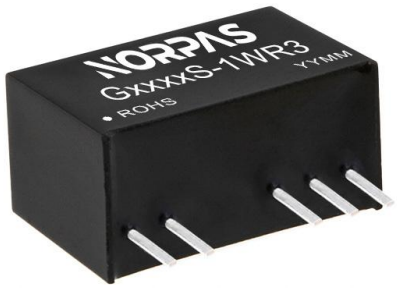
FEATURES

1. High efficiency up to 83%
2. The leakage current < 2μA
3. Isolation Capacitance as low as 4pF
4. Creepage & Clearance Distance > 5mm
5. Reinforced insulation, Isolation voltage: 5000VAC or 6000VDC
6. Operating ambient temperature range: -40℃ to
7. +105℃
8. Continuous short-circuit protection
9. Meet IEC60601 standard



RoHS CE 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.		
G0503S-1WR3	5 (4.5-5.5)	±3.3	±152/±15	71/75	1000
G0505S-1WR3		±5	±100/±10	76/80	1000
G0509S-1WR3		±9	±56/±6	76/80	470
G0512S-1WR3		±12	±42/±5	77/81	220
G0515S-1WR3		±15	±34/±4	77/81	220
H0503S-1WR3		3.3	303/31	71/75	2200
H0505S-1WR3		5	200/20	76/80	2200
H0509S-1WR3		9	111/11	76/80	1000
H0512S-1WR3		12	84/9	77/81	470
H0515S-1WR3		15	67/7	77/81	470
H0524S-1WR3		24	42/4	77/81	220
G1205S-1WR3	12 (10.8-13.2)	±5	±100/±10	75/79	1000
G1209S-1WR3		±9	±56/±6	75/79	470
G1212S-1WR3		±12	±42/±5	77/81	200
G1215S-1WR3		±15	±34/±4	77/81	200
H1203S-1WR3		3.3	303/31	72/76	2200
H1205S-1WR3		5	200/20	75/79	2200
H1209S-1WR3		9	111/12	77/81	680
H1212S-1WR3		12	84/9	79/83	470
H1215S-1WR3		15	67/7	79/83	470
H1224S-1WR3		24	42/4	78/82	220
G1505S-1WR3	15 (13.5-16.5)	±5	±100/±10	73/77	1000
G1512S-1WR3		±12	±42/±5	75/79	220
G1515S-1WR3		±15	±33/±4	75/79	220

G2405S-1WR3	24 (21.6-26.4)	±5	±100/±10	71/75	1000
G2409S-1WR3		±9	±56/±6	71/75	470
G2412S-1WR3		±12	±42/±5	72/76	220
G2415S-1WR3		±15	±34/±4	72/76	220
H2405S-1WR3		5	200/20	72/76	2200
H2409S-1WR3		9	111/12	72/76	680
H2412S-1WR3		12	84/9	72/76	470
H2415S-1WR3		15	67/7	72/76	470
H2424S-1WR3		24	42/4	72/76	220

Note:* The capacitive loads of positive and negative outputs are identical.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load/no-load)	5V input	–	250/14	282/--	mA
	12V input	–	106/10	116/--	
	15V input	–	90/10	100/--	
	24V input	–	56/12	59/--	
Surge Voltage (1sec. max.)	5V input	-0.7	–	9	VDC
	12V input	-0.7	–	18	
	15V input	-0.7	–	21	
	24V input	-0.7	–	30	
Reflected Ripple Current*		–	200	–	mA
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
Output Voltage Accuracy			See output regulation curve(Fig. 1)			
Linear Regulation	Input voltage change: ±1%	3.3V output	–	–	1.5	–
		Other output	–	–	1.2	
Load Regulation	10%-100% load	3.3V/5V output	–	–	20	%
		Other output	–	–	15	
Ripple & Noise*	20MHz bandwidth	3.3V output	–	100	150	mVp-p
		Other output	–	80	120	
Temperature Coefficient	100% full load		–	±0.02	–	%/°C
Output 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, with the test time of 1 minute, the leakage current < 1mA	5000	–	–	VAC
		6000	–	–	VDC
Patient Leakage Current*	250VAC, 50/60Hz	–	–	2	μA
Insulation Resistance	Input-output, isolation voltage 500VDC	1000	–	–	MΩ
Isolation Capacitance	Input-output, 100kHz/0.1V	–	4	–	pF
Operating Temperature	Derating when operating temperature≥85°C(see Fig. 2)	-40	–	105	°C
Storage Temperature		-55	–	125	
Case Temperature Rise	Ta=25°C	–	25	–	

Pin Soldering Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	–	–	300	
Storage Humidity	Non-condensing	5	–	95	%RH
Switching Frequency	5V input, 100% load	–	300	–	kHz
	12/15/24V input, 100% load	–	200	–	
MTBF	MIL-HDBK-217F@25°C	19360	–	–	k hours
Creepage & Clearance Distance		5	–	–	mm
Note: * Leakage current and reinforced insulation is based on 250 VAC, 50/60 Hz system input voltage.					

