



FEATURES

- Efficiency up to 81%
- Overload Protection
- Fully Regulated Output Voltage
- Operating Temperature Range -40°C to +85°C
- Wide 4:1 Input Range
- Isolation Voltage 1600 VDC
- Remote On/Off Control
- Lead free, RoHs compliant
- UL/cUL/IEC/EN 60950-1 Safety Approval(pending)
- 3 Years Product Warranty



The PJ03S/D series are miniature, SIP-8 package, isolated 3W DC/DC converters with 1,600VDC isolation. The PJ03S/D series features fully regulated output and wide 4:1 input voltage ranges. It offers over load protection and allows a wide operating temperature range of -40°C to +85°C. These isolated DC/DC converters are the latest offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc

Model Selection Guide

| Model Number | Input Voltage (Range) | Output Voltage | Output Current | | Input Current | | Max. capacitive Load | Efficiency (typ.) |
|--------------|-----------------------|----------------|----------------|------|---------------|----------|----------------------|-------------------|
| | | | Max. | Min. | @Max. Load | @No Load | | @Max. Load |
| | VDC | VDC | mA | mA | mA(typ.) | mA(typ.) | μF | % |
| PJ03S1203A | 12 (4.5 ~ 18) | 3.3 | 700 | 175 | 260 | 60 | 1760 | 74 |
| PJ03S1205A | | 5 | 600 | 150 | 320 | | 1000 | 78 |
| PJ03S1212A | | 12 | 250 | 63 | 313 | | 170 | 80 |
| PJ03S1215A | | 15 | 200 | 50 | 313 | | 110 | 80 |
| PJ03D1205A | | ±5 | ±300 | ±75 | 313 | | 470* | 80 |
| PJ03D1212A | | ±12 | ±125 | ±31 | 313 | | 1008* | 80 |
| PJ03D1215A | | ±15 | ±100 | ±25 | 313 | | 47 * | 80 |
| PJ03S2403A | 24 (9 ~ 36) | 3.3 | 700 | 175 | 128 | 25 | 1760 | 75 |
| PJ03S2405A | | 5 | 600 | 150 | 156 | | 1000 | 80 |
| PJ03S2412A | | 12 | 250 | 63 | 154 | | 170 | 81 |
| PJ03S2415A | | 15 | 200 | 50 | 154 | | 110 | 81 |
| PJ03D2405A | | ±5 | ±300 | ±75 | 158 | | 470 * | 79 |
| PJ03D2412A | | ±12 | ±125 | ±31 | 156 | | 100 * | 80 |
| PJ03D2415A | | ±15 | ±100 | ±25 | 154 | | 47 * | 81 |
| PJ03S4803A | 48 (18 ~ 75) | 3.3 | 700 | 175 | 65 | 15 | 1760 | 74 |
| PJ03S4805A | | 5 | 600 | 150 | 79 | | 1000 | 79 |
| PJ03S4812A | | 12 | 250 | 63 | 79 | | 170 | 79 |
| PJ03S4815A | | 15 | 200 | 50 | 79 | | 110 | 79 |
| PJ03D4805A | | ±5 | ±300 | ±75 | 79 | | 470* | 79 |
| PJ03D4812A | | ±12 | ±125 | ±31 | 79 | | 100 * | 79 |
| PJ03D4815A | | ±15 | ±100 | ±25 | 78 | | 47 * | 80 |

* For each output



Input Characteristics

| Parameter | Model | Min. | Typ. | Max. | Unit |
|-----------------------------------|------------------|----------------|------|------|------|
| Input Surge Voltage (1 sec. max.) | 12V Input Models | -0.7 | --- | 25 | VDC |
| | 24V Input Models | -0.7 | --- | 50 | |
| | 48V Input Models | -0.7 | --- | 100 | |
| Start-Up Threshold Voltage | 12V Input Models | 3 | 4 | 4.5 | |
| | 24V Input Models | 4.5 | 6 | 9 | |
| | 48V Input Models | 8.5 | 12 | 18 | |
| Under Voltage Shutdown | 12V Input Models | --- | 3.5 | 4 | |
| | 24V Input Models | --- | --- | 8 | |
| | 48V Input Models | --- | --- | 16 | |
| Reverse Polarity Input Current | All Models | --- | --- | 1 | A |
| Short Circuit Input Power | | --- | --- | 2500 | mW |
| Internal Filter Type | | Capacitor type | | | |
| Internal Power Dissipation | | --- | --- | 2600 | mW |

Output Characteristics

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|---------------------------------|-----------------------------|------|------|-------|-------------------|
| Output Voltage Setting Accuracy | At 50% Load and Nominal Vin | --- | --- | ±1.0 | %Vom. |
| Output Voltage Balance | Dual Output, Balanced Loads | --- | ±0.5 | ±2.0 | % |
| Line Regulation | Vin=Min. to Max. | --- | ±0.3 | ±0.5 | % |
| Load Regulation | Io=25% to 100% | --- | ±0.5 | ±1.0 | % |
| Ripple & Noise (20MHz) | 0-20 MHz Bandwidth | --- | 50 | 75 | mV _{p-p} |
| Transient Recovery Time | 25% Load Step Change | --- | 300 | 500 | µsec |
| Transient Response Deviation | | --- | ±3 | ±5 | % |
| Temperature Coefficient | | --- | --- | ±0.02 | %/°C |
| Short Circuit Protection | Continuous | | | | |

