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I IA_S-1WC2 Series 1.5KV isolated & regulated dual output

1W DC/DC Converters

Features



- ◆ SIP International Standard Pin
- ◆ Low-Quiescent Current and High Conversion Efficiency
- ◆ Low Ripple Coefficient and Low Noise
- ◆ Built-in Soft-Start Technology
- ◆ 1500Vdc Isolation Voltage
- ◆ Operation Temperature : -40°C to 85°C
- ◆ 100% burn-in and screening
- ◆ Special specifications of products can be designed according to customers' requirements

Applications

Product Naming Convention

IA_S-1WC2 series products are specially designed for applications where two sources are isolated from the input power supply in a distributed power system.

IAXXXXS - 1WC2

The products are applicable to:

① ② ③ ④ ⑤ ⑥

- 1)The fluctuation range of input power supply voltage is within $\pm 5\%$;
- 2)Isolation is required between input and output(1500Vdc isolation voltage);
- 3)Occasions with high requirements for the output voltage stability and output ripple-noise.

- ①Product Series
(1500Vdc Isolation Voltage,Dual Output)
- ②Input Voltage (Nominal Value)
- ③Output Voltage (Nominal Value)
- ④Package(Single Inline Package)
- ⑤Rated Output Power
- ⑥Identification Code

Specifications

Unless otherwise specified, all values are given at room temperature and standard atmosphere pressure, standard input voltage.

Selection Table					
Product Model	Input Voltage (Vdc) range (nominal)	Output Voltage① (Vdc)	Output Current (mA) Max(Full Load)/ Min(Light Load)	Maximum Capacitive Load (μF)②	Efficiency (%.Min/Typ) @ Full Load
IA0505S-1WC2	4.75~5.25 (5V)	±5	±100/±10	100	68/72
IA0509S-1WC2		±9	±56/±6	100	68/72
IA0512S-1WC2		±12	±42/±5	100	68/72
IA0515S-1WC2		±15	±34/±4	100	68/72
IA1205S-1WC2	11.4~12.6 (12V)	±5	±100/±10	100	70/74
IA1209S-1WC2		±9	±56/±6	100	64/68
IA1212S-1WC2		±12	±42/±5	100	64/68
IA1215S-1WC2		±15	±34/±4	100	64/68
IA2405S-1WC2	22.8~25.2 (24V)	±5	±100/±10	100	70/74
IA2409S-1WC2		±9	±56/±6	100	64/68
IA2412S-1WC2		±12	±42/±5	100	64/68
IA2415S-1WC2		±15	±34/±4	100	66/70
IAXXXXX-1WC2	Special specifications of products can be designed according to customers' requirements,and 0.1~1W products can be provided.				

The no-load power consumption of the power modules is about 10% of the rated output power.

①Nominal output voltage refers to the input voltage in the nominal value and output current under full load conditions.

②The maximum capacitive load is the maximum capacity of the module power supply to output the capacitive load. Generally, the external output capacitance can not exceed the maximum capacitive load of the module power supply, otherwise, it will result in bad module startup and affect the reliability of the module's long-term work.

Input Specifications

Input	Conditions	Min③	Typ	Max	Unit
Input Voltage	5V Input	-0.7	5	9	Vdc
	12V Input	-0.7	12	18	
	24V Input	-0.7	24	30	

③The series of modules have no anti-reverse input protection, the input is strictly prohibited positive and negative reverse, otherwise it will cause irreversible damage to the module.

Output Specifications

Output	Conditions	Min	Typ	Max	Unit
Maximum Output Power	—	—	—	1	W
Output Voltage Accuracy	100% load	—	—	±3	%
Linear Voltage Regulation	±5% changes of input voltage	—	—	±0.25	
Load Regulation	10%~100% load	—	—	±2	
Ripple and Noise④	20MHz bandwidth	—	30	—	mV
Output Short-circuit Protection	—	—	—	1	s
	The modules with sustainable short-circuit protection and recovery function can be designed according to customers' requirements. Add the letter "R" to the original product name.				

④Ripple and Noise is measured by connecting the oscilloscope probe without ground wire.

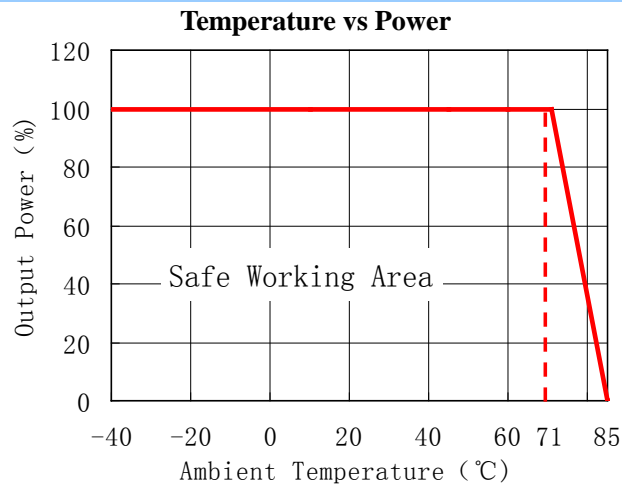
General Specifications

General	Conditions	Min	Typ	Max	Unit
Isolation Voltage	t=60s leak current≤1mA	1500	—	—	Vdc
Isolation Resistance	Input to Output,500Vdc	1000	—	—	MΩ
Isolation Capacitance	Input to Output 100kHz/0.1V	—	40	—	pF
Operating Temperature	full-load states of the output voltage	-40	—	+85	°C
Storage Temperature	—	-55	—	+105	°C
Storage Humidity	non condensing	—	—	95	%RH
Temperature Coefficient	100% load	—	—	±0.03	%/°C
Soldering Temperature	1.5 mm distance between solder joint and case, 10s	—	—	300	°C
Switching Frequency	100% load, nominal input voltage	—	100	300	kHz
MTBF	—	3.5×10 ⁶ h Refer to MIL-HDFK-217F@25°C			

Physical Specifications

Case material	Black flame retardant and heat-resistant epoxy (UL94-V0)
Package Size	27.00mm×11.50mm×8.50mm
Weight	5g typ.
Cooling mode	natural air cooling

Characteristic Curves

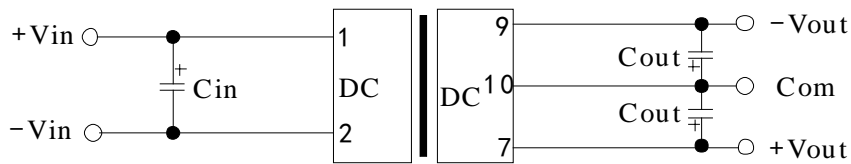


Design Considerations

◆ **Peripheral Recommended Circuit**

Recommended Circuit 1:

A filter capacitor can be connected in parallel at the input and output terminals respectively on the occasions of low requirements for ripple and noise. An external circuit is shown in the figure 1 below. The recommended values of the filter capacitors are shown in the table 1.



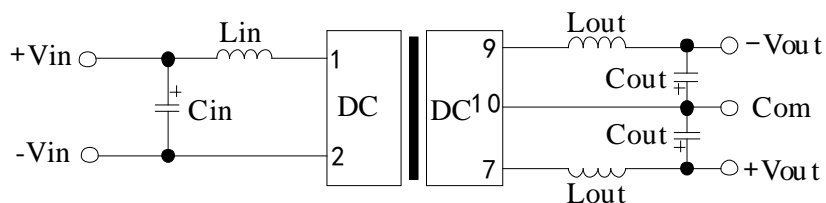
The figure 1

The table 1

Vin(Vdc)	Cin	Vout(Vdc)	Cout
5	4.7μF/16V	±5	4.7μF/16V
12	2.2μF/25V	±9/±12	1μF/25V
24	2.2μF/50V	±15	0.47μF/50V

Recommended Circuit 2:

The external circuit can be referred to the figure 2 on the occasions of strict requirements for ripple and noise. The recommended values of the filter capacitance and inductance are shown in the table 2.



