Descriptions

0.75W isolated, DC-DC Converter

RoHS

3 Years Warranty

CE Report EN62368-1

UKCA Report BS EN62368-1

Features

- Continuous short-circuit protection
- No-load input current as low as 8mA
- Operating ambient temperature range: -40℃ to +85℃
- High efficiency up to 74%
- I/O isolation test voltage 1.5k VDC

Applications

- Industrial control
- power
- home appliances
- Instrumentation
- Communication
- Civil applications

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.		
EN/BS EN	DFS0.75-IB0503	5 (4.75-5.25)	3.3	200/20	64/68	2400
	DFS0.75-IB0505		5	150/15	68/72	2400
	DFS0.75-IB0509		9	83/9	68/72	1000
	DFS0.75-IB0512		12	62/7	69/73	560
	DFS0.75-IB0515		15	50/5	70/74	560
	DFS0.75-IB1203	12 (11.4-12.6)	3.3	200/20	64/68	2400
	DFS0.75-IB1205		5	150/15	68/72	2400
	DFS0.75-IB1212		12	62/7	69/73	560
	DFS0.75-IB1215		15	50/5	70/74	560
	DFS0.75-IB2403	24 (22.8-25.2)	3.3	200/20	62/68	2400
	DFS0.75-IB2405		5	150/15	66/72	2400
	DFS0.75-IB2412		12	62/7	67/73	560
	DFS0.75-IB2415		15	50/5	68/74	560

Specifications

Product Specifications	Item	Operating Conditions			Min.	Typ.	Max.	Unit
Input Specifications	Input Current (full load / no-load)	5V input	3.3VDC/5VDC output		--	209/8	221/--	mA
			9VDC/12VDC output		--	208/12	221/--	
			15VDC output		--	202/18	215/--	
		12V input	3.3VDC output		--	92/8	98/--	
			5VDC output		--	87/8	92/--	
			12VDC output		--	86/8	91/--	
			15VDC output		--	85/8	90/--	
		24V input	3.3VDC output		--	46/8	51/--	
			5VDC output		--	44/8	48/--	
			12VDC output		--	43/8	47/--	
			15VDC output		--	43/8	46/--	
	Reflected Ripple Current				--	15	--	
	Input Filter				Capacitance filter			
	Hot Plug				Unavailable			
Output Specifications	Voltage Accuracy				--	--	±3	%
	Linear Regulation	Input voltage change: ±1%			--	--	±0.25	
	Load Regulation	10%-100%load	3.3VDC output		--	--	±3	
			Other output		--	--	±2	
	Ripple & Noise*	20MHz bandwidth	5VDC input		--	30	75	mVp-p
			12/24VDC input	3.3/5/12VDC output	--	30	100	
				15VDC output	--	80	150	
	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
		5VDC input, Input-output electric strength test for 1 second with a leakage current of 1mA max.			3000	--	--	
	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 ≥ 71℃ (see Fig. 1)			-40	--	85	℃
	Storage Temperature				-55	--	125	
	Case Temperature Rise	Ta=25℃		3.3VDC output	--	30	--	
				Other output	--	25	--	

	Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds		--	--	300	
	Storage Humidity	Non-condensing	5VDC input	--	--	95	%RH
			12/24VDC input	5	--	95	
	Vibration	5VDC input		10-150Hz, 5G, 30Min. along X, Y and Z			
		12/24VDC input		10-150Hz, 5G, 0.75mm. along X, Y and Z			
	Switching Frequency	100% load, nominal input voltage	5VDC input	--	270	--	kHz
			12/24VDC input	--	260	--	
	MTBF	MIL-HDBK-217F@25℃		3500	--	--	k hours
Mechanical Specifications	Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)					
	Dimensions	11.60 x 6.00 x 10.16 mm					
	Weight	1.3g(Typ.)					
	Cooling Method	Free air convection					
Note: * The "parallel cable" method is used for ripple and noise test.							

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B
	RE	CISPR32/EN55032 CLASS B
Immunity	ESD	IEC/EN61000-4-2 Air ±8kV, Contact ±6kV perf. Criteria B
Note: Refer to Fig.3 for recommended circuit test.		

