

FEATURES

1. Continuous short-circuit protection
2. No-load input current as low as 8mA
3. Operating ambient temperature range: -40°C to +85°C
4. High efficiency up to 75%
5. I/O isolation test voltage 1.5k VDC



**3 years
Warranty**

Selection Guide

Part No.	Input Voltage (VDC)	Output		Full Load Efficiency (%) Min./Typ.	Capacitive Load (µF) Max.
	Nominal (Range)	Voltage (VDC)	Current (mA) Max./Min.		
IB0503LS-1WR3	5 (4.75-5.25)	3.3	250/25	63/67	2400
IB0505LS-1WR3		5	200/20	66/70	2400
IB0509LS-1WR3		9	111/12	67/71	1000
IB0512LS-1WR3		12	84/9	68/72	560
IB0515LS-1WR3		15	67/7	69/73	560
IB0524LS-1WR3		24	41/4	69/73	100
IB1205LS-1WR3	12 (11.4-12.6)	5	200/20	69/73	2400
IB1209LS-1WR3		9	111/12	69/73	1000
IB1212LS-1WR3		12	83/9	69/73	560
IB1215LS-1WR3		15	67/7	71/75	560
IB1505LS-1WR3	15 (14.25-15.75)	5	200/20	69/73	2400
IB1515LS-1WR3		15	67/7	71/75	560
IB2403LS-1WR3	24 (22.8-25.2)	3.3	250/25	65/71	2400
IB2405LS-1WR3		5	200/20	67/73	2400
IB2409LS-1WR3		9	111/12	67/73	1000
IB2412LS-1WR3		12	83/9	67/73	560
IB2415LS-1WR3		15	67/7	67/73	560

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Input Current (full load / no-load)	5V input	3.3VDC/5VDC output	-	286/8	303/-	mA
		9VDC/12VDC output	-	282/12	299/-	
		15VDC/24VDC output	-	274/18	290/-	
Input Current (full load / no-load)	12V input	5VDC/9VDC/12VDC output	-	115/8	121/-	mA
	15V input	15VDC output	-	112/8	118/-	
		5VDC output	-	92/8	97/-	
	24V input	15VDC output	-	89/8	94/-	
		3.3VDC output	-	59/8	65/-	
Reflected Ripple Current*	5VDC/9VDC/12VDC/15VDC output	-	58/8	63/-		
Input Filter					Capacitor Filter	
Hot Plug					Unavailable	

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

Typical Characteristic Curves

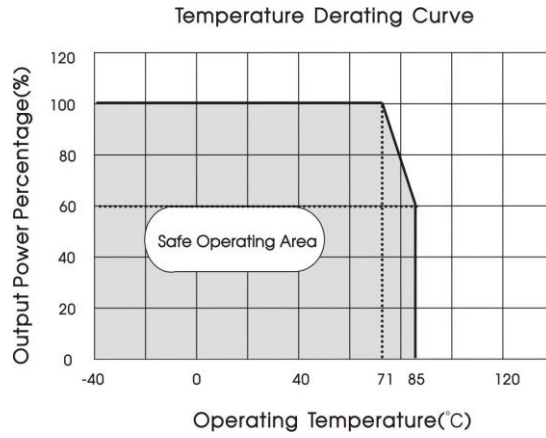
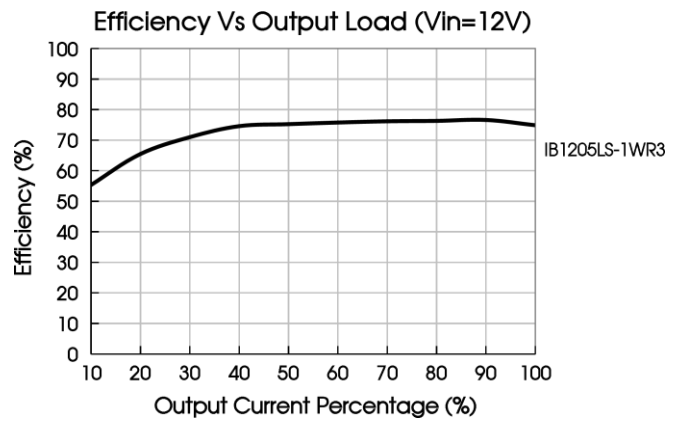
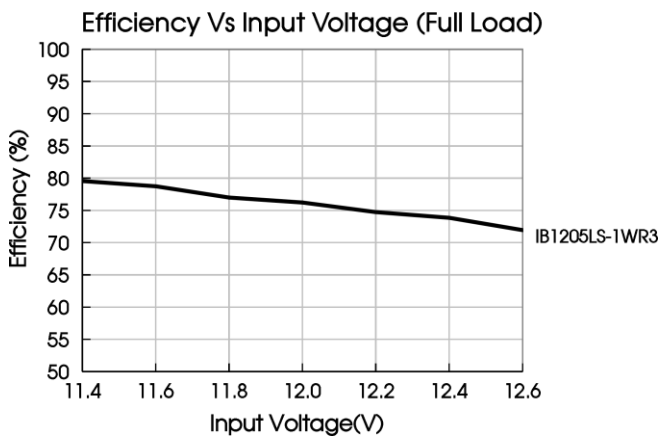
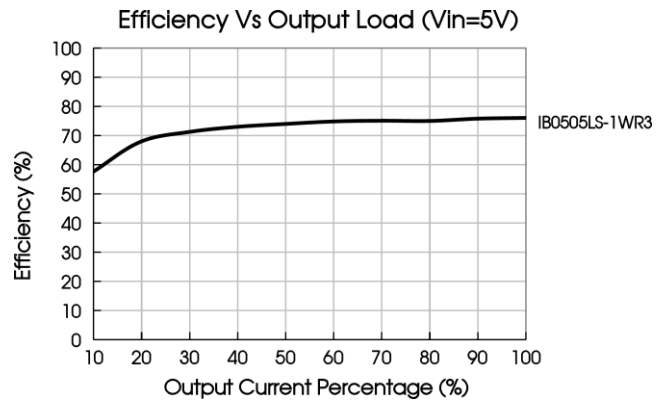
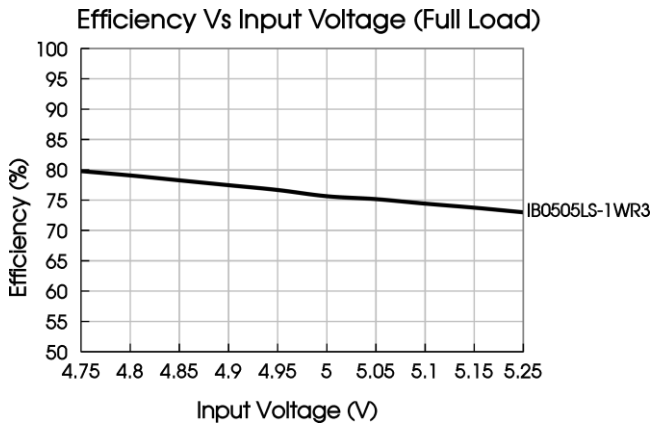