The figure 2

The table 2

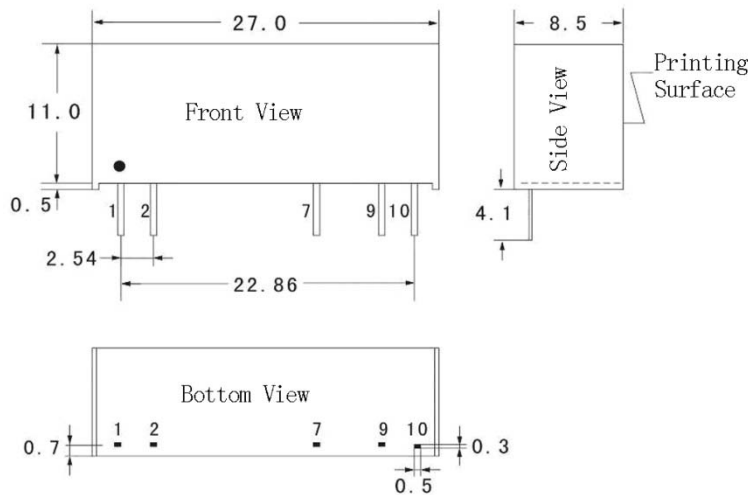
Vin(Vdc)	Cin	Lin	Cout (Vdc)	Lout
5/12/24	See the table 1	4.7μH	See the table 1	4.7μH

◆ **Precautions for product use**

- **Input requirement:** Ensure that the output voltage fluctuations of the power supply do not exceed the input voltage range of the DC/DC module. And the output power of the power supply must be greater than the input power of the DC/DC module.
- **Output load requirement:** Try to avoid no-load use. When the actual power consumption of the load is less than 10% of the rated power of the module or there is no load, pseudo loads are recommended to be connected at the two outputs respectively. The pseudo load can be calculated from 5 ~ 10% of the rated power of the module, resistance = $V_{out}^2 / (0.5W * 10\%)$.
- **Overload protection:** Under the normal working conditions, the product has no output overload protection. The simplest approach is to connect a self-recovery fuse in series at the input, or to add a circuit breaker to the circuit.
- **The external capacitance of the output terminals should not be too large, otherwise it is easy to cause over-current even failure during starting up of the converter.**

Outline Diagram and recommended layout

1) Outline Diagram

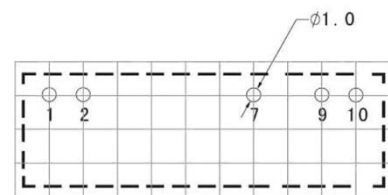


Unites:mm Tolerances:XX±0.25

2) Pin Definition

1	+Vin	Positive Input
2	-Vin	Negative Input
7	+Vout	Positive Output
9	-Vout	Negative Output
10	Com	Common Ground

3) Recommended Layout



Note:grid distance:2.54mm*2.54mm

Application Data

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 2-year.

Contact Information

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II IA_S-2WC2 Series 1.5KV isolated & regulated dual output

2W DC/DC Converters

Features



- ◆ SIP International Standard Pin
- ◆ Low-Quiescent Current and High Conversion Efficiency
- ◆ Low Ripple Coefficient and Low Noise
- ◆ Built-in Soft-Start Technology
- ◆ 1500Vdc Isolation Voltage
- ◆ Operation Temperature : -40°C to 85°C
- ◆ 100% burn-in and screening
- ◆ Special specifications of products can be designed according to customers' requirements

Applications

IA_S-2WC2 series products are specially designed for applications where two sources are isolated from the input power supply in a distributed power system.

The products are applicable to:

- 1)The fluctuation range of input power supply voltage is within $\pm 5\%$;
- 2)Isolation is required between input and output(1500Vdc isolation voltage);
- 3)Occasions with high requirements for the output voltage stability and output ripple-noise.

Product Naming Convention

IA XXXXS - 2WC2

① ② ③ ④ ⑤ ⑥

- ①Product Series
(1500Vdc Isolation Voltage,Dual Output)
- ②Input Voltage (Nominal Value)
- ③Output Voltage (Nominal Value)
- ④Package(Single Inline Package)
- ⑤Rated Output Power
- ⑥Identification Code

Specifications

Unless otherwise specified, all values are given at room temperature and standard atmosphere pressure, standard input voltage.

Selection Table					
Product Model	Input Voltage (Vdc) range (nominal)	Output Voltage① (Vdc)	Output Current (mA) Max(Full Load)/ Min(Light Load)	Maximum Capacitive Load (μF)②	Efficiency (% ,Min/Typ) @ Full Load
IA0505S-2WC2	4.75~5.25 (5V)	±5	±200/±20	100	68/72
IA0509S-2WC2		±9	±112/±12	100	68/72
IA0512S-2WC2		±12	±83/±8	100	68/72
IA0515S-2WC2		±15	±67/±7	100	68/72
IA1205S-2WC2	11.4~12.6 (12V)	±5	±200/±20	100	70/74
IA1209S-2WC2		±9	±112/±12	100	64/68
IA1212S-2WC2		±12	±83/±8	100	64/68
IA1215S-2WC2		±15	±67/±7	100	64/68
IA2405S-2WC2	22.8~25.2 (24V)	±5	±200/±20	100	70/74
IA2409S-2WC2		±9	±112/±12	100	64/68
IA2412S-2WC2		±12	±83/±8	100	64/68
IA2415S-2WC2		±15	±67/±7	100	66/70

Continue

Selection Table

IAXXXS-2WC2	Special specifications of products can be designed according to customers' requirements, and 1 ~ 2W products can be provided.
The no-load power consumption of the power modules is about 10% of the rated output power.	
①Nominal output voltage refers to the input voltage in the nominal value and output current under full load conditions.	
②The maximum capacitive load is the maximum capacity of the module power supply to output the capacitive load. Generally, the external output capacitance can not exceed the maximum capacitive load of the module power supply, otherwise, it will result in bad module startup and affect the reliability of the module's long-term work.	

Input Specifications

Input	Conditions	Min ^③	Typ	Max	Unit
Input Voltage	5V Input	-0.7	5	9	Vdc
	12V Input	-0.7	12	18	
	24V Input	-0.7	24	30	

③The series of modules have no anti-reverse input protection, the input is strictly prohibited positive and negative reverse, otherwise it will cause irreversible damage to the module.

Output Specifications

Output	Conditions	Min	Typ	Max	Unit
Maximum Output Power	—	—	—	2	W
Output Voltage Accuracy	100% load	—	—	±3	%
Linear Voltage Regulation	±5% changes of input voltage	—	—	±0.25	
Load Regulation	10% ~ 100% load	—	—	±2	
Ripple and Noise ^④	20MHz bandwidth	—	50	—	mV
Output Short-circuit Protection	—	—	—	1	s
	The modules with sustainable short-circuit protection and recovery function can be designed according to customers' requirements. Add the letter "R" to the original product name.				

④Ripple and Noise is measured by connecting the oscilloscope probe without ground wire.

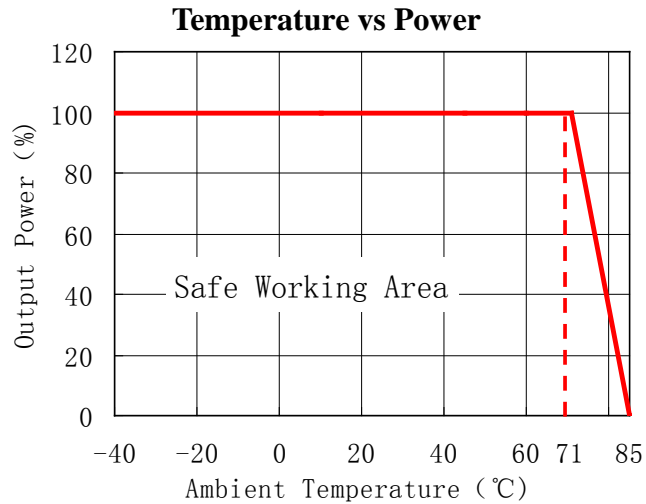
General Specifications

General	Conditions	Min	Typ	Max	Unit
Isolation Voltage	t=60s, leak current ≤ 1mA	1500	—	—	Vdc
Isolation Resistance	Input to Output, 500Vdc	1000	—	—	MΩ
Isolation Capacitance	Input to Output 100kHz/0.1V	—	40	—	pF
Operating Temperature	Full-load states of the output voltage	-40	—	+85	°C
Storage Temperature	—	-55	—	+105	°C
Storage Humidity	non condensing	—	—	95	%RH
Temperature Coefficient	100% load	—	—	±0.03	%/°C
Soldering Temperature	1.5 mm distance between solder joint and case, 10s	—	—	300	°C
Switching Frequency	100% load, nominal input voltage	—	100	300	kHz
MTBF	—	3.5×10 ⁶ h Refer to MIL-HDFK-217F@25°C			

