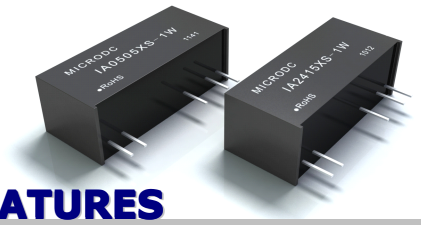
MICRODC
Professional Power Module

IA-XS-1W Series

FIXED INPUT,ISOLATED & REGULATED Dual Output DC/DC Converters



FEATURES

- ◆RoHS compliant
- ◆Efficiency up to 86%
- ◆SIP Package
- ◆Wide temperature performance at full 1 Watt load,-40°C to 85°C
- ◆UL 94V-0 package material
- ◆No heatsink required
- ◆Small footprint
- ◆Industry standard pinout
- ◆Power sharing on output
- ◆1KVDC isolation
- ◆5V,12V and 24V input
- ◆3.3V,5V,9V,12V and 15V output
- ◆Internal SMD construction
- ◆Fully encapsulated with toroidal Magnetics
- ◆No external components required
- ◆MTTF up to 1.5 million hours

MODEL SELECTION

IA①05②05③X④ S⑤-1W⑥

①Product Series ②Input Voltage
③Output Voltage ④Fixed Input
⑤SIP Package ⑥Rated Power

APPLICATIONS

The IA_XS-1W series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

1) where the voltage of the input power supply is fixed (voltage variation ≤±5%);

2) where isolation is necessary between input and output (isolation voltage ≤1000VDC);

3) where the regulation of the output voltage and the output ripple noise are demanded.

SELECTION GUIDE

Order code	Input		Output			Efficiency (%,Typ)	Switching Frequency (KHz,Typ)
	Voltage(VDC)		Voltage (VDC)	Current			
	Nominal	Range		Max	Min		
IA0503XS-1W	5	4.75-5.25	±3.3	±100	±10	69	83
IA0505XS-1W	5	4.75-5.25	±5	±100	±10	54	83
IA0509XS-1W	5	4.75-5.25	±9	±56	±6	63	83
IA0512XS-1W	5	4.75-5.25	±12	±42	±5	63	83
IA0515XS-1W	5	4.75-5.25	±15	±33	±4	65	250
IA1203XS-1W	12	11.4-12.6	±3.3	±100	±10	72	100
IA1205XS-1W	12	11.4-12.6	±5	±100	±10	56	83
IA1209XS-1W	12	11.4-12.6	±9	±56	±6	62	83
IA1212XS-1W	12	11.4-12.6	±12	±42	±5	65	83
IA1215XS-1W	12	11.4-12.6	±15	±33	±4	86	83
IA2403XS-1W	24	22.8-25.2	±3.3	±100	±10	72	83
IA2405XS-1W	24	22.8-25.2	±5	±100	±10	54	83
IA2409XS-1W	24	22.8-25.2	±9	±56	±6	62	83
IA2412XS-1W	24	22.8-25.2	±12	±42	±5	64	83
IA2415XS-1W	24	22.8-25.2	±15	±33	±4	66	300

ISOLATION SPECIFICATIONS

Parameter	Test conditions	Min.	Typ.	Max	Units
Isolation test voltage	Flash tested for 1 minute and 1mA max	1000			VDC
Isolation resistance	Test at Viso=500VDC	1000			MΩ

OUTPUT SPECIFICATIONS

Parameter	Test conditions	Min	Typ.	Max.	Units
Output power		0.		1	W
Line regulation	For Vin change of ±5%			±0.25	%
Load regulation	10% to 100% full load			±1	%
Output voltage accuracy	100% full load			±3	%
Temperature drift	100% full load			0.03	%/°C
Output Ripple*	20MHz Bandwidth		10	20	MV p-p
Output Noise*	20MHz Bandwidth		50	100	MV p-p

* Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

RoHS MICRODC Green Technology

CE REACH

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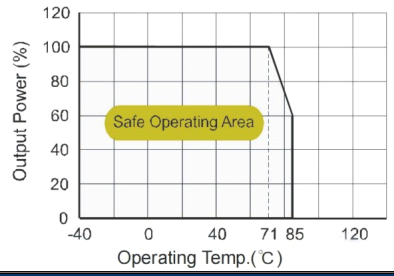
TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Storage humidity range				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	°C
Lead temperature	1.5mm from case for 10 seconds			300	°C
Temp.rise at full load			20	30	°C
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
Short circuit protection	IA(XX)05XS-1W	Continuous			
	Others*			1	S
MTBF		3500			K hours
Weight			5.2		g

*Supply voltage must be discontinued at the end of short circuit duration.

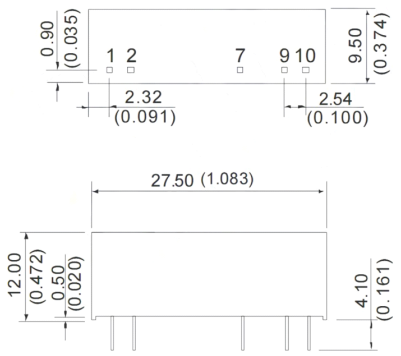
TYPICAL CHARACTERISTICS

Temperature Derating Graph

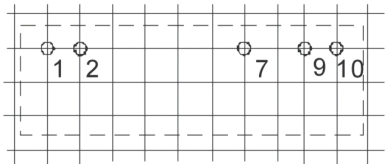


OUTLINE DIMENSIONS & PIN CONNECTIONS

SIZE Graph



RECOMMENDED FOOTPRINT
Top view,grid:2.54mm(0.1inch)
diameter:1.00mm(0.039inch)



FOOTPRINT DETAILS	
Pin	Function
1	VIN
2	GND
7	+V0
9	-V0
10	0V

Note:
Unit:mm(inch)
Pin section:0.50*0.3mm(0.020*0.012inch)
Pin section tolerances: 0.10mm(0.004inch)
General tolerances: 0.25mm(0.010inch)

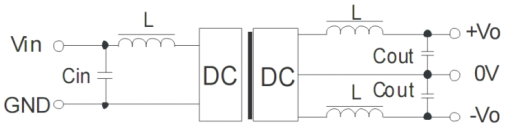
All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.Another 24V products, please inquire Our technical department!

Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load is not less than 10% of the full load, and that this product should never be operated under no load! If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load.

Recommended circuit

If you want to further decrease the input/output ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).



(Figure 1)

It should also be noted that the inductance and the frequency of the"LC"filtering network should be staggered with the DC/DC frequency to avoid mutual interference. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees (Table 1).

EXTERNAL CAPACITOR TABLE (TABLE 1)

Vin	Cin	Vout	Cout
(VDC)	(μF)	(VDC)	(μF)
5	4.7	±5	4.7
12	2.2	±9	2.2
24	0.47	±12	1
-	-	±15	0.47

It's not recommend to connect any external capacitor in the application field with less than 0.5 watt output.

Overload Protection
Under normal operating conditions, the output circuit of These products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

Input Over-voltage Protection Circuit
The simplest device for input over-voltage protection is a linear voltage regulator with overheat protection that is connected to the input end in series (Figure 2).

(Figure 2)

When the environment temperature is higher than 71° C, the product output power should be less then 60% of the rated power.

No parallel connection or plug and play.

Use dual output simultaneously, forbid opening output pin (0V) to use as single output.

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RoHS COMPLIANT INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300° C for 10 seconds.
The pin termination finish on the SIP package type is Tin Plate, Hot Dipped over Matte Tin with Nickel Preplate. The DIP types are Matte Tin over Nickel Preplate. Both types in this series are backward compatible with Sn/Pb soldering systems.

REACH COMPLIANT INFORMATION

This series has proven that this product does not contain harmful chemicals, it also has harmful chemical substances through the registration, inspection and approval.