DC – DC

Features

- Continuous short-circuit protection
- Operating ambient temperature range: -40℃ to +105℃
- Compact SMD package
- I/O isolation test voltage 3.5k VDC
- Industry standard pin-out
- Meet AEC-Q100 standards
- Production process meets IATF16949 system
- EN62368-1 approved

Ideal Power's 36CF05-XT-1WR3 1W Isolated DC/DC Converter (SMD) Series are certified to UKCA, CE, RoHS & EN 62368-1/IEC 62368-1/UL 62368-1 Standards and comply with the relevant Efficiency Regulations. These are primarily used in EV Automotive, ITE, Audio & Video Industries and customised solutions are available upon request.

Model

Model No.	Input Voltage (VDC) Nominal (Range)	Output Voltage (VDC)	Output Current (mA) Max./Min.	Full Load Efficiency ② (%) Min./Typ.	Capacitive Load (μF)Max.
36CUWF2405JYT-6WR3	5 (4.5-5.5)	5	200/20	78/82	2200

Input Specifications

	Conditions	Min	Typ	Max	Unit
Input Current (full load / no-load)	5VDC input	--	244/5	257/10	mA
Reflected Ripple Current		--	15	--	
Surge Voltage (1sec. max.)		-0.7	--	9	VDC
Input Filter			Capacitance filter		
Hot Plug			Unavailable		

Note: * Reflected ripple current testing method please see DC-DC Converter Application Notes for specific operation.

Output Specifications

	Conditions	Min	Typ	Max	Unit
Voltage Accuracy			See output regulation curve(Fig. 1)		
Linear Regulation	Input voltage change: ±1%	--	--	1.2	%/%
Load Regulation	10%-100% load	--	10	15	%
Ripple & Noise*	20MHz bandwidth	--	30	70	mVp-p
Temperature Coefficient	Full 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

	Conditions	Min	Typ	Max	Unit
Isolation	Input-output Electric Strength Test for 1 minute with a leakage current of 1mA max.	3000	--	--	VAC
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≥85℃, (see Fig. 2)	-40	--	105	℃
Storage Temperature		-55	--	125	
Case Temperature Rise	Ta=25℃	--	15	--	
Storage Humidity	Non-condensing	--	--	95	%RH
Switching Frequency *	Full load, nominal input voltage	--	270	--	KHz
MTBF	MIL-HDBK-217F@25°C	3500	--	--	K hours
Vibration		10-1000Hz, 1mm, 10G, along X, Y and Z (4			
Reflow Soldering		Peak temp.≤245℃, maximum duration time≤60s			
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-020D.1				Level 1

Note: * For actual application, please refer to IPC/JEDEC J-STD-020D.1.

Mechanical Specifications

Case material	Black epoxy resin; 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

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR25/EN55025	CLASS 1 (see Fig.4 for recommended circuit)	
	RE	CISPR25/EN55025	CLASS 1 (see Fig.4 for recommended circuit)	
Immunity	ESD	ISO10605	Air ±8kV , Contact ±4kV perf. Criteria B	perf. Criteria B

Characteristic Curve

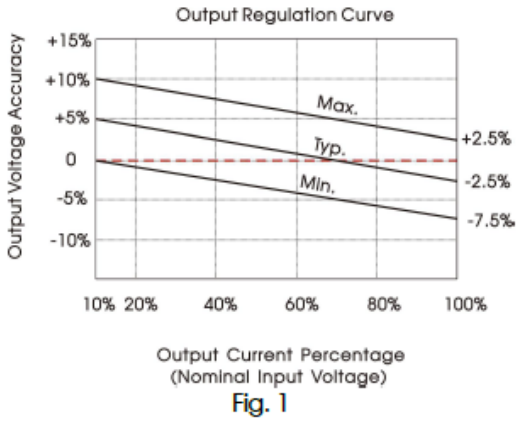


Fig. 1

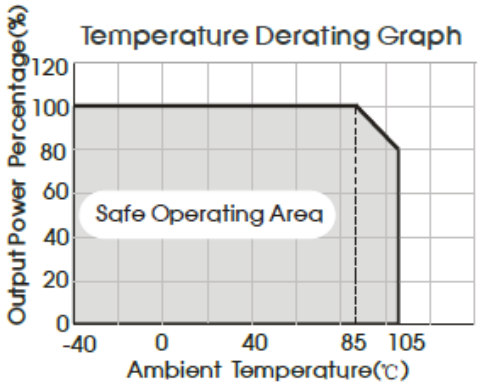
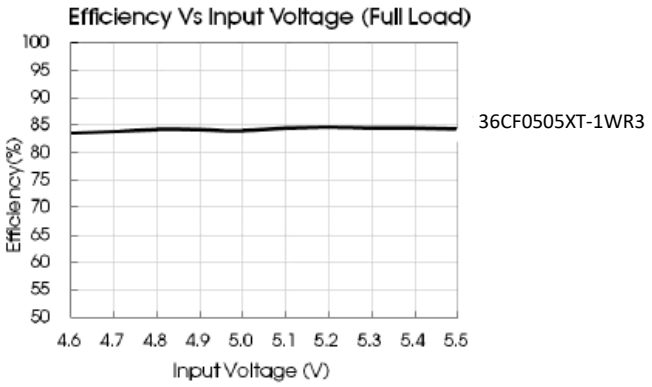
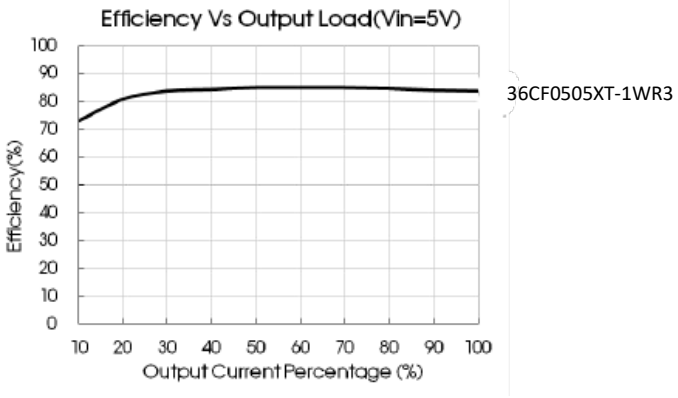