Physical Specifications

Case material	Black flame retardant and heat-resistant epoxy (UL94-V0)
Package Size	27.00mm×11.50mm×8.50mm
Weight	5g typ.
Cooling mode	natural air cooling

Characteristic Curves

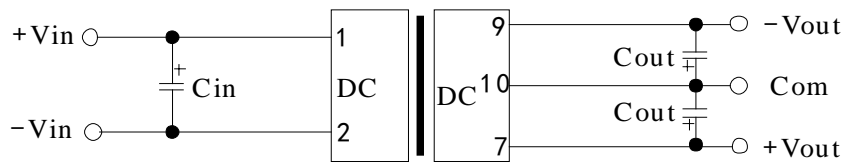


Design Considerations

◆ **Peripheral Recommended Circuit**

Recommended Circuit 1:

A filter capacitor can be connected in parallel at the input and output terminals respectively on the occasions of low requirements for ripple and noise. An external circuit is shown in the figure 1 below. The recommended values of the filter capacitors are shown in the table 1.



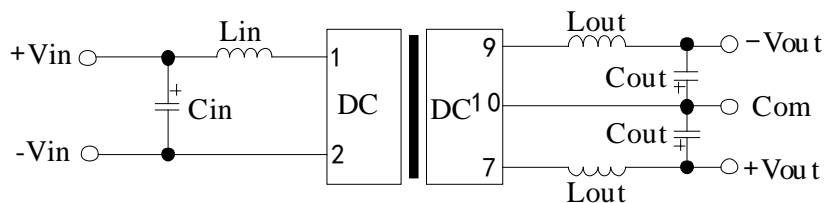
The figure 1

The table 1

Vin(Vdc)	Cin	Vout(Vdc)	Cout
5	4.7μF/16V	±5	4.7μF/16V
12	2.2μF/25V	±9/±12	1μF/25V
24	2.2μF/50V	±15	0.47μF/50V

Recommended Circuit 2:

The external circuit can be referred to the figure 2 on the occasions of strict requirements for ripple and noise. The recommended values of the filter capacitance and inductance are shown in the table 2.



The figure 2

The table 2

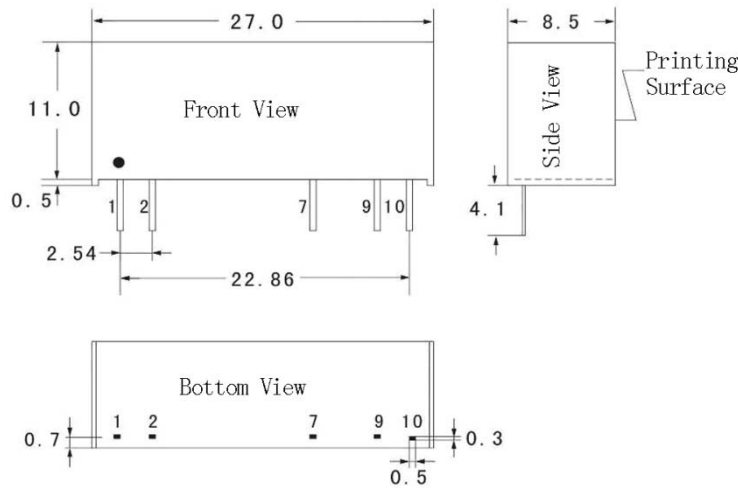
Vin(Vdc)	Cin	Lin	Cout (Vdc)	Lout
5/12/24	See the table 1	4.7μH	See the table 1	4.7μH

◆ **Precautions for product use**

- **Input requirement:** Ensure that the output voltage fluctuations of the power supply do not exceed the input voltage range of the DC/DC module. And the output power of the power supply must be greater than the input power of the DC/DC module.
- **Output load requirement:** Try to avoid no-load use. When the actual power consumption of the load is less than 10% of the rated power of the module or there is no load, pseudo loads are recommended to be connected at the two outputs respectively. The pseudo load can be calculated from 5 ~ 10% of the rated power of the module, resistance = $V_{out}^2 / (1W * 10\%)$.
- **Overload protection:** Under the normal working conditions, the product has no output overload protection. The simplest approach is to connect a self-recovery fuse in series at the input, or to add a circuit breaker to the circuit.
- **The external capacitance of the output terminals should not be too large, otherwise it is easy to cause over-current even failure during starting up of the converter.**

Outline Diagram and recommended layout

1) Outline Diagram

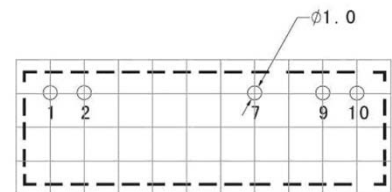


Unites:mm Tolerances:XX±0.25

2) Pin Definition

1	+Vin	Positive Input
2	-Vin	Negative Input
7	+Vout	Positive Output
9	-Vout	Negative Output
10	Com	Common Ground

3) Recommended Layout



Note:grid distance:2.54mm*2.54mm

Application Data

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 2-year.

Contact Information

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III IF_S-1WC2 Series 3KV isolated®ulated single output

1W DC/DC Converters

Features



- ◆ SIP International Standard Pin
- ◆ Low-Quiescent Current and High Conversion Efficiency
- ◆ Low Ripple Coefficient and Low Noise
- ◆ Built-in Soft-Start Technology
- ◆ 3000Vdc Isolation Voltage
- ◆ Operation Temperature : -40°C to 85°C
- ◆ 100% Burn-in and Screening
- ◆ Special specifications of products can be designed according to customers' requirements

Applications

IF_S-1WC2 series products are specially designed for applications where a power source is isolated from the input power supply in a distributed power system.

The products are applicable to:

- 1)The fluctuation range of input power supply voltage is within $\pm 5\%$;
- 2)Isolation is required between input and output(3000Vdc isolation voltage);
- 3)Occasions with high requirements for the output voltage stability and output ripple-noise.

Product Naming Convention

IFXXXXS - 1WC2

① ② ③ ④ ⑤ ⑥

- ①Product Series
(3000Vdc Isolation Voltage,Single Output)
- ②Input Voltage (Nominal Value)
- ③Output Voltage (Nominal Value)
- ④Package(Single Inline Package)
- ⑤Rated Output Power
- ⑥Identification Code

Specifications

Unless otherwise specified, all values are given at room temperature and standard atmosphere pressure, standard input voltage.

Selection Table					
Product Model	Input Voltage (Vdc) range (nominal)	Output Voltage① (Vdc)	Output Current (mA) Max(Full Load)/ Min(Light Load)	Maximum Capacitive Load (μF)②	Efficiency (% ,Min/Typ) @ Full Load
IF0505S-1WC2	4.75~5.25 (5V)	5	200/20	100	64/68
IF0509S-1WC2		9	112/11.2	100	70/74
IF0512S-1WC2		12	84/8.4	100	70/74
IF0515S-1WC2		15	67/6.7	100	70/74
IF1205S-1WC2	11.4~12.6 (12V)	5	200/20	100	64/68
IF1209S-1WC2		9	112/11.2	100	70/74
IF1212S-1WC2		12	84/8.4	100	70/74
IF1215S-1WC2		15	67/6.7	100	72/76
IF2405S-1WC2	22.8~25.2 (24V)	5	200/20	100	64/68
IF2409S-1WC2		9	112/11.2	100	70/74
IF2412S-1WC2		12	84/8.4	100	70/74
IF2415S-1WC2		15	67/6.7	100	72/76

Continue

Selection Table	
IFXXXXS-1WC2	Special specifications of products can be designed according to customers' requirements, and 0.1 ~ 1W products can be provided.
The no-load power consumption of the power modules is about 10% of the rated output power. ①Nominal output voltage refers to the input voltage in the nominal value and output current under full load conditions. ②The maximum capacitive load is the maximum capacity of the module power supply to output the capacitive load. Generally, the external output capacitance can not exceed the maximum capacitive load of the module power supply, otherwise, it will result in bad module startup and affect the reliability of the module's long-term work.	

