MICRODC
Industry Power Family

Series

| Order code | Input | | Output | | | Efficiency (%,Typ) | Switching Frequency (KHz,Typ) |
|---|---|---|---|---|---|---|---|
| | Voltage(VDC) | | Voltage (VDC) | Current | | | |
| | Nominal | Range | | Max | Min | | |
| 2A0503XSR | 5 | 4.75-5.25 | ±3.3 | ±150 | ±15 | 69 | 100 |
| 2A0505XSR | 5 | 4.75-5.25 | ±5 | ±200 | ±20 | 70 | 55 |
| 2A0509XSR | 5 | 4.75-5.25 | ±9 | ±100 | ±10 | 62 | 67 |
| 2A0512XSR | 5 | 4.75-5.25 | ±12 | ±83 | ±9 | 64 | 67 |
| 2A0515XSR | 5 | 4.75-5.25 | ±15 | ±67 | ±7 | 65 | 200 |
| 2A1205XSR | 12 | 11.4-12.6 | ±5 | ±150 | ±15 | 70 | 83 |
| 2A1209XSR | 12 | 11.4-12.6 | ±9 | ±100 | ±10 | 63 | 91 |
| 2A1212XSR | 12 | 11.4-12.6 | ±12 | ±83 | ±9 | 65 | 91 |
| 2A1215XSR | 12 | 11.4-12.6 | ±15 | ±67 | ±7 | 68 | 200 |
| 2A2405XSR | 24 | 22.8-25.2 | ±5 | ±150 | ±15 | 70 | 83 |
| 2A2409XSR | 24 | 22.8-25.2 | ±9 | ±100 | ±10 | 63 | 100 |
| 2A2412XSR | 24 | 22.8-25.2 | ±12 | ±83 | ±9 | 67 | 200 |
| 2A2415XSR | 24 | 22.8-25.2 | ±15 | ±67 | ±7 | 69 | 91 |

## MODEL SELECTION

2A①05②05③X④S⑤R⑥

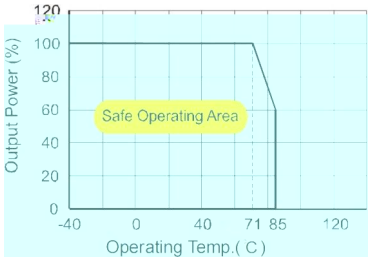
① ②
③ ④
⑤ ⑥

CE R

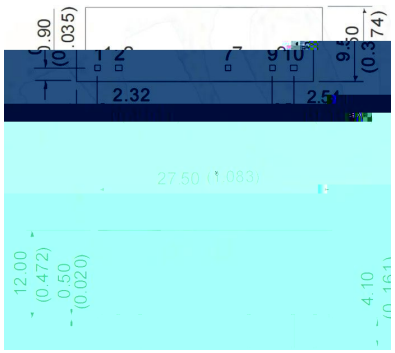
| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Storage humidity range | | | | 95 | % |
| Operating temperature | | -40 | | 80 | °C |
| Storage temperature | | -55 | | 125 | °C |
| Lead temperature | 1.5mm from case for 10 seconds | | | 30 | °C |
| Temp.rise at full load | | | 20 | 300 | °C |
| Cooling | | Free air convection | | | |
| Case material | | Plastic(UL94-V0) | | | |
| Short circuit protection | 05V output | Continuous | | | |
| | Others* | | | 1 | S |
| MTBF | | 3500 | | | K hours |
| Weight | | | 5.2 | | g |

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

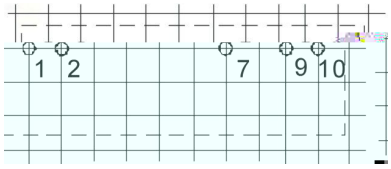
**Temperature Derating Graph**




**SIZE Graph**




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




| 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)

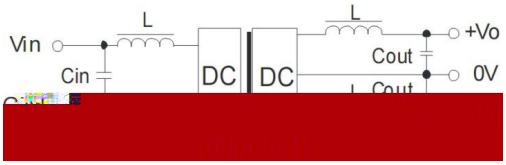
All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.Another 24V products, please inquire Our technical department!

**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.or use our company's products with a lower rated output power (IA_XS-1W series).

## Recommended circuit

To get an extreme low ripple,an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect.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 (see figure 1).




In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. 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 the EXTERNAL CAPACITOR TABLE (see Table 1).

**EXTERNAL CAPACITOR TABLE (TABLE 1)**

| Vin (VDC) | Cin (μF) | Vout (VDC) | Cout (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.

**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℃, 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.

MICRODC Industry Power Family

Microdc Professional Power Module,Inc.
Tel:0086-20-86000646 E-mail:tech@microdc.cn
Website:http://www.microdc.cn

**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.