

0.75W isolated DC-DC converter  
Fixed input voltage, regulated single output



EN 62368-1



BS EN 62368-1

RoHS



Continuous Short Circuit Protection



Patent Protection

## FEATURES

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

IB\_S-W75R3 series are especially designed for distributed power supply systems where an isolated voltage is required. They are suitable for: pre-interference isolation, ground interference elimination, pure digital circuit, voltage isolation conversion, general low frequency analog circuit, relay drive circuit, etc.

## 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	IB1203S-W75R3	12 (11.4-12.6)	3.3	200/20	64/68	2400
	IB1205S-W75R3		5	150/15	68/72	2400
	IB1212S-W75R3		12	62/7	69/73	560
	IB1215S-W75R3		15	50/5	70/74	560
	IB2403S-W75R3	24 (22.8-25.2)	3.3	200/20	62/68	2400
	IB2405S-W75R3		5	150/15	66/72	2400
	IB2412S-W75R3		12	62/7	67/73	560
	IB2415S-W75R3		15	50/5	68/74	560

## Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	12V input	3.3VDC output	--	92/8	98/--	mA
		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			

Note: \* Refer to DC-DC Converter Application Notes for detailed description of reflected ripple current test method.

## Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Voltage Accuracy			--	--	±3	%
Linear Regulation	Input voltage change: ±1%		--	--	±0.25	
Load Regulation	10%-100% load	3.3VDC output	--	--	±3	
		5VDC/12VDC/15VDC output	--	--	±2	

Ripple & Noise*	20MHz bandwidth	3.3VDC/5VDC/12VDC output	--	30	100	mVp-p
		15VDC output	--	80	150	
Temperature Coefficient	100% load		--	±0.02	--	%/°C
Short-circuit Protection			Continuous, self-recovery			

Note: \* The "parallel cable" method is used for ripple and noise test, please refer to DC-DC Converter Application Notes for specific information.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
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 ≥ 71°C (see Fig. 1)	-40	--	85	°C
Storage Temperature		-55	--	125	
Case Temperature Rise	Ta=25°C	--	25	--	
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	
Storage Humidity	Non-condensing	5	--	95	%RH
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
Switching Frequency	100% load, nominal input voltage	--	260	--	kHz
MTBF	MIL-HDBK-217F@25°C	3500	--	--	k hours

Mechanical Specifications

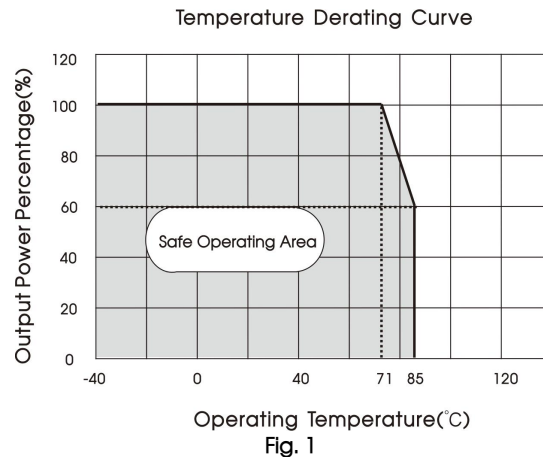
Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	11.60 x 6.00 x 10.16 mm
Weight	1.3g(Typ.)
Cooling Method	Free air convection