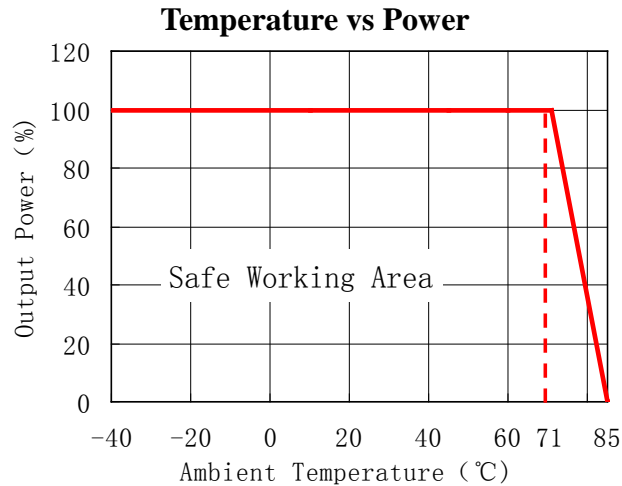
Input Specifications					
Input	Conditions	Min ^③	Typ	Max	Unit
Input Voltage	5V Input	-0.7	5	9	Vdc
	12V Input	-0.7	12	18	
	24V Input	-0.7	24	30	
③The series of modules have no anti-reverse input protection, the input is strictly prohibited positive and negative reverse, otherwise it will cause irreversible damage to the module.					

Output Specifications					
Output	Conditions	Min	Typ	Max	Unit
Maximum Output Power	—	—	—	1	W
Output Voltage Accuracy	100% load	—	—	±3	%
Linear Voltage Regulation	±5% Changes of input voltage	—	—	±0.25	
Load Regulation	10%~100% load	—	±1	±2	
Ripple and Noise ^④	20MHz bandwidth	—	50	—	mV
Output Short-circuit Protection	—	—	—	1	s
The modules with sustainable short-circuit protection and recovery function can be designed according to customers' requirements. Add the letter "R" to the original product name.					
④Ripple and Noise is measured by connecting the oscilloscope probe without ground wire.					

General Specifications					
General	Conditions	Min	Typ	Max	Unit
Isolation Voltage	t=60s, leak current≤1mA	3000	—	—	Vdc
Isolation Resistance	Input to Output, 500Vdc	1000	—	—	MΩ
Isolation Capacitance	Input to Output 100kHz/0.1V	—	40	—	pF
Operating Temperature	Full-load states of the output voltage	-40	—	+85	°C
Storage Temperature	—	-55	—	+105	°C
Storage Humidity	non condensing	—	—	95	%RH
Temperature Coefficient	100% load	—	—	±0.03	%/°C
Soldering Temperature	1.5 mm distance between solder joint and case, 10s	—	—	300	°C
Switching Frequency	100% load, nominal input voltage	—	100	300	kHz
MTBF	—	3.5×10 ⁶ h Refer to MIL-HDFK-217F@25°C			

Physical Specifications	
Case material	Black flame retardant and heat-resistant epoxy (UL94-V0)
Package Size	19.50mm×10.00mm×6.00mm
Weight	2.4g typ.
Cooling mode	natural air cooling

Characteristic Curves

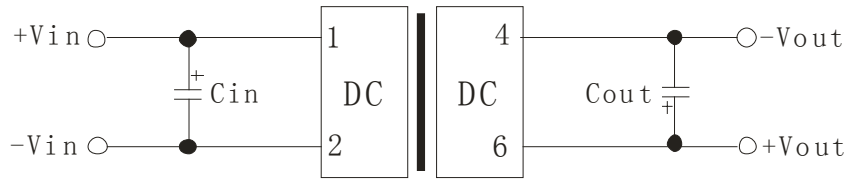


Design Considerations

◆ **Peripheral Recommended Circuit**

Recommended Circuit 1:

A filter capacitor can be connected in parallel at the input and output terminals respectively on the occasions of low requirements for ripple and noise. An external circuit is shown in the figure 1 below. The recommended values of the filter capacitors are shown in the table 1.



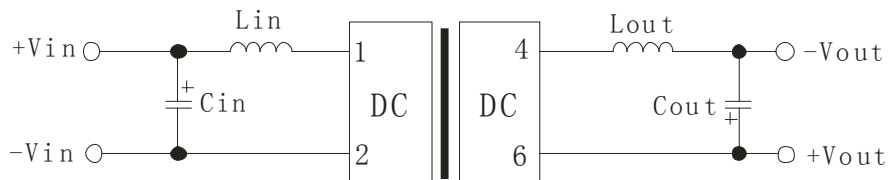
The figure 1

The table 1

Vin(Vdc)	Cin	Vout(Vdc)	Cout
5	10 μ F/16V	5	10 μ F/16V
12	4.7 μ F/25V	9/12	4.7 μ F/25V
24	2.2 μ F/50V	15	1 μ F/50V

Recommended Circuit 2:

The external circuit can be referred to the figure 2 on the occasions of strict requirements for ripple and noise. The recommended values of the filter capacitance and inductance are shown in the table 2.



The figure 2

The table 2

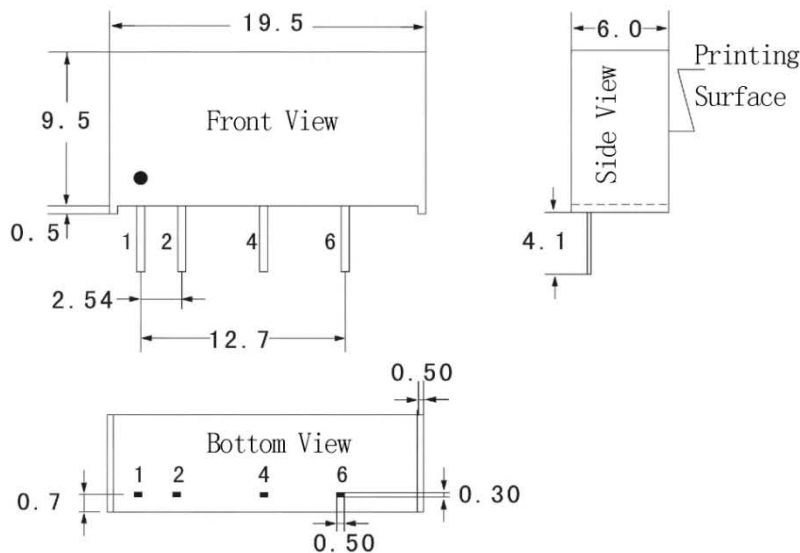
Vin(Vdc)	Cin	Lin	Cout (Vdc)	Lout
5/12/24	See the table 1	4.7 μ H	See the table 1	4.7 μ H

◆ **Precautions for product use**

- **Input requirement:** Ensure that the output voltage fluctuations of the power supply do not exceed the input voltage range of the DC/DC module. And the output power of the power supply must be greater than the input power of the DC/DC module.
- **Output load requirement:** Try to avoid no-load use. When the actual power consumption of the load is less than 10% of the rated power of the module or there is no load, pseudo loads are recommended to be connected at the output terminals. The pseudo load can be calculated from 5 ~ 10% of the rated power of the module, resistance = $V_{out}^2 / (1W * 10\%)$.
- **Overload protection:** Under the normal working conditions, the product has no output overload protection. The simplest approach is to connect a self-recovery fuse in series at the input, or to add a circuit breaker to the circuit.
- **The external capacitance of the output terminals should not be too large, otherwise it is easy to cause over-current even failure during starting up of the converter.**

Outline Diagram and recommended layout

1) Outline Diagram

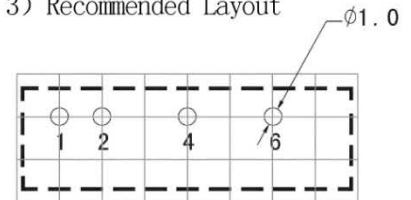


Units:mm Tolerances:XX±0.25

2) Pin Definition

1	+Vin	Positive Input
2	-Vin	Negative Input
3	No Pin	No Pin
4	-V _{OUT}	Negative Output
5	No Pin	No Pin
6	+V _{OUT}	Positive Output

3) Recommended Layout



Note: grid distance:2.54*2.54mm

Application Data

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 2-year.