General Characteristics

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------|---|---------|------|------|-------|
| I/O Isolation Voltage (rated) | 60 Seconds | 1600 | --- | --- | VDC |
| I/O Isolation Resistance | 500 VDC | 1000 | --- | --- | MΩ |
| I/O Isolation Capacitance | 100KHz, 1V | --- | 200 | --- | pF |
| Switching Frequency | | --- | 350 | --- | KHz |
| MTBF (calculated) | MIL-HDBK-217F@25°C, Ground Benign | 800,000 | --- | --- | Hours |
| Safety Approvals(pending) | UL/cUL 60950-1 recognition (CSA certificate), IEC/EN 60950-1(CB-scheme) | | | | |

Recommended Input Fuse

| 12V Input Models | 24V Input Models | 48V Input Models |
|-----------------------|----------------------|----------------------|
| 1500mA Slow-Blow Type | 700mA Slow-Blow Type | 350mA Slow-Blow Type |

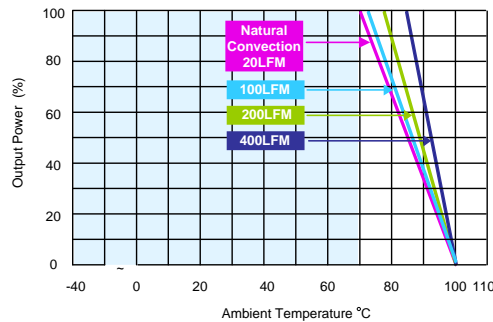
Remote On/Off Control

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------|---|------|------|------|------|
| Converter On | Under 0.6 VDC or Open Circuit, drops down to 0VDC by 2mV/°C | | | | |
| Converter Off | | 2.7 | --- | 15 | VDC |
| Device Standby Input Current | | --- | 1 | 2.5 | mA |
| Control Input Current (on) | Vin = 0V | --- | --- | 1 | mA |
| Control Input Current (off) | Vin = 5.0V | --- | --- | 1 | mA |
| Control Common | Referenced to Negative Input | | | | |

Environmental Characteristics

| Parameter | Conditions | Min. | Max. | Unit |
|--|---------------------|------|------|----------|
| Operating Ambient Temperature Range (See Power Derating Curve) | Natural Convection | -40 | +85 | °C |
| Case Temperature | | --- | 105 | °C |
| Storage Temperature Range | | -55 | +125 | °C |
| Humidity (non condensing) | | --- | 95 | % rel. H |
| Cooling | Free-Air convection | | | |
| Lead Temperature (1.5mm from case for 10Sec.) | | --- | 260 | °C |

Power Derating Curve

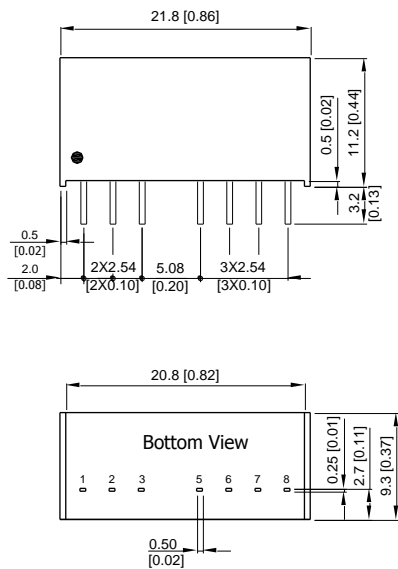


Notes

- 1 Specifications typical at $T_a=+25^{\circ}\text{C}$, resistive load, nominal input voltage and rated output current unless otherwise noted.
- 2 Transient recovery time is measured to within 1% error band for a step change in output load of 75% to 100%.
- 3 Ripple & Noise measurement bandwidth is 0-20 MHz measured with a $1\mu\text{F M/C}$.
- 4 These power converters require a minimum output loading to maintain specified regulation, operation under no-load conditions will modules; however, they may not meet all specifications listed.
- 5 All DC/DC converters should be externally fused at the front end for protection.
- 6 We recommend to protect the converter by a slow blow fuse in the input supply line.
- 7 That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
- 8 Specifications are subject to change without notice.

Mechanical Drawing

Mechanical Dimensions



Pin Connections

| Pin | Single Output | Dual Output |
|-----|---------------|-------------|
| 1 | -Vin | -Vin |
| 2 | +Vin | +Vin |
| 3 | Remote | Remote |
| 5 | NC | NC |
| 6 | +Vout | +Vout |
| 7 | -Vout | Common |
| 8 | NC | -Vout |

NC: No Connection

- ▶ All dimensions in mm (inches)
- ▶ Tolerance: $X.X\pm 0.5$ ($X.XX\pm 0.02$)
 $X.XX\pm 0.25$ ($X.XXX\pm 0.01$)
- ▶ Pins $\pm 0.1(\pm 0.004)$

Physical Outline

| | |
|---------------|---|
| Case Size | : 21.8x9.3x11.2 mm (0.86x0.37x0.44 inches) |
| Case Material | : Non-Conductive Black Plastic (flammability to UL 94V-0 rated) |
| Pin Material | : Alloy 42 |
| Weight | : 4.8g |



| Part Numbering System | | | | | | |
|-----------------------|---------------|-------|-------------------|---------------|----------------|--------------------|
| P | J | 03 | S | 48 | 05 | A |
| Form factor | Family series | Watt | Number of Outputs | Input Voltage | Output Voltage | Option Code |
| D-DIP | A~Z | 01:1W | S - Single | 03:3.3V | 03:3.3V | A - Std. Functions |
| P-SIP | | 02:2W | D - Dual | 05: 5V | 05: 5V | |
| S-SMD | | 03:3W | | 12:12V | 12:12V | |
| | | 04:4W | | 24: 24V | 15: 15V | |
| | | 06:6W | | 48:48V | 24: 24V | |

WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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JONHON

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