Characteristic Curve

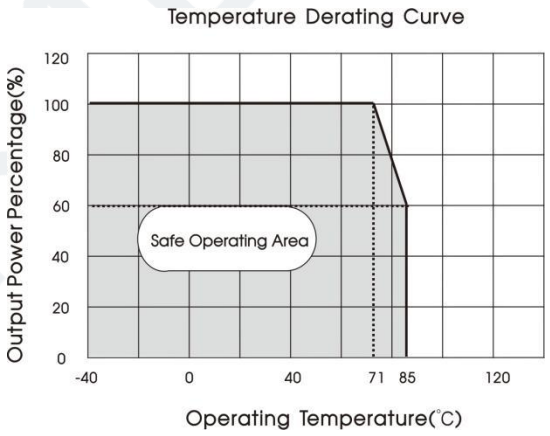
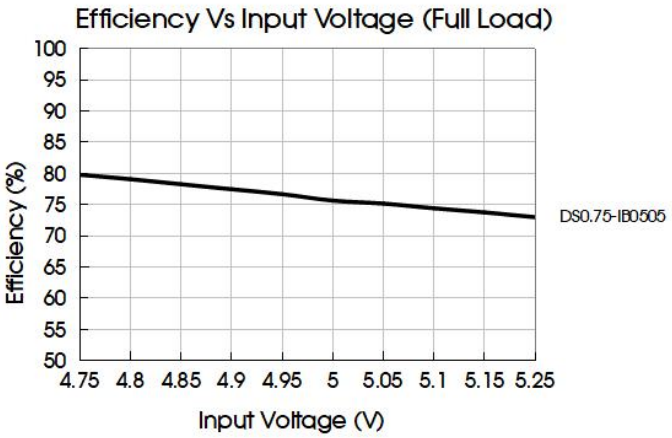
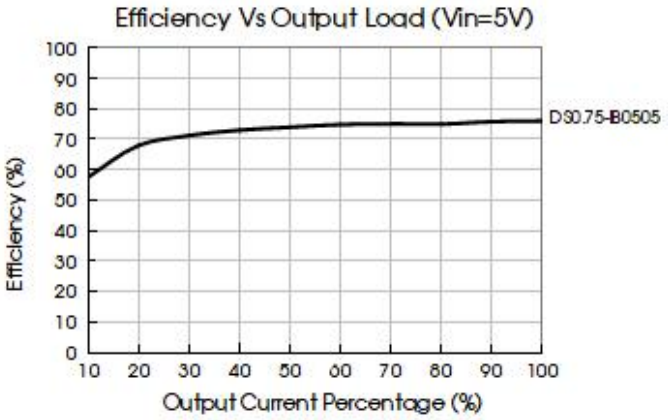
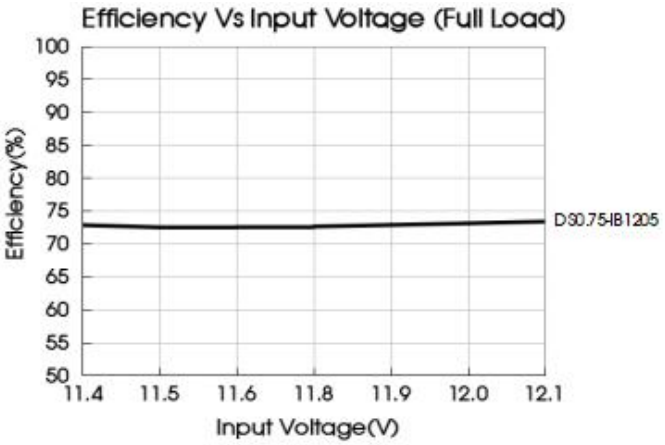
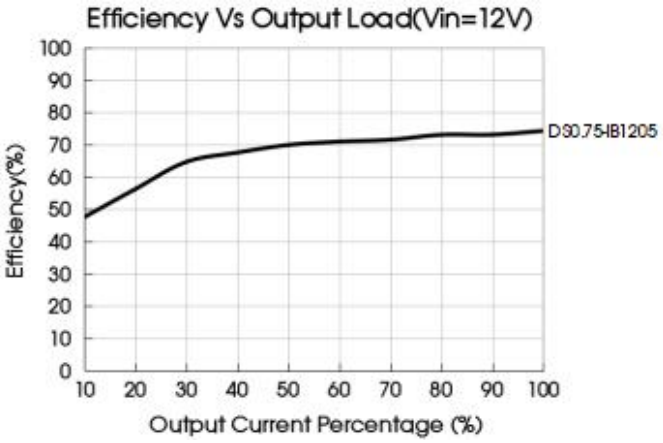


Fig. 1









Design Reference

1.Typical application circuit

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. 2

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.