Fig. 2

Characteristic Curve (continued)





Design Reference

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.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.

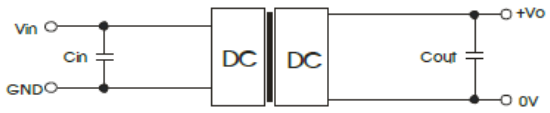


Fig.3

Recommended capacitive load value table (Table 1)

Vin(VDC)	Cin(μF)	Vo (VDC)	Cout(μF)
5	4.7	5	10

2. EMC solution-recommended circuit

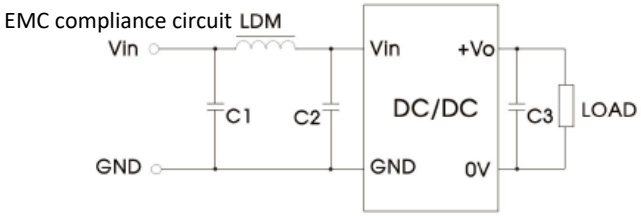


Fig. 4

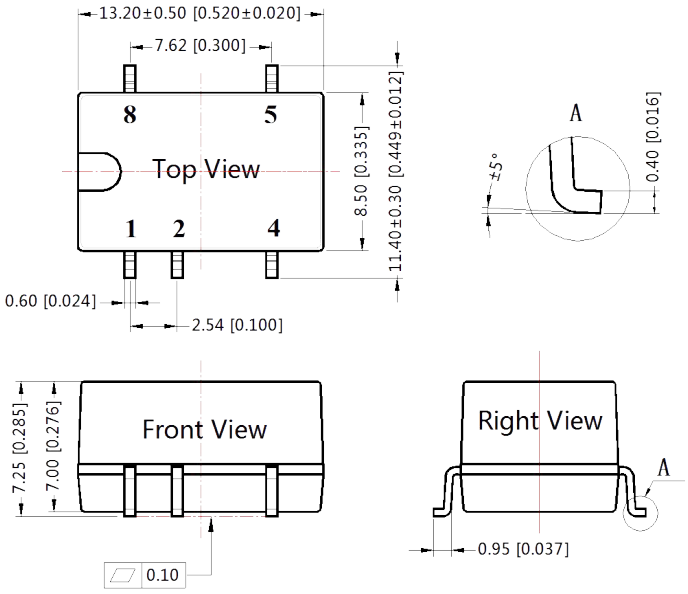
EMC recommended circuit value table (Table 2)

EMI	Input voltage(VDC)	5
	C1/C2	4.7μF /25V
	C3	10μF
	LDM	6.8μH

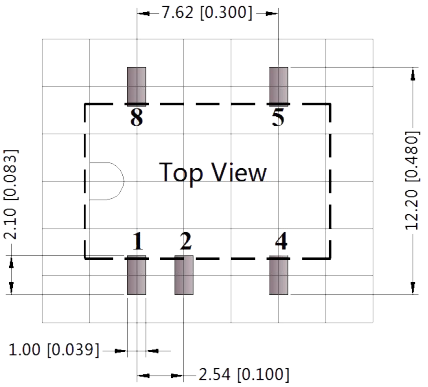
Output load requirements:
For a reliable and efficient operation of the converter, the minimum load should never be less than 10% of the rated output load. If the total
required output power is below 10%, a parallel bleeding resistor is required on the output (The sum of the efficient power and resistor
consumption power is not less than 10%).

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	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: Pin to be isolated from circuitry

Notes:

For additional information on Product Packaging please refer to www.Idealpower.com.
Recommend using module with more than 5% load, if not, the ripple of the product may exceed the specification, but does not affect the reliability of the product.
The maximum capacitive load offered were tested at input voltage range and full load.
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.
All index testing methods in this datasheet are based on company corporate standards.
We can provide product customization service, please contact our technicians directly for specific information.
Products are related to laws and regulations: see "Features" and "EMC".
Our products shall be classified according to ISO14001 and related environmental laws and regulations and shall be handled by qualified units.