

ASX04B SERIES

4W DC to DC Converter

Description:

This series of DC to DC Converter module provide 4 Watts of continues output power. They are suited for use in Data communication, Telecommunication and other Industry equipment.



24Pin SMD Package

Features:

- 4: 1 Wide Input Range Voltage
- Efficiency up to 86%
- Regulated Output
- Single or Dual Output
- Size : 20.3W x 31.8L x 10.2Hmm
- 1500VDC Isolation
- Potting Material : Epoxy(Flammability to UL94V-0)
- Case Material : Non-Conductive Black Plastic(Flammability to UL94V-0)
- EMI Meets to EN55022 Class A
- Remote On/Off Control(Optional)
- Industrial Standard Pin-out
- 3 year warranty

Electrical Characteristics:

| Sym. | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-------|-------------------------------|-----------------------------------------|------------------|-------|-------|------|
| Vin | Input Voltage for ASF04B | | 9 | 24 | 36 | VDC |
| | Input Voltage for ASG04B | | 18 | 48 | 75 | VDC |
| Fs | Switching Frequency | | | 250 | | kHz |
| Po | Output Power Range | | 0 | | 4 | W |
| Vo | Output Voltage Range | | See Rating Chart | | | V |
| Io | Output Current Range | | See Rating Chart | | | A |
| Acc | Output Voltage Accuracy | Io=Full load, Vin=Typ., at 25°C | | ±0.5 | ±1.0 | % |
| Eff | Efficiency | Io=Full load, Vin=Typ., at 25°C | 80 | 81 | 86 | % |
| REG-i | Line Regulation | Io=Full load, Vin=Vmax to Vmin, at 25°C | | ±0.2 | ±0.5 | % |
| REG-o | Load Regulation | Io=20% to 100%, Vin=Typ., at 25°C | | ±0.5 | ±1.0 | % |
| Vp-p | Ripple & Noise (Peak to Peak) | Each Output, 20MHz | | 50 | 75 | mV |
| Vio | Isolation Voltage | Input to Output | 1500 | | | VDC |
| Ris | Isolation Resistance | Input to Output | 1000 | | | MΩ |
| Cis | Isolation Capacitance | Input to Output | | | 550 | pF |
| TC | Temperature Coefficient | All Output | | ±0.01 | ±0.02 | %/°C |
| Br | Balance Regulation | Io=Full load, Vin=Typ., Dual Output | | ±1.0 | ±2.0 | % |
| Trp | Time of Transient Response | Vin=Typ., 25% load step change | | 250 | 500 | μS |
| Trd | Transient Response Deviation | | | ±2.0 | ±6.0 | %/Vo |
| Sdt | Start-Up Delay Time | Vin=Typ., Io=Full load | | 1000 | | Sec |

External Functions Specifications:

| Remote Control Function ---Enable High | | | | | | |
|----------------------------------------|----------------|----------------------------|------|------|-------|------|
| Sym. | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
| Sd | System Disable | V-Remote | -0.5 | | 0.8 | V |
| | | I-Remote | | | -1000 | μA |
| Se | System Enable | V-Remote | 3.5 | | Vin-H | V |
| | | I-Remote | | | -800 | μA |
| | | Floating Remote ON/OFF Pin | | | | |

Note : Control Voltage Reference to Negative Input

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4W DC to DC Converter

Environmental:

| Sym. | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------|-------------------------------------------------------------|-----------------|------|------|------|------|
| Toper | Operating Temperature Range | | -40 | | 71 | °C |
| Tcase | Maximum Case Temperature | | -40 | | 90 | °C |
| Tstg | Storage Temperature | | -55 | | 125 | °C |
| Hr | Relative Humidity | | 0 | | 95 | % |
| MTBF | Operating Temperature at 25°C, Calculated per MIL-HDBK-217F | | 1M | | | Hrs |
| Scip | Short Circuit Input Power | | | | 2000 | mW |
| Sic | Stand-by Input Current | | | | 2 | mA |
| Cool | The Cooling Condition is Free | | | | | |
| Filter | Internal Capacitor | | | | | |

Selection Chart :