Mechanical Specifications

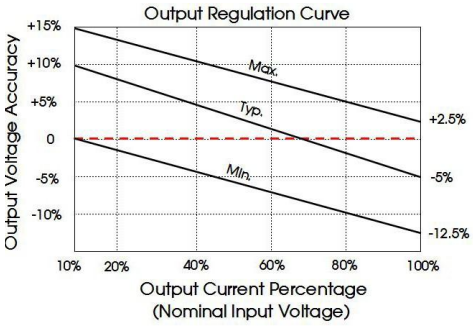
Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	19.50 x 9.80 x 12.50 mm
Weight	4.0g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

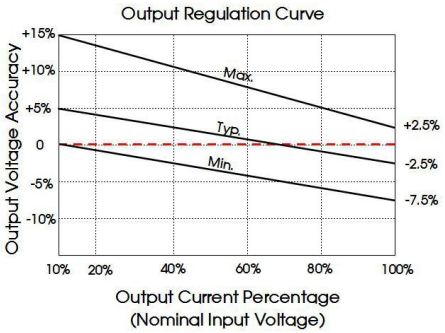
Emissions	CE	H0515S-1WR3 H0524S-1WR3 G0515S-1WR3	CISPR32/EN55032 CLASS A (see Fig. 4 for recommended circuit) EN60601-1-2/CISPR 11 GROUP1 CLASS A (see Fig. 4 for recommended circuit)
		Other Part No.	CISPR32/EN55032 CLASS B (see Fig. 4 for recommended circuit) EN60601-1-2/CISPR 11 GROUP1 CLASS B (see Fig. 4 for recommended circuit)
	RE	H0515S-1WR3 H0524S-1WR3 G0515S-1WR3	CISPR32/EN55032 CLASS A (see Fig. 4 for recommended circuit) EN60601-1-2/CISPR 11 GROUP1 CLASS A (see Fig. 4 for recommended circuit)
		Other Part No.	CISPR32/EN55032 CLASS B (see Fig. 4 for recommended circuit) EN60601-1-2/CISPR 11 GROUP1 CLASS B (see Fig. 4 for recommended circuit)
Immunity	ESD		EN60601-1-2 (IEC/EN61000-4-2) Air ±15kV, Contact ±8kV perf. Criteria B

Typical Characteristic Curves

3.3VDC output



5VDC output



Other output

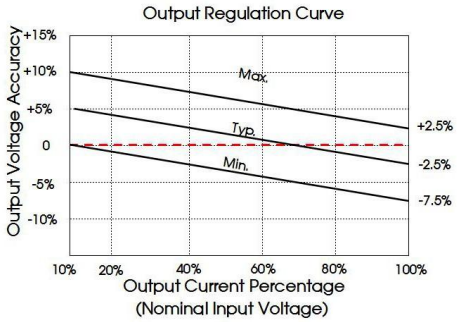


Fig. 1

Temperature Derating Curve

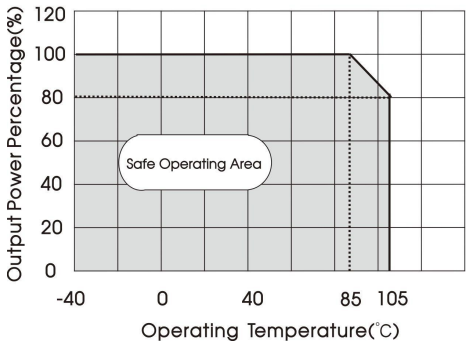


Fig. 2

Design Reference

1. Typical application

If it is required to further reduce input and output ripple, a filter capacitor can be connected to the input and output terminals, see Fig.3. Moreover, choosing suitable filter capacitor is very important, start-up problems may be caused by too large capacitance. To ensured the modules running well, the recommended capacitive load values as shown in Table 1.

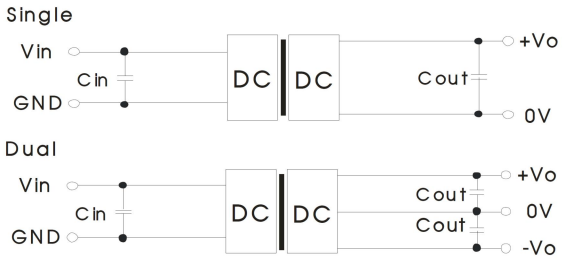


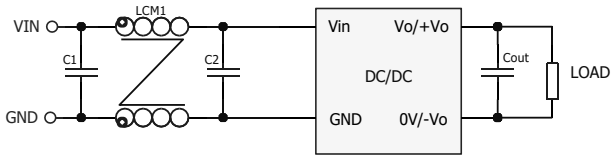
Fig. 3

Table 1: Recommended input and output capacitor values

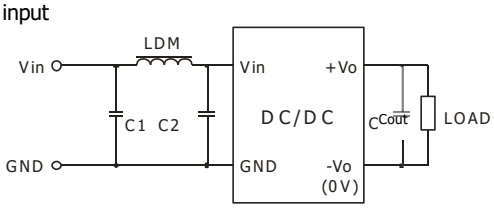
Vin	Cin	Single Vout	Cout	Dual Vout	Cout
5VDC	10μF/10V	3.3/5VDC	10μF/16V	±3.3VDC	4.7μF/16V
12VDC	10μF/25V	9VDC	10μF/16V	±5/±9VDC	4.7μF/16V
15VDC	1μF/25V	12VDC	2.2μF/25V	±12/±15VDC	1μF/25V
24VDC	2.2μF/50V	15VDC	1μF/25V	±24VDC	0.47μF/50V
–	–	24VDC	0.47μF/50V	–	–