Contact Information

Anhui Hesion Trading Co.,Ltd.
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Backup:alecz@126.com

IV IF_S-2WC2 Series 3KV isolated®ulated single output

2W DC/DC Converters

Features



- ◆ SIP International Standard Pin
- ◆ Low-Quiescent Current and High Conversion Efficiency
- ◆ Low Ripple Coefficient and Low Noise
- ◆ Built-in Soft-Start Technology
- ◆ 3000Vdc Isolation Voltage
- ◆ Operation Temperature : -40°C to 85°C
- ◆ 100% Burn-in and Screening
- ◆ Special specifications of products can be designed according to customers' requirements

Applications

Product Naming Convention

IF_S-2WC2 series products are specially designed for applications where a power source is isolated from the input power supply in a distributed power system. The products are applicable to:

- 1)The fluctuation range of input power supply voltage is within $\pm 5\%$;
- 2)Isolation is required between input and output(3000Vdc isolation voltage);
- 3)Occasions with high requirements for the output voltage stability and output ripple-noise.

IFXXXXS -2WC2

① ② ③ ④ ⑤ ⑥

- ①Product Series
(3000Vdc Isolation Voltage,Single Output)
- ②Input Voltage (Nominal Value)
- ③Output Voltage (Nominal Value)
- ④Package(Single Inline Package)
- ⑤Rated Output Power
- ⑥Identification Code

Specifications

Unless otherwise specified, all values are given at room temperature and standard atmosphere pressure, standard input voltage.

Selection Table					
Product Model	Input Voltage (Vdc) range (nominal)	Output Voltage① (Vdc)	Output Current (mA) Max(Full Load)/ Min(Light Load)	Maximum Capacitive Load (μF)②	Efficiency (%.Min/Typ) @ Full Load
IF0505S-2WC2	4.75~5.25 (5V)	5	400/40	100	68/72
IF0509S-2WC2		9	224/22.4	100	68/72
IF0512S-2WC2		12	168/16.8	100	68/72
IF0515S-2WC2		15	134/13.4	100	68/72
IF1205S-2WC2	11.4~12.6 (12V)	5	400/40	100	70/74
IF1209S-2WC2		9	224/22.4	100	64/68
IF1212S-2WC2		12	168/16.8	100	64/68
IF1215S-2WC2		15	134/13.4	100	64/68
IF2405S-2WC2	22.8~25.2 (24V)	5	400/40	100	70/74
IF2409S-2WC2		9	224/22.4	100	64/68
IF2412S-2WC2		12	168/16.8	100	64/68
IF2415S-2WC2		15	134/13.4	100	66/70

Continue

Selection Table	
IFXXXXS-2WC2	Special specifications of products can be designed according to customers' requirements, and 1 ~ 2W products can be provided.
The no-load power consumption of the power modules is about 10% of the rated output power. ①Nominal output voltage refers to the input voltage in the nominal value and output current under full load conditions. ②The maximum capacitive load is the maximum capacity of the module power supply to output the capacitive load. Generally, the external output capacitance can not exceed the maximum capacitive load of the module power supply, otherwise, it will result in bad module startup and affect the reliability of the module's long-term work.	

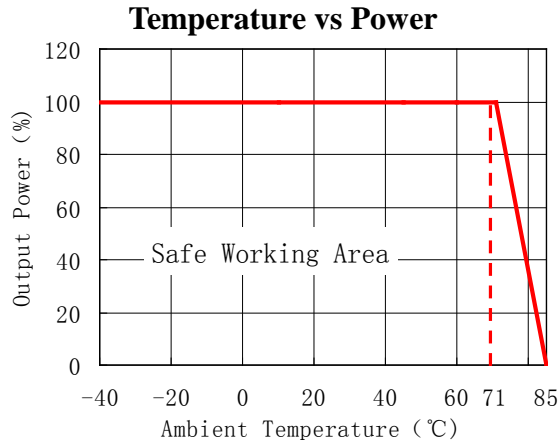
Input Specifications					
Input	Conditions	Min ^③	Typ	Max	Unit
Input Voltage	5V Input	-0.7	5	9	Vdc
	12V Input	-0.7	12	18	
	24V Input	-0.7	24	30	
③The series of modules have no anti-reverse input protection, the input is strictly prohibited positive and negative reverse, otherwise it will cause irreversible damage to the module.					

Output Specifications					
Output	Conditions	Min	Typ	Max	Unit
Maximum Output Power	—	—	—	2	W
Output Voltage Accuracy	100% load	—	—	±3	%
Linear Voltage Regulation	±5% Changes of input voltage	—	—	±0.5	
Load Regulation	10%~100% load	—	±1	±2	
Ripple and Noise ^④	20MHz bandwidth	—	50	—	mV
Output Short-circuit Protection	—	—	—	1	s
	The modules with sustainable short-circuit protection and recovery function can be designed according to customers' requirements. Add the letter "R" to the original product name.				
④Ripple and Noise is measured by connecting the oscilloscope probe without ground wire.					

General Specifications					
General	Conditions	Min	Typ	Max	Unit
Isolation Voltage	t=60s, leak current≤1mA	3000	—	—	Vdc
Isolation Resistance	Input to Output, 500Vdc	1000	—	—	MΩ
Isolation Capacitance	Input to Output 100kHz/0.1V	—	40	—	pF
Operating Temperature	Full-load states of the output voltage	-40	—	+85	°C
Storage Temperature	—	-55	—	+105	°C
Storage Humidity	non condensing	—	—	95	%RH
Temperature Coefficient	100% Load	—	—	±0.03	%/°C
Soldering Temperature	1.5 mm distance between solder joint and case, 10s	—	—	300	°C
Switching Frequency	100% load, nominal input voltage	—	100	300	kHz
MTBF	—	3.5×10 ⁶ h Refer to MIL-HDFK-217F@25°C			

Physical Specifications	
Case material	Black flame retardant and heat-resistant epoxy (UL94-V0)
Package Size	19.50mm×10.00mm×7.00mm
Weight	2.4g typ.
Case material	natural air cooling

Characteristic Curves

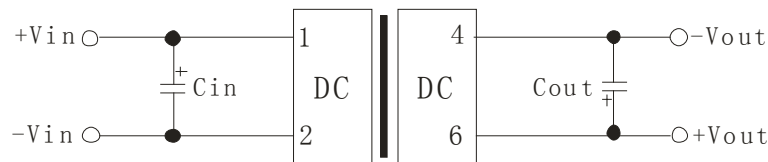


Design Considerations

◆ **Peripheral Recommended Circuit**

Recommended Circuit 1:

A filter capacitor can be connected in parallel at the input and output terminals respectively on the occasions of low requirements for ripple and noise. An external circuit is shown in the figure 1 below. The recommended values of the filter capacitors are shown in the table 1.



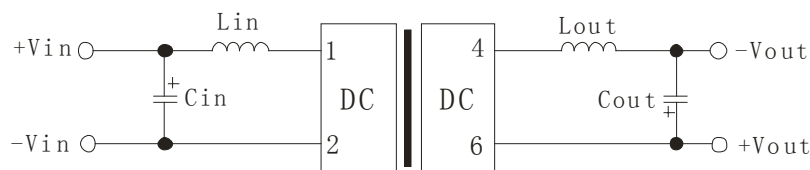
The figure 1

The table 1

Vin(Vdc)	Cin	Vout(Vdc)	Cout
5	4.7μF/16V	5	4.7μF/16V
12	2.2μF/25V	9/12	—
24	1μF/50V	15	—

Recommended Circuit 2:

The external circuit can be referred to the figure 2 on the occasions of strict requirements for ripple and noise. The recommended values of the filter capacitance and inductance are shown in the table 2.



