FEATURES

- Continuous short-circuit protection
- No-load input current as low as 8mA
- Operating ambient temperature range: -40℃ to +85℃
- High efficiency up to 71%
- Compact SMD package
- I/O isolation test voltage 1.5k VDC
- Industry standard pin-out

1W isolated DC-DC converter
Fixed input voltage and regulated single output



RoHS 3 years Warranty Continuous Short Circuit Protection

IB_XT-1WR3 series are designed for use in distributed power supply systems and especially suitable in applications such as pure digital circuits, low frequency analog circuits, relay-driven circuits and data switching circuits.

Selection Guide

Certification	Part No.	Input Voltage (VDC) Nominal (Range)	Output Voltage (VDC)	Output Current (mA) Max./Min.	Full Load Efficiency (%) Min./Typ.	Capacitive Load (μF) Max.
--	IB1205XT-1WR3	12 (11.4-12.6)	5	200/20	65/69	2400
	IB1212XT-1WR3		12	84/9	67/71	560
	IB1215XT-1WR3		15	67/7	67/71	220
	IB1505XT-1WR3	15 (14.25-15.75)	5	200/20	64/68	2400
	IB2405XT-1WR3	24 (22.8-25.2)	5	200/20	63/69	2400
	IB2412XT-1WR3		12	84/9	65/71	560
	IB2415XT-1WR3		15	67/7	65/71	220

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	12V input	5VDC output	--	121/8	128/--	mA
		12VDC/15VDC output	--	117/8	124/--	
	15V input		--	99/8	105/--	
	24V input	5VDC output	--	60/4	66/--	
		12VDC/15VDC output	--	59/4	64/--	
Reflected Ripple Current*			--	30	--	
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	100% load	--	--	±3	%
Linear Regulation	Input voltage change: ±1%	--	--	±0.25	
Load Regulation	10%-100% load	--	--	±2	
Ripple & Noise*	20MHz bandwidth	--	30	100	mVp-p
Temperature Coefficient	100% load	--	±0.02	--	%/℃
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℃ (see Fig.1)	-40	--	85	℃
Storage Temperature		-55	--	125	
Case Temperature Rise	Ta=25℃	--	25	--	
Storage Humidity	Non-condensing	5	--	95	%RH
Vibration		10-150Hz, 5G, 30 Min. along X, Y and Z			
Reflow Soldering Temperature*		Peak temp.≤245℃, maximum duration time≤60s over 217℃			
Switching Frequency	100% load, nominal input voltage	--	260	--	kHz
MTBF	MIL-HDBK-217F@25℃	3500	--	--	k hours
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1	Level 1			

Note: *Please refer to IPC/JEDEC J-STD-020D.1.

Mechanical Specifications

Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	15.24 x 11.40 x 7.25 mm
Weight	1.2g(Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)
Immunity	ESD	IEC/EN61000-4-2 Air ±8kV, Contact ±6kV perf. Criteria B

