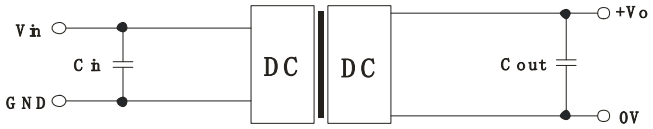


Fig. 3

Recommended capacitive load value table (Table 1)

Vin	Cin	Vo	Cout
5VDC	4.7μF/16V	3.3/5VDC	10μF/16V
		9VDC	4.7μF/16V
		12VDC	2.2μF/25V
		15VDC	1μF/25V
		24VDC	0.47μF/50V

2. EMC compliance recommended circuit

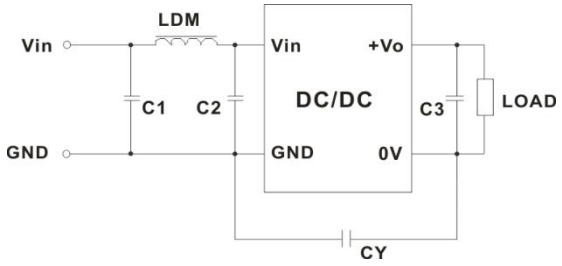


Fig. 4

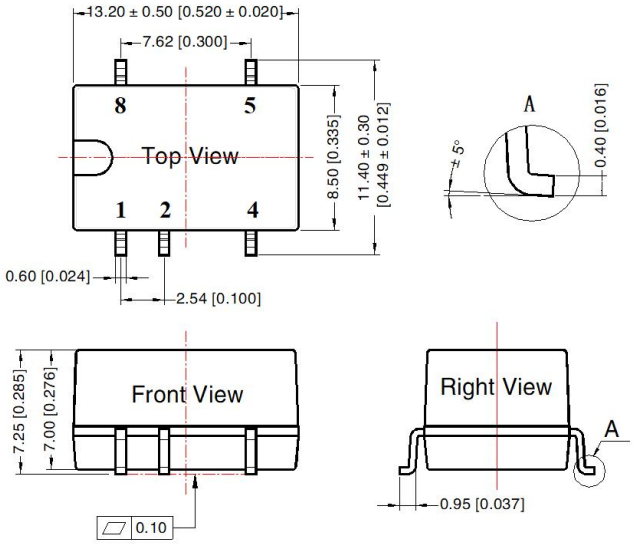
EMC recommended circuit value table (Table 2)

Input voltage 5VDC	Output voltage		3.3/5/9VDC	12/15/24VDC
	Emissions	C1/C2	4.7μF /25V	4.7μF /25V
		CY	--	1nF /2kVDC
		C3	Refer to the Cout in table 1	
		LDM	6.8μH	6.8μH

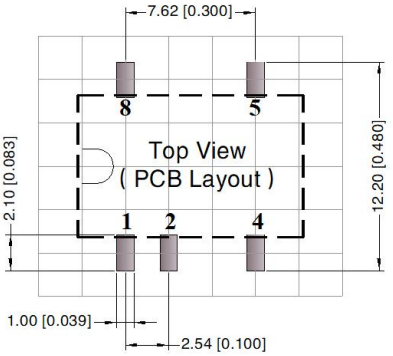
Note: In the case of actual use, the requirements for EMI are high, it is subject to CY.

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.25[± 0.010]



Note: Grid 2.54*2.54mm

Pin–Out	
Pin	Mark
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: Pin to be isolated from circuitry

Notes:
1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. The maximum capacitive load offered were tested at input voltage range and full load;
3. 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;
4. All index testing methods in this datasheet are based on our company corporate standards;
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.