The figure 2

The table 2

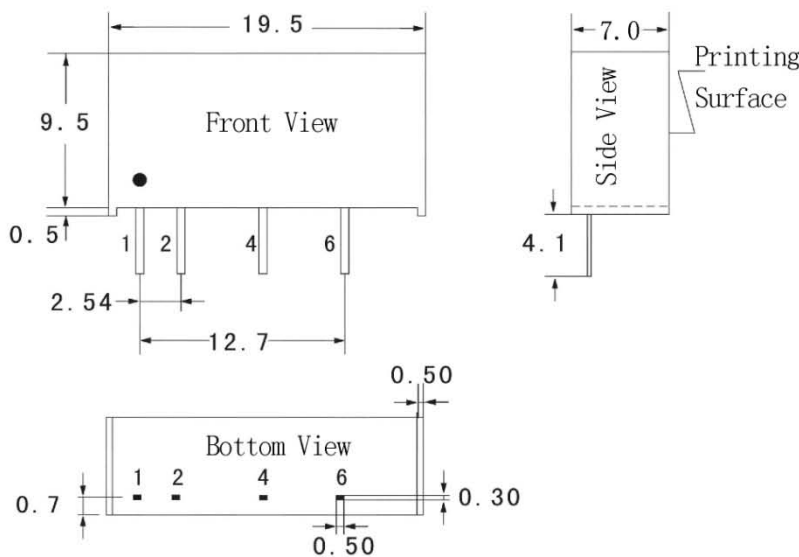
Vin(Vdc)	Cin	Lin	Cout (Vdc)	Lout
5/12/24	See the table 1	4.7μH	See the table 1	4.7μH

◆ **Precautions for product use**

- **Input requirement:** Ensure that the output voltage fluctuations of the power supply do not exceed the input voltage range of the DC/DC module. And the output power of the power supply must be greater than the input power of the DC/DC module.
- **Output load requirement:** Try to avoid no-load use. When the actual power consumption of the load is less than 10% of the rated power of the module or there is no load, pseudo loads are recommended to be connected at the output terminals. The pseudo load can be calculated from 5 ~ 10% of the rated power of the module, resistance = $V_{out}^2 / (2W * 10\%)$.
- **Overload protection:** Under the normal working conditions, the product has no output overload protection. The simplest approach is to connect a self-recovery fuse in series at the input, or to add a circuit breaker to the circuit.
- **The external capacitance of the output terminals should not be too large, otherwise it is easy to cause over-current even failure during starting up of the converter.**

Outline Diagram and recommended layout

1) Outline Diagram

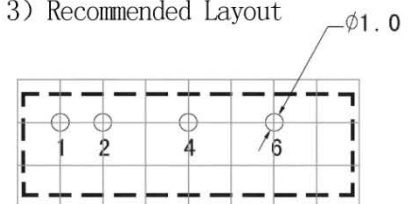


Units:mm Tolerances:XX±0.25

2) Pin Definition

1	+Vin	Positive Input
2	-Vin	Negative Input
3	No Pin	No Pin
4	-Vout	Negative Output
5	No Pin	No Pin
6	+Vout	Positive Output

3) Recommended Layout



Note: grid distance:2.54*2.54mm

Application Data

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 2-year.

Contact Information

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Backup:alecz@126.com

V IE_S-1WC2 Series 3KV isolated®ulated dual output

1W DC/DC Converters

Features



- ◆ SIP International Standard Pin
- ◆ Low-Quiescent Current and High Conversion Efficiency
- ◆ Low Ripple Coefficient and Low Noise
- ◆ Built-in Soft-Start Technology
- ◆ 3000Vdc Isolation Voltage
- ◆ Operation Temperature : -40°C to 85°C
- ◆ 100% Burn-in and Screening
- ◆ Special specifications of products can be designed according to customers' requirements

Applications

IE_S-1WC2 series products are specially designed for applications where two sources are isolated from the input power supply in a distributed power system.

The products are applicable to:

- 1)The fluctuation range of input power supply voltage is within $\pm 5\%$;
- 2)Isolation is required between input and output(3000Vdc isolation voltage);
- 3)Occasions with high requirements for the output voltage stability and output ripple-noise.

Product Naming Convention

IEXXXXS - 1WC2

① ② ③ ④ ⑤ ⑥

- ①Product Series
(3000Vdc Isolation Voltage,Dual Output)
- ②Input Voltage (Nominal Value)
- ③Output Voltage (Nominal Value)
- ④Package(Single Inline Package)
- ⑤Rated Output Power
- ⑥Identification Code

Specifications

Unless otherwise specified, all values are given at room temperature and standard atmosphere pressure, standard input voltage.

Selection Table					
Product Model	Input Voltage (Vdc) range (nominal)	Output Voltage① (Vdc)	Output Current (mA) Max(Full Load)/ Min(Light Load)	Maximum Capacitive Load (μF)②	Efficiency (% ,Min/Typ) @ Full Load
IE0505S-1WC2	4.75~5.25 (5V)	±5	±100/±10	100	68/72
IE0509S-1WC2		±9	±56/±6	100	68/72
IE0512S-1WC2		±12	±42/±5	100	68/72
IE0515S-1WC2		±15	±34/±4	100	68/72
IE1205S-1WC2	11.4~12.6 (12V)	±5	±100/±10	100	70/74
IE1209S-1WC2		±9	±56/±6	100	64/68
IE1212S-1WC2		±12	±42/±5	100	64/68
IE1215S-1WC2		±15	±34/±4	100	64/68
IE2405S-1WC2	22.8~25.2 (24V)	±5	±100/±10	100	70/74
IE2409S-1WC2		±9	±56/±6	100	64/68
IE2412S-1WC2		±12	±42/±5	100	64/68
IE2415S-1WC2		±15	±34/±4	100	66/70

Continue

Selection Table	
IEXXXS-1WC2	Special specifications of products can be designed according to customers' requirements, and 0.1~1W products can be provided.
The no-load power consumption of the power modules is about 10% of the rated output power. ①Nominal output voltage refers to the input voltage in the nominal value and output current under full load conditions. ②The maximum capacitive load is the maximum capacity of the module power supply to output the capacitive load. Generally, the external output capacitance can not exceed the maximum capacitive load of the module power supply, otherwise, it will result in bad module startup and affect the reliability of the module's long-term work.	

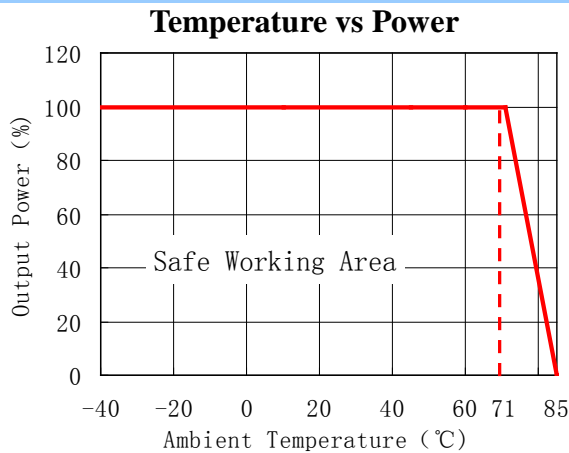
Input Specifications					
Input	Conditions	Min ^③	Typ	Max	Unit
Input Voltage	5V Input	-0.7	5	9	Vdc
	12V Input	-0.7	12	18	
	24V Input	-0.7	24	30	
③The series of modules have no anti-reverse input protection, the input is strictly prohibited positive and negative reverse, otherwise it will cause irreversible damage to the module.					

Output Specifications					
Output	Conditions	Min	Typ	Max	Unit
Maximum Output Power	—	—	—	1	W
Output Voltage Accuracy	100% load	—	—	±3	%
Linear Voltage Regulation	±5% changes of input voltage	—	—	±0.25	
Load Regulation	10%~100% load	—	—	±1	
Ripple and Noise ^④	20MHz bandwidth	—	50	—	mV
Output Short-circuit Protection	—	—	—	1	s
The modules with sustainable short-circuit protection and recovery function can be designed according to customers' requirements. Add the letter "R" to the original product name.					
④Ripple and Noise is measured by connecting the oscilloscope probe without ground wire.					