Typical Characteristic Curves

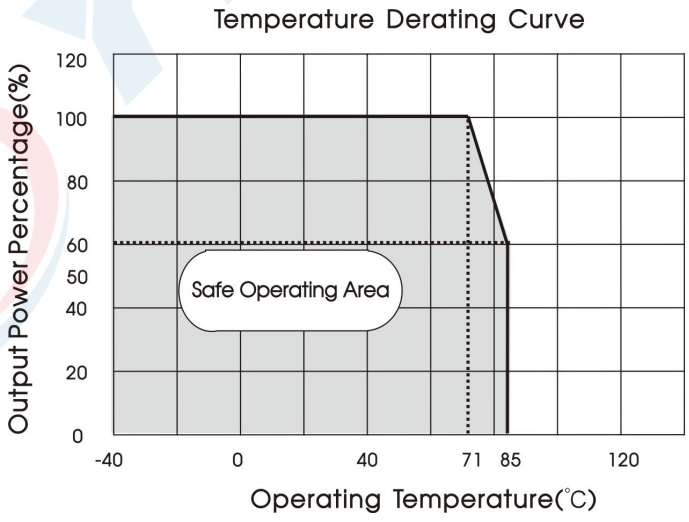
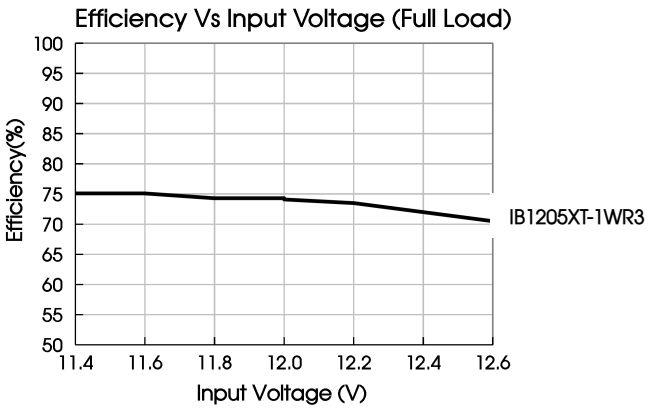
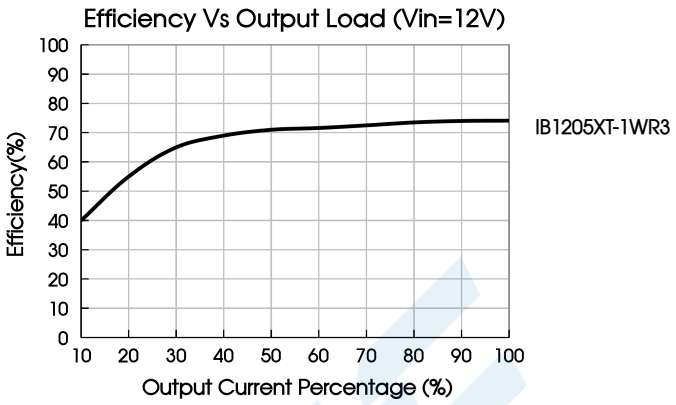
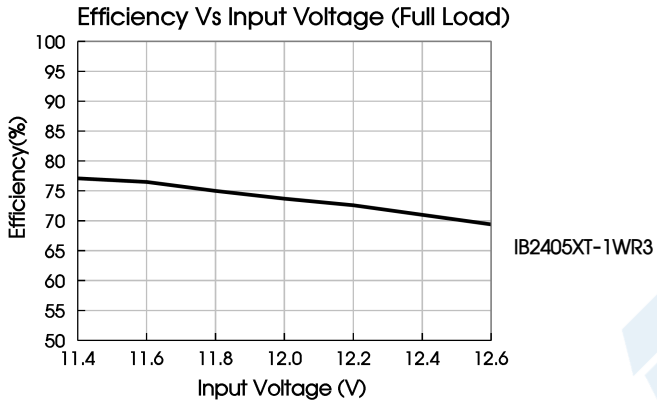
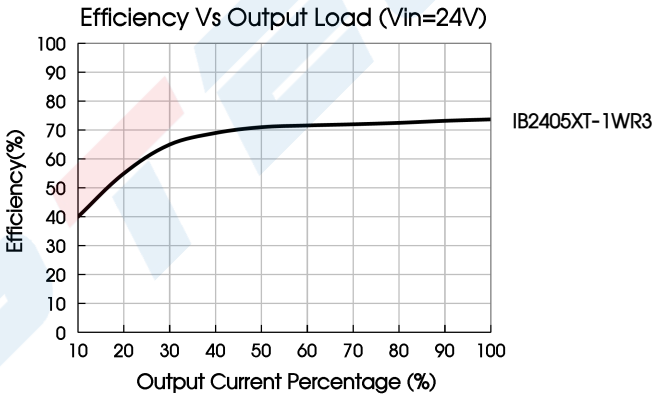


Fig. 1









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.

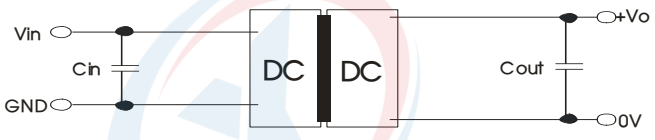


Fig. 2

Table 1: Recommended input and output capacitor values

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

2. EMC compliance circuit

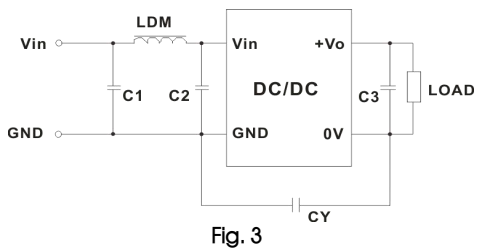


Fig. 3

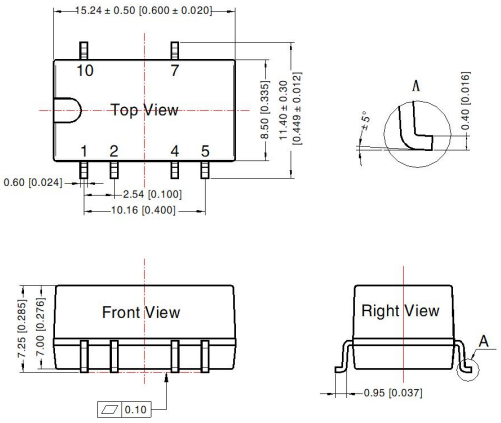
Table 2: Recommended EMC filter values

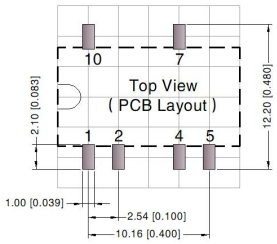
Output voltage		5/12/15VDC
Emissions	C1/C2	4.7μF /50V
	CY	270pF /2kVDC
	C3	Refer to the Cout in table 1
	LDM	6.8μH

Note: To further improve EMI performance, we recommend the use a Y-capacitor CY

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Note: Grid 2.54*2.54mm

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

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

NC: Pin to be isolated from circuitry