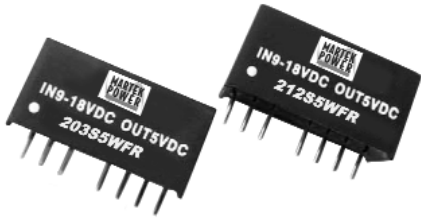


200WFR series



www.martekpower.com

Single Output DC/DC Converter



DESCRIPTIONS

The 200WFR series power modules are low-profile dc/dc converters that operate over input voltage ranges of 4.5-9VDC, 9-18VDC, 18-36VDC and 36-75VDC and provide precisely regulated output voltages of 3.3V, 5V and 12V.

The -40°C to +85°C operating temperature range makes it ideal for data communication equipments, mobile battery driven equipments, distributed power systems, telecommunication equipments, mixed analog/digital subsystems, process/machine control equipments, computer peripheral systems and industrial robot systems.

OUTPUT CHARACTERISTICS

| | Min | Typ | Max | Unit/Comments |
|------------------------------|-------|-------|-----|---|
| Output Voltage Set Point | ±1.0 | ±2.0 | | % Output voltage at nominal line & FL |
| Line Regulation | ±0.3 | ±0.5 | | % Output voltage measured from min. input line to maximum |
| Load Regulation | ±0.5 | ±0.75 | | % Output voltage measured from FL to 25% load |
| Ripple/Noise | 30 | 50 | | mV p-p, Nom.Line @FL, 20MHz B.W., using 1 uf bypass capacitor |
| Ripple/Noise | | 75 | | mV p-p, Over Line, Load & Temp., 20 MHz B.W., using 1 uf bypass capacitor |
| Overload Protection | 120 | | | %Rated Output Load |
| Short Circuit Protection | | | | Continuous, Automatic Recovery |
| Transient Response Deviation | ±3 | ±5 | | % deviation of Vout for a 50% load change |
| Transient Recovery Time | 100 | 300 | | uS for 50% load change |
| Temperature Coefficient | ±0.01 | ±0.02 | | % per degree C |

FEATURES

- Up to 80% Efficiency
- Single Output, 2 watt converter
- Available in 5, 12, 24 and 48 VDC Inputs
- Industry Standard Pinout
- 2:1 Input Range
- Short Circuit Protection

INPUT CHARACTERISTICS

| | Min | Typ | Max | Unit/Comments |
|--------------------------------|-----|------|------|--------------------|
| Input Voltage | | | | |
| 5 VDC Input Models | 4.5 | 5 | 9 | VDC |
| 12 VDC Input Models | 9 | 12 | 18 | VDC |
| 24 VDC Input Models | 18 | 24 | 36 | VDC |
| 48 VDC Input Models | 36 | 48 | 75 | VDC |
| Start Voltage | | | | |
| 5 VDC Input Models | 3.5 | 4 | 4.5 | VDC |
| 12 VDC Input Models | 4.5 | 7 | 9 | VDC |
| 24 VDC Input Models | 8 | 12 | 18 | VDC |
| 48 VDC Input Models | 16 | 24 | 36 | VDC |
| Under Voltage Shut Down | | | | |
| 5 VDC Input Models | | 3.5 | 4 | VDC |
| 12 VDC Input Models | | 6.5 | 8.5 | VDC |
| 24 VDC Input Models | | 11 | 17 | VDC |
| 48 VDC Input Models | | 22 | 34 | VDC |
| Input Fuse Requirements | | | | |
| 5 VDC Input Models | | 1500 | | mA; Slow blow type |
| 12 VDC Input Models | | 700 | | mA; Slow blow type |
| 24 VDC Input Models | | 350 | | mA; Slow blow type |
| 48 VDC Input Models | | 135 | | mA; Slow blow type |
| Reverse Polarity Input Current | | | 1 | Amp |
| Short Circuit Input Power | | | 1500 | mW |
| Input Filter | | | | Capacitor |

GENERAL CHARACTERISTICS

| | Min | Typ | Max | Unit/Comments |
|-----------------------|------|-----|-----|-------------------------------------|
| Switching Frequency | 100 | 300 | 650 | kHz |
| Isolation Voltage | 1000 | | | VDC, 1 minute |
| Isolation Resistance | 1000 | | | Mohm, 500VDC |
| Isolation Capacitance | | 65 | 120 | pF, 100kHz, 1Volt |
| MTBF (MIL-HBK-217F) | 1 | | | Million Hours, +25°C, Ground Benign |