General Specifications					
General	Conditions	Min	Typ	Max	Unit
Isolation Voltage	t=60s leak current≤1mA	3000	—	—	Vdc
Isolation Resistance	Input to Output, 500Vdc	1000	—	—	MΩ
Isolation Capacitance	Input to Output 100kHz/0.1V	—	40	—	pF
Operating Temperature	Full-load states of the output voltage	-40	—	+85	°C
Storage Temperature	—	-55	—	+105	°C
Storage Humidity	non condensing	—	—	95	%RH
Temperature Coefficient	100% load	—	—	±0.03	%/°C
Soldering Temperature	1.5 mm distance between solder joint and case, 10s	—	—	300	°C
Switching Frequency	100% load, nominal input voltage	—	100	300	kHz
MTBF	—	3.5×10 ⁶ h Refer to MIL-HDFK-217F@25°C			

Physical Specifications	
Case material	Black flame retardant and heat-resistant epoxy (UL94-V0)
Package Size	27.00mm×11.50mm×8.50mm
Weight	5g typ.
Cooling mode	natural air cooling

Characteristic Curves

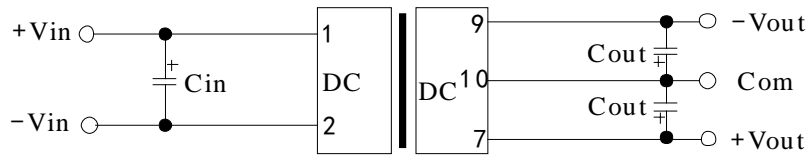


Design Considerations

◆ **Peripheral Recommended Circuit**

Recommended Circuit 1:

A filter capacitor can be connected in parallel at the input and output terminals on the occasions of low requirements for ripple and noise. An external circuit is shown in the figure 1 below. The recommended values of the filter capacitors are shown in the table 1.



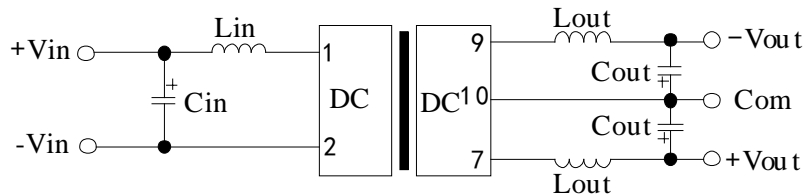
The figure 1

The table 1

Vin(Vdc)	Cin	Vout(Vdc)	Cout
5	4.7μF/16V	±5	4.7μF/16V
12	2.2μF/25V	±9/±12	1μF/25V
24	2.2μF/50V	±15	0.47μF/50V

Recommended Circuit 2:

The external circuit can be referred to the figure 2 on the occasions of strict requirements for ripple and noise. The recommended values of the filter capacitance and inductance are shown in the table 2.



The figure 2

The table 2

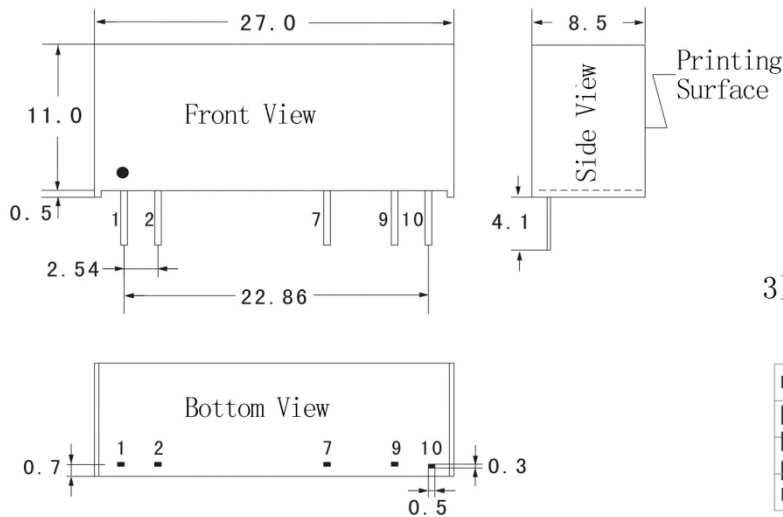
Vin(Vdc)	Cin	Lin	Cout (Vdc)	Lout
5/12/24	See Table 1	4.7μH	See Table 1	4.7μH

◆ **Precautions for product use**

- **Input requirement:** Ensure that the output voltage fluctuations of the power supply do not exceed the input voltage range of the DC/DC module. And the output power of the power supply must be greater than the input power of the DC/DC module.
- **Output load requirement:** Try to avoid no-load use. When the actual power consumption of the load is less than 10% of the rated power of the module or there is no load, pseudo loads are recommended to be connected at the two outputs respectively. The pseudo load can be calculated from 5 ~ 10% of the rated power of the module, resistance = $V_{out}^2 / (0.5W * 10\%)$.
- **Overload protection:** Under the normal working conditions, the product has no output overload protection. The simplest approach is to connect a self-recovery fuse in series at the input, or to add a circuit breaker to the circuit.
- **The external capacitance of the output terminals should not be too large, otherwise it is easy to cause over-current even failure during starting up of the converter.**

Outline Diagram and recommended layout

1) Outline Diagram

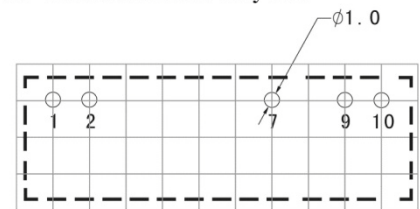


Units:mm Tolerances:XX±0.25

2) Pin Definition

1	+Vin	Positive Input
2	-Vin	Negative Input
7	+Vout	Positive Output
9	-Vout	Negative Output
10	Com	Common Ground

3) Recommended Layout



Note: grid distance:2.54*2.54mm

Application Data

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 2-year.

Contact Information

Anhui Hesion Trading Co.,Ltd.
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VI IE_S-2WC2 series 3KV isolated & regulated dual output

2W DC/DC Converters

Features



- ◆ SIP International Standard Pin
- ◆ Low-Quiescent Current and High Conversion Efficiency
- ◆ Low Ripple Coefficient and Low Noise
- ◆ Built-in Soft-Start Technology
- ◆ 3000Vdc Isolation Voltage
- ◆ Operation Temperature : -40°C to 85°C
- ◆ 100% burn-in and screening
- ◆ Special specifications of products can be designed according to customers' requirements

Applications

IE_S-2WC2 series products are specially designed for applications where two sources are isolated from the input power supply in a distributed power system.

The products are applicable to:

- 1)The fluctuation range of input power supply voltage is within $\pm 5\%$;
- 2)Isolation is required between input and output(3000Vdc isolation voltage);
- 3)Occasions with high requirements for the output voltage stability and output ripple-noise.

Product Naming Convention

IEXXXXS - 2WC2

① ② ③ ④ ⑤ ⑥

- ①Product Series
(3000Vdc Isolation Voltage,Dual Output)
- ②Input Voltage (Nominal Value)
- ③Output Voltage (Nominal Value)
- ④Package(Single Inline Package)
- ⑤Rated Output Power
- ⑥Identification Code

Specifications

Unless otherwise specified, all values are given at room temperature and standard atmosphere pressure, standard input voltage.

Selection Table					
Product Model	Input Voltage (Vdc) range (nominal)	Output Voltage① (Vdc)	Output Current (mA) Max(Full Load)/ Min(Light Load)	Maximum Capacitive Load (μF)②	Efficiency (% ,Min/Typ) @ Full Load
IE0505S-2WC2	4.75~5.25 (5V)	±5	±200/±20	100	62/66
IE0509S-2WC2		±9	±112/±12	100	64/68
IE0512S-2WC2		±12	±84/±8	100	64/68
IE0515S-2WC2		±15	±67/±7	100	66/70
IE1205S-2WC2	11.4~12.6 (12V)	±5	±200/±20	100	62/66
IE1209S-2WC2		±9	±112/±12	100	64/68
IE1212S-2WC2		±12	±84/±8	100	64/68
IE1215S-2WC2		±15	±67/±7	100	66/70
IE2405S-2WC2	22.8~25.2 (24V)	±5	±200/±20	100	62/66
IE2409S-2WC2		±9	±112/±12	100	64/68
IE2412S-2WC2		±12	±84/±8	100	64/68
IE2415S-2WC2		±15	±67/±7	100	66/70

Continue

Selection Table	
IEXXXXS-2WC2	Special specifications of products can be designed according to customers' requirements, and 1 ~ 2W products can be provided.
The no-load power consumption of the power modules is about 10% of the rated output power. ①Nominal output voltage refers to the input voltage in the nominal value and output current under full load conditions. ②The maximum capacitive load is the maximum capacity of the module power supply to output the capacitive load. Generally, the external output capacitance can not exceed the maximum capacitive load of the module power supply, otherwise, it will result in bad module startup and affect the reliability of the module's long-term work.	