| Model Number | Input Voltage | Output Voltage | Output Current | | Efficiency (Typ.) | Cap.Load ⁽⁸⁾ |
|--------------|--------------------------|---------------------------|----------------|--------|-------------------|-------------------------|
| | | | Min. | Max. | | |
| ASF04B-101 | 9~36VDC (Nominal:24V) | 3.3VDC | 90mA | 900mA | 80% | 3300μF |
| ASF04B-102 | | 5VDC | 66mA | 660mA | 81% | 3300μF |
| ASF04B-105 | | 12VDC | 33mA | 335mA | 86% | 3300μF |
| ASF04B-106 | | 15VDC | 27mA | 270mA | 86% | 3300μF |
| ASF04B-202 | | ±5VDC | ±33mA | ±330mA | 81% | 1000μF |
| ASF04B-205 | | ±12VDC | ±17mA | ±168mA | 86% | 1000μF |
| ASF04B-206 | | ±15VDC | ±14mA | ±135mA | 86% | 1000μF |
| ASG04B-101 | | 18~75VDC (Nominal:48V) | 3.3VDC | 90mA | 900mA | 80% |
| ASG04B-102 | 5VDC | | 66mA | 660mA | 81% | 3300μF |
| ASG04B-105 | 12VDC | | 33mA | 335mA | 86% | 3300μF |
| ASG04B-106 | 15VDC | | 27mA | 270mA | 86% | 3300μF |
| ASG04B-202 | ±5VDC | | ±33mA | ±330mA | 82% | 1000μF |
| ASG04B-205 | ±12VDC | | ±17mA | ±168mA | 86% | 1000μF |
| ASG04B-206 | ±15VDC | | ±14mA | ±135mA | 86% | 1000μF |

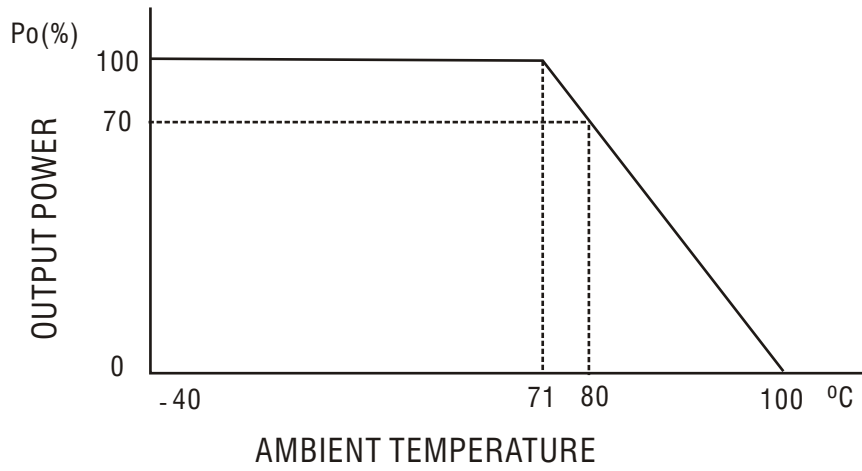
Note :

- (1) All specifications are measured at nominal input voltage, constant resistive load between Min. and Max. Output current, and probe bandwidth should be under 20MHz, Ta = +25°C.
- (2) When Load is lower than Min. output current or under no-load, it will not damage the devices; however, it may not meets all specifications.
- (3) Output Ripple & Noise Test please refers to Sinpro Electronics Co., Ltd. proposed test-method.
- (4) Load Regulation and Line Regulation calculating please refers to Sinpro Electronics Co., Ltd. proposed formula.
- (5) An external fuse is needed at the front end of DC/DC converters for protection and base on surge current and maximum input current when settle it in recommended.
- (6) "Vin-L" means "Vin-Min.", "Vin-N" means "Vin-Typ.", "Vin-H" means "Vin-Max."
- (7) "Reflected Ripple" "Reflected Ripple of Input Current".
- (8) Total Capacitive Loads of output should be lower than this value.

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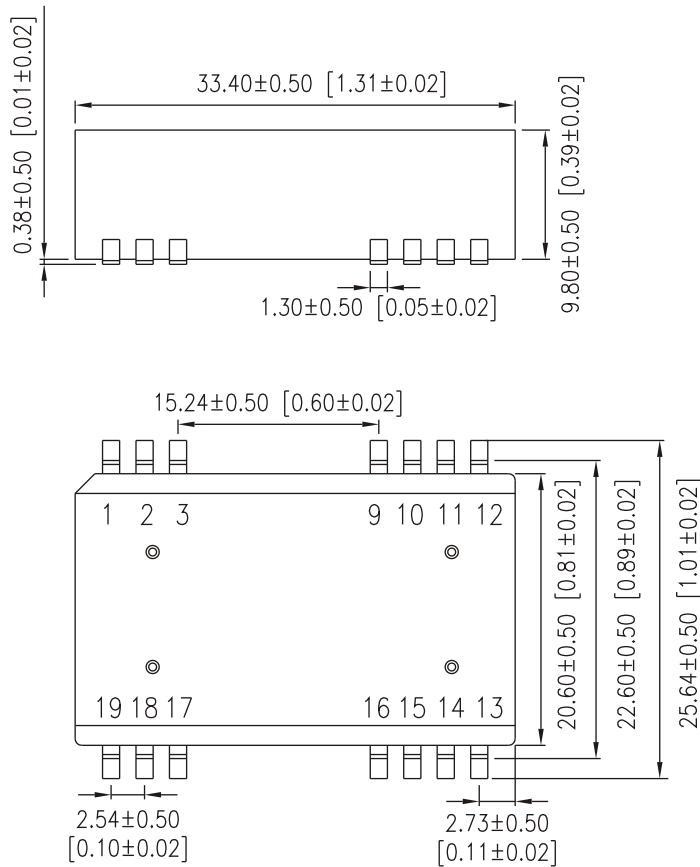
4W DC to DC Converter

Derating Curve :



Note: At nominal input, Full load and cooling is natural convection.