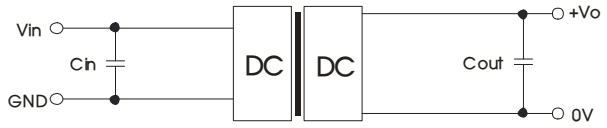


Fig. 2

Table 1: Recommended input and output capacitor values

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

2. EMC (CLASS B) compliance circuit

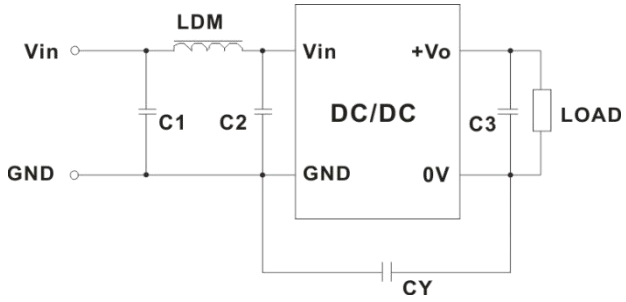
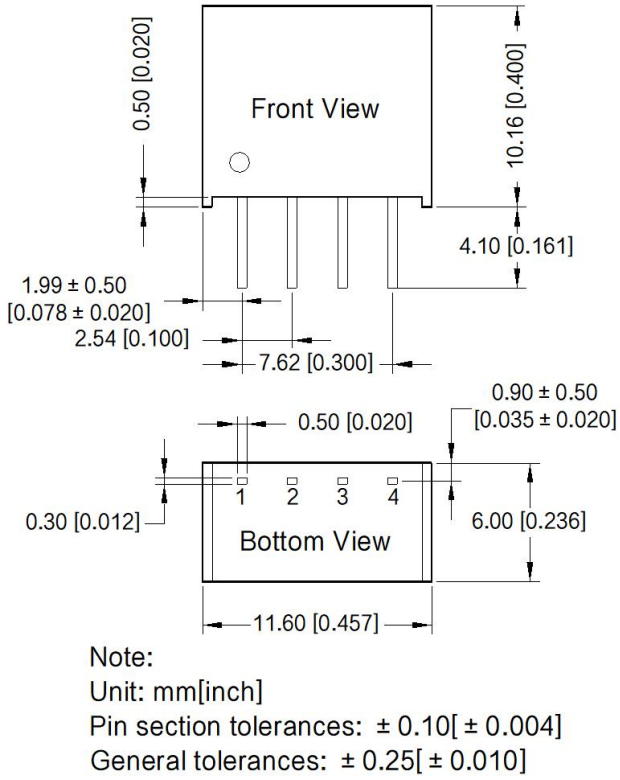


Fig. 3

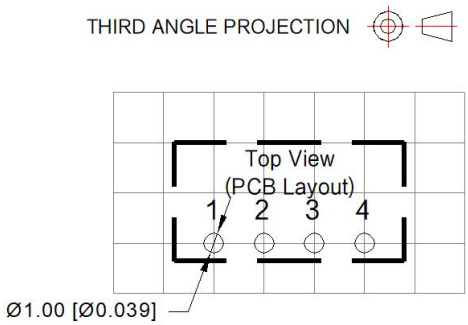
Table 2: Recommended EMC filter values

Input voltage		5DVC		12/24VDC
Output voltage		3.3/5/9VDC	12/15VDC	--
EMI	C1/C2	4.7μF/25V	4.7μF/25V	4.7μF /50V
	CY	--	1nF /4kVDC	270pF /2kV
	C3	Refer to the Cout in table 1		
	LDM	6.8μH		

Dimensions and Recommended



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
3	0V
4	+Vo

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.