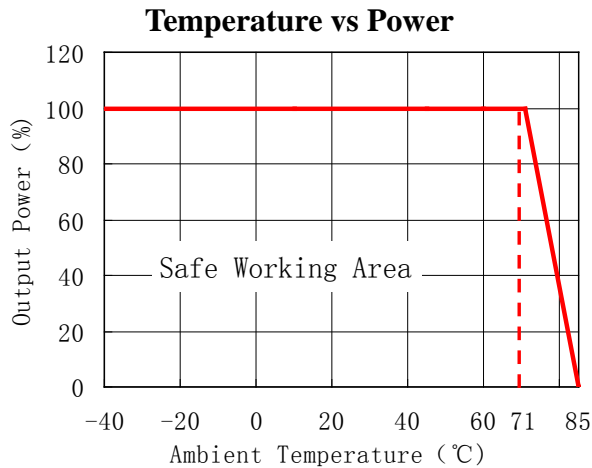
Input Specifications					
Input	Conditions	Min ^③	Typ	Max	Unit
Input Voltage	5V Input	-0.7	5	9	Vdc
	12V Input	-0.7	12	18	
	24V Input	-0.7	24	30	
③The series of modules have no anti-reverse input protection, the input is strictly prohibited positive and negative reverse, otherwise it will cause irreversible damage to the module.					

Output Specifications					
Output	Conditions	Min	Typ	Max	Unit
Maximum Output Power	—	—	—	2	W
Output Voltage Accuracy	100% load	—	—	±3	%
Linear Voltage Regulation	±5% changes of input voltage	—	—	±0.25	
Load Regulation	10% ~ 100% load	—	—	±1	
Ripple and Noise ^④	20MHz bandwidth	—	50	—	mV
Output Short-circuit Protection	—	—	—	1	s
The modules with sustainable short-circuit protection and recovery function can be designed according to customers' requirements. Add the letter "R" to the original product name.					
④Ripple and Noise is measured by connecting the oscilloscope probe without ground wire.					

General Specifications					
General	Conditions	Min	Typ	Max	Unit
Isolation Voltage	t=60s, leak current ≤ 1mA	3000	—	—	Vdc
Isolation Resistance	Input to Output, 500Vdc	1000	—	—	MΩ
Isolation Capacitance	Input to Output 100kHz/0.1V	—	40	—	pF
Operating Temperature	Full-load states of the output voltage	-40	—	+85	°C
Storage Temperature	—	-55	—	+105	°C
Storage Humidity	non condensing	—	—	95	%RH
Temperature Coefficient	100% Load	—	—	±0.03	%/°C
Soldering Temperature	1.5 mm distance between solder joint and case, 10s	—	—	300	°C
Switching Frequency	100% load, nominal input voltage	—	100	300	kHz
MTBF	—	3.5×10 ⁶ h Refer to MIL-HDFK-217F@25°C			

Physical Specifications	
Case material	Black flame retardant and heat-resistant epoxy (UL94-V0)
Package Size	27.00mm×11.50mm×8.50mm
Weight	5g typ.
Cooling mode	natural air cooling

Characteristic Curves

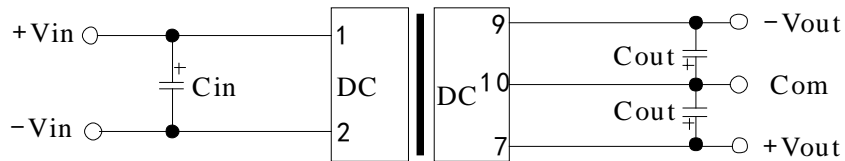


Design Considerations

◆ **Peripheral Recommended Circuit**

Recommended Circuit 1:

A filter capacitor can be connected in parallel at the input and output terminals respectively on the occasions of low requirements for ripple and noise. An external circuit is shown in the figure 1 below. The recommended values of the filter capacitors are shown in the table 1.



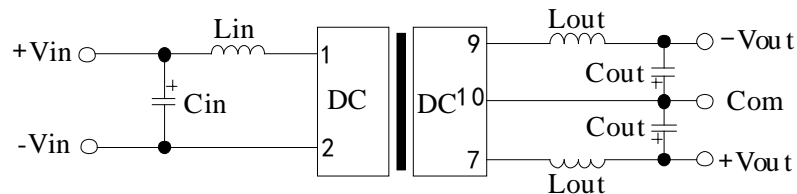
The figure 1

The table 1

Vin(Vdc)	Cin	Vout(Vdc)	Cout
5	4.7μF/16V	±5	4.7μF/16V
12	2.2μF/25V	±9/±12	1μF/25V
24	2.2μF/50V	±15	0.47μF/50V

Recommended Circuit 2:

The external circuit can be referred to the figure 2 on the occasions of strict requirements for ripple and noise. The recommended values of the filter capacitance and inductance are shown in the table 2.



The figure 2

The table 2

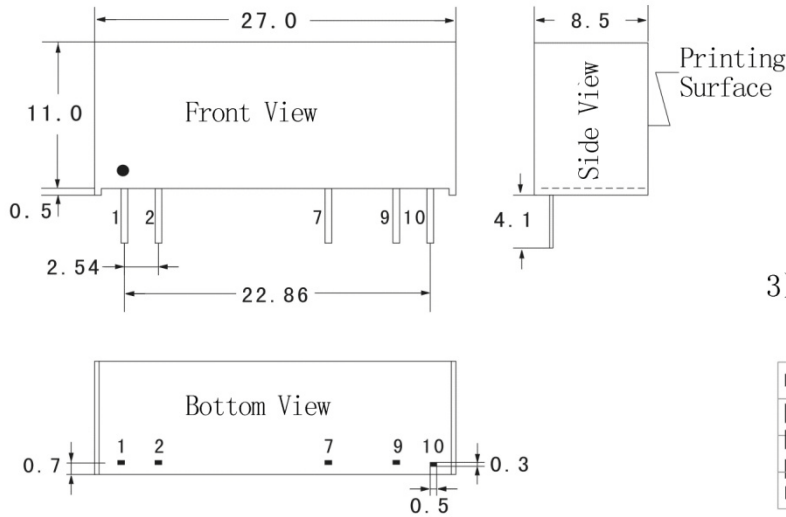
Vin(Vdc)	Cin	Lin	Cout (Vdc)	Lout
5/12/24	See Table 1	4.7μH	See Table 1	4.7μH

◆ **Precautions for product use**

- **Input requirement:** Ensure that the output voltage fluctuations of the power supply do not exceed the input voltage range of the DC/DC module. And the output power of the power supply must be greater than the input power of the DC/DC module.
- **Output load requirement:** Try to avoid no-load use. When the actual power consumption of the load is less than 10% of the rated power of the module or there is no load, pseudo loads are recommended to be connected at the two outputs respectively. The pseudo load can be calculated from 5 ~ 10% of the rated power of the module, resistance = $V_{out}^2 / (1W * 10\%)$.
- **Overload protection:** Under the normal working conditions, the product has no output overload protection. The simplest approach is to connect a self-recovery fuse in series at the input, or to add a circuit breaker to the circuit.
- **The external capacitance of the output terminals should not be too large, otherwise it is easy to cause over-current even failure during starting up of the converter.**

Outline Diagram and recommended layout

1) Outline Diagram

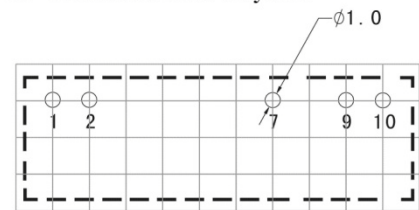


Units:mm Tolerances:XX±0.25

2) Pin Definition

1	+Vin	Positive Input
2	-Vin	Negative Input
7	+Vout	Positive Output
9	-Vout	Negative Output
10	Com	Common Ground

3) Recommended Layout



Note: grid distance:2.54*2.54mm

Application Data

Quality Statement

The converters are manufactured in accordance with ISO 9001 system requirements, and are monitored 100% by auto-testing system, 100% burn in. The warranty for the converters is 2-year.

Contact Information

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