Fig. 1



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.

Design Reference



Fig. 2

Table 1: Recommended input and output capacitor values

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

2. EMC compliance circuit

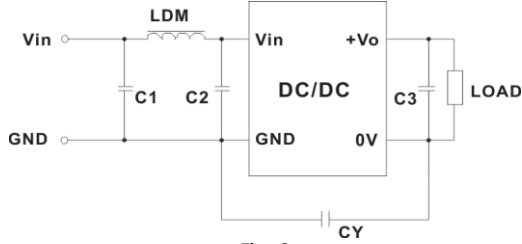
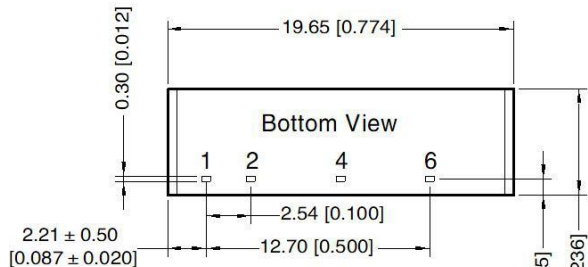
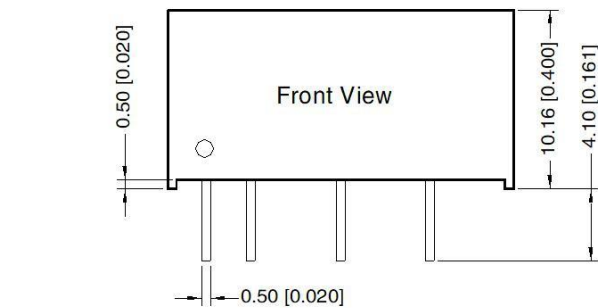


Fig. 3

Table 2: Recommended EMC filter values

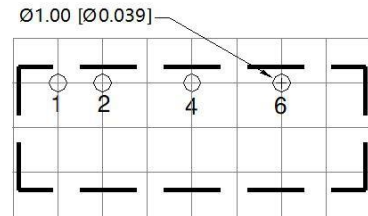
Input voltage		5VDC		12/15/24VDC
Output voltage		3.3/5/9VDC	12/15/24VDC	-
Emissions	C1/C2	4.7µF /50V	4.7µF /50V	4.7µF /50V
	CY	100pF	1000pF	270pF /2kV
	C3	Refer to the Cout in table 1		
	LDM	6.8µH		

Dimensions and Recommended Layout



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

THIRD ANGLE PROJECTION



Note: Grid 2.54*2.54mm

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

Notes & Instructions

1. If the product works under the minimum required load, it cannot guarantee that the performance of the product complies with all the performance indicators in this manual;
2. The maximum capacitive load is tested under the input voltage range and full load condition;
3. Unless otherwise stated, all indexes in this manual are measured at $T_a=25^{\circ}\text{C}$, humidity $<75\%RH$, nominal input voltage and rated output load;
4. All index testing methods in this manual are based on the enterprise standards of the company;
5. Our company can provide product customization, specific needs can directly contact our technical staff;

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Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.norpas-power.com

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