2. EMC (CLASS B) compliance circuit

5V input



12V/15V input



24V input

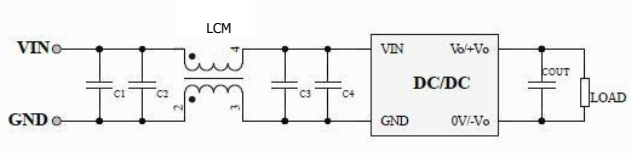


图4

EMC recommended circuit value table (Table 2)

Series		H05 _S-1WR3	G05 _S-1WR3
EMI	C1/C2	4.7μF /16V	22μF /16V
	Cout	Refer to the Cout in table 1	
	LCM1	22μH（Nickel zinc inductance）	

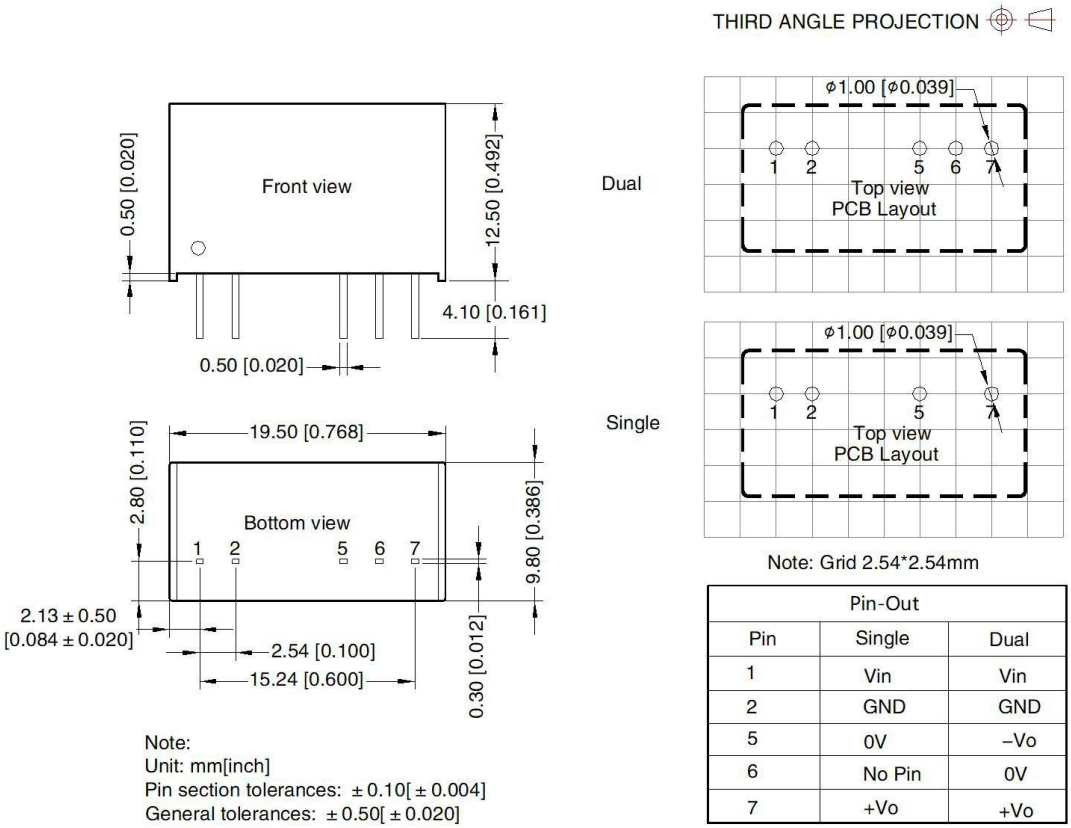
Input voltage		12/15 VDC
Emissions	C1/C2	4.7μF /25V
	Cout	Refer to the Cout in table 1
	LDM	22μH

Input voltage			24 VDC
Emissions	C1/C2		4.7μF /50V
	C3	G24_S-1WR3	100μF /50V
		Other output	4.7μF /50V
	C4	G24_S-1WR3	–
		Other output	4.7μF /50V
	COUT		Refer to the Cout in table 1
	LCM		22μH（Nickel zinc inductance）

3. Minimum Output Load Requirement

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, ensuring that the sum of the power consumption is always maintained at 10% minimum.

Dimensions and Recommended Layout



Note:
Unit: mm[inch]
Pin section tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]

Note: Grid 2.54*2.54mm

Pin-Out		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
5	0V	–Vo
6	No Pin	0V
7	+Vo	+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 Ta=25℃, 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;