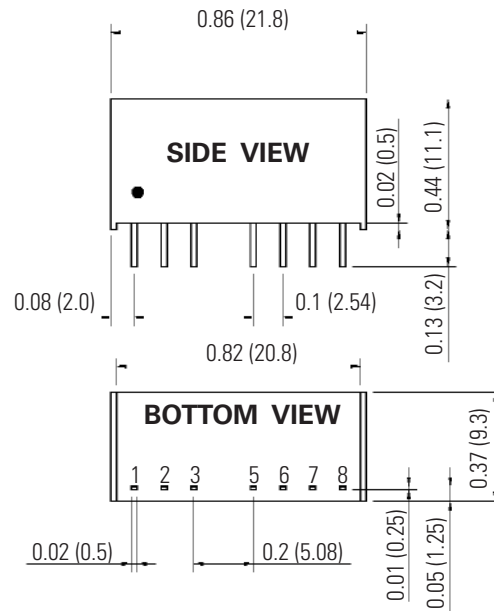
REMOTE ON/OFF CONTROL

| | Min | Typ | Max | Unit/Comments |
|------------------------------|------------------------------|-----|------|---------------------|
| Supply On | | | <1 | VDC or Open Circuit |
| Supply Off | 2.7 | | | VDC |
| Device Standby Input Current | | 0.1 | 0.2 | mA |
| Control Input Current (On) | | | -0.4 | mA |
| Control Input Current (Off) | | | 1 | mA |
| Control Common | Referenced to Negative Input | | | |

ENVIRONMENTAL SPECIFICATIONS

| | Min | Typ | Max | Unit/Comments |
|-----------------------|---------------------|-----|------|----------------------------|
| Operating Temp. Range | -40 | | +85 | °C; Ambient |
| Operating Temp. Range | -40 | | +90 | °C; Case |
| Storage Temp. Range | -55 | | +105 | °C |
| Relative Humidity | | | 95 | % Humidity; non-condensing |
| Cooling | Free-Air Convection | | | |

OUTLINE DRAWING



PIN OUT CHART

| Pins | Single |
|------|---------------|
| 1 | - Vin (GND) |
| 2 | + Vin (VCC) |
| 3 | Remote ON/OFF |
| 5 | NC |
| 6 | + Vout |
| 7 | - Vout |
| 8 | NC |

NC = No Connection

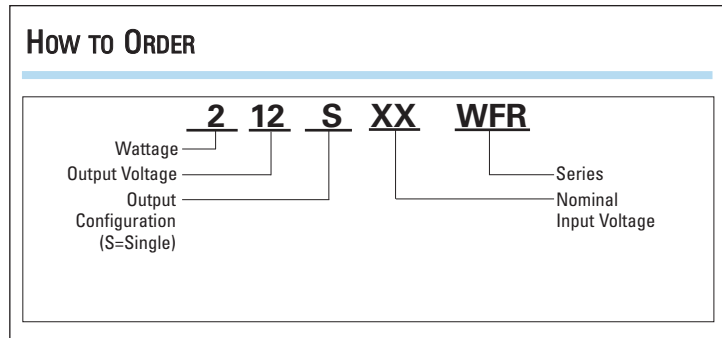
Notes:

1. Unless otherwise specified dimensions are in inches (mm).

| Tolerances | Inches | mm |
|------------|---------------|--------------|
| | X.XX = ±0.01 | X.X = ±0.25 |
| | X.XXX = ±0.01 | X.XX = ±0.25 |
| Pin : | ±0.002 | ±0.05 |

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified. External, low ESR, 10 microfarad (minimum) capacitor across input is recommended for operation.

How To ORDER



MODEL SELECTION CHART

| Model | Nominal Input Voltage (VDC) | Output Voltage (VDC) | Full Load Output Current (mA) | No Load Input Current (mA) | Full Load Input Current (mA) | Efficiency (%) |
|-----------|-----------------------------|----------------------|-------------------------------|----------------------------|------------------------------|----------------|
| 203S5WFR | 5 | 3.3 | 500 | 40 | 471 | 70 |
| 205S5WFR | 5 | 5 | 400 | 40 | 548 | 73 |
| 212S5WFR | 5 | 12 | 167 | 40 | 534 | 75 |
| 203S12WFR | 12 | 3.3 | 500 | 20 | 184 | 73 |
| 205S12WFR | 12 | 5 | 400 | 20 | 217 | 77 |
| 212S12WFR | 12 | 12 | 167 | 20 | 209 | 80 |
| 203S24WFR | 24 | 3.3 | 500 | 10 | 96 | 72 |
| 205S24WFR | 24 | 5 | 400 | 10 | 109 | 77 |
| 212S24WFR | 24 | 12 | 167 | 10 | 103 | 81 |
| 203S48WFR | 48 | 3.3 | 500 | 8 | 49 | 71 |
| 205S48WFR | 48 | 5 | 400 | 8 | 57 | 73 |
| 212S48WFR | 48 | 12 | 167 | 8 | 53 | 79 |