Mechanical Specifications :



Pin Connections:

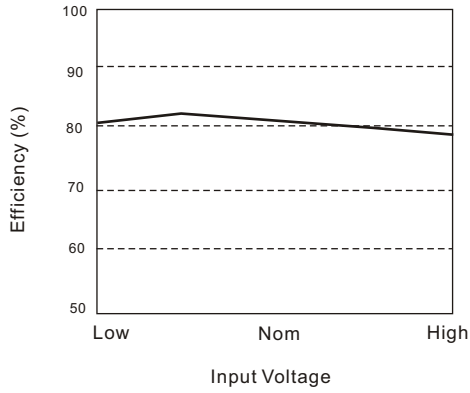
| Pin | Single | Dual |
|-------------------|--------|-------|
| 1 | NC | NC |
| 2,3 | -Vin | -Vin |
| 9 | NC | Com |
| 11 | NC | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Com |
| 22 | +Vin | +Vin |
| 10,12 13,15,24 | NC | NC |

Note:
 1. Dimensions are shown in mm.
 2. Weight: 10gs .
 3. NC: No Connect

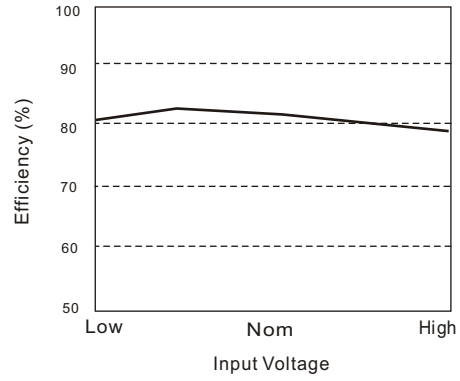
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4W DC to DC Converter

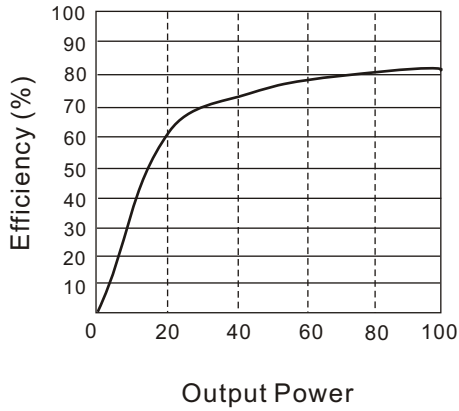
Efficiency-Curve :



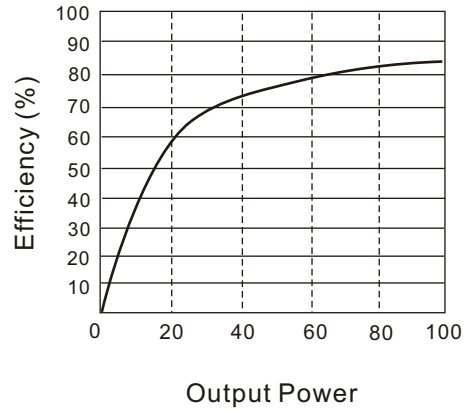
Input Voltage vs. Efficiency, Vo=3.3V, 5V & ±5V



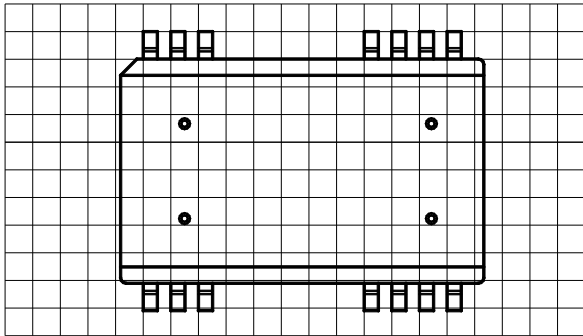
Input Voltage vs. Efficiency, Other Output Voltages



Output Power vs. Efficiency, Vo=3.3V, 5V & ±5V



Output Power vs. Efficiency, Other Output Voltages



| Tolerance | Millimeters | Inches |
|-----------|-------------|--------------|
| | XX.X ±0.25 | XX.X ±0.01 |
| | XX.XX ±0.13 | XX.XX ±0.005 |
| Pin | ±0.1 | ±0.004 |