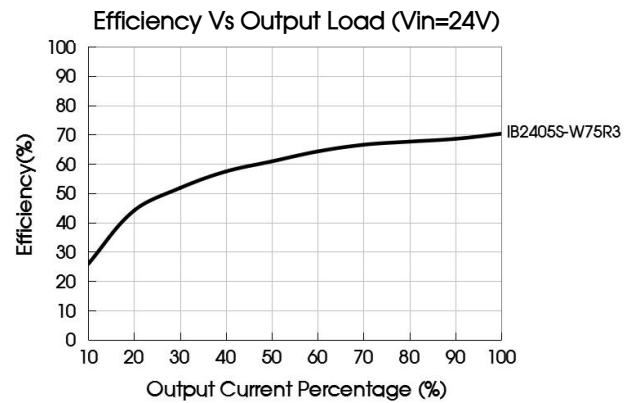
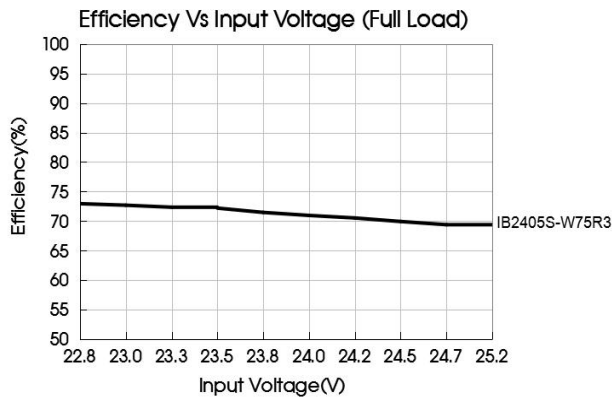
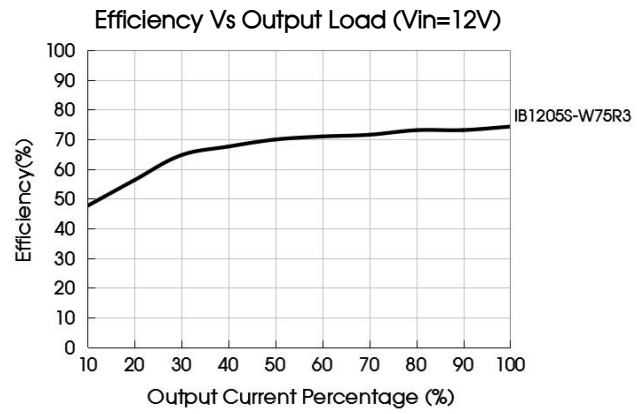
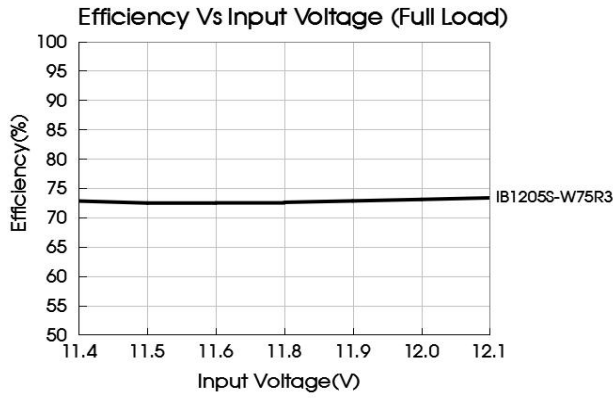
Electromagnetic Compatibility (EMC)

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.

Typical Characteristic Curves





## 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
12VDC	2.2 μF/25V	3.3VDC/5VDC	10 μF/16V
24VDC	1μF/50V	12VDC	2.2μF/25V
--	--	15VDC	1μF/25V

### 2. EMC (CLASS B) compliance circuit

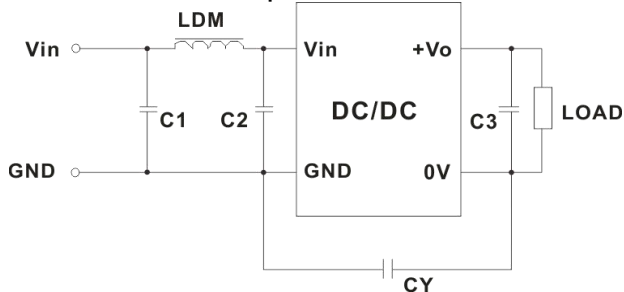


Fig. 3

Table 2: Recommended EMC filter values

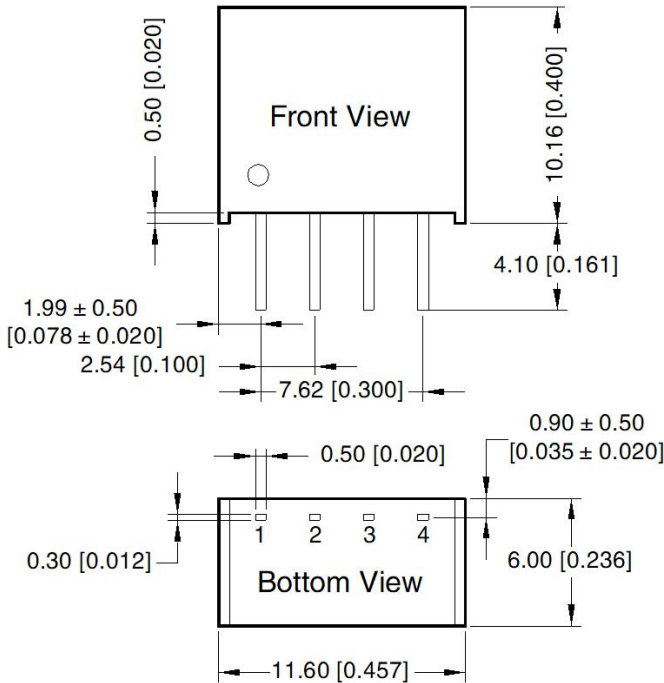
Emissions	C1/C2	4.7μF /50V
	CY	270pF /2kV
	C3	Refer to the Cout in table
	LDM	6.8μH

3. For additional information please refer to DC-DC converter application notes on

[www.mornsun-power.com](http://www.mornsun-power.com)

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Note: Grid 2.54\*2.54mm

Pin-Out	
Pin	Mark
1	GND
2	Vin
3	0V
4	+Vo

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

Notes:

1. For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58200003;
2. 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;
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°C, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our 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.

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