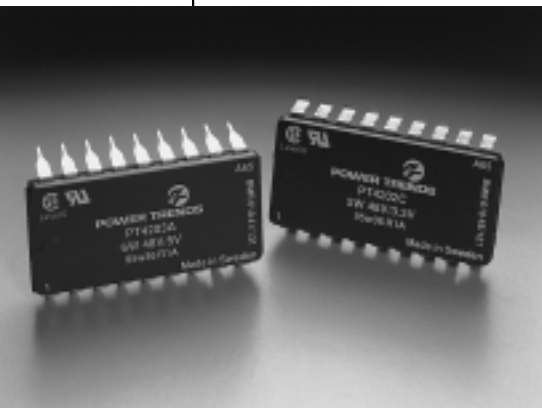


PT42/4300 Series

**3-7 WATT 48V INPUT
 ISOLATED DC-DC CONVERTER**

Revised 5/15/98



- Wide Input Voltage Range: 38V to 72V
- 83% Efficiency
- 1,500 VDC Isolation
- 18 Pin DIP Package
- 3.5 Million Hour MTBF
- Meets FCC/EN55022 Class A
- UL and CSA approved
- No External Components Required
- Adjustable Output Voltage

Power Trends' PT4200 series of isolated

DC to DC converters advance the state-of-the-art for board-mounted converters by employing high switching frequencies, thick-film technology and a high degree of silicon integration. The high reliability and very low package height makes these converters ideal for Telecom and Datacom applications requiring input-to-output isolation with board spacing down to 0.6".

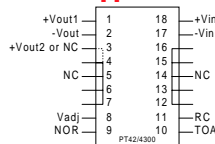
The PT4200 series is offered in a unique molded through-hole or SMD-DIP package with single output voltages of 2V, 3.3V, 5V, and 12V, dual outputs of $\pm 5V$, $+5V/+3.3V$, and $\pm 12V$.

Specifications

| Characteristics ($T_a = 25^\circ\text{C}$ unless noted) | Symbols | Conditions | PT42/4300 SERIES | | | Units |
|---|----------------------|---|---|--------------------------|----------------------------|--|
| | | | Min | Typ | Max | |
| Output Current | I_o | Over V_{in} range | $V_o = 2V, 3.3V$ $V_o = 5V$ $V_o = 12V$ | 0 0 0 | — — — | 1.5 1.2 0.6 A A A |
| Current Limit | I_{cl} | $V_{in} = 48V$ | $V_o = 2V$ $V_o = 3.3V$ $V_o = 5V$ $V_o = 12V$ | 2.0 1.7 1.4 0.7 | — — — — | 3.3 3.3 2.4 1.2 A A A A |
| On/Off Standby Current | $I_{in\ standby}$ | $V_{in} = 48V$; Pin 11 = $-V_{in}$ | — | 0.5 | — | mA |
| Short Circuit Current | I_{sc} | $V_{in} = 48V$ | $V_o = 2V$ $V_o = 3.3V$ $V_o = 5V$ $V_o = 12V$ | — — — — | 2.8 2.4 1.9 1.2 | A A A A |
| Inrush Current | I_{ir} t_{ir} | $V_{in} = 48V$ @ max I_o On start-up | — | 0.6 1.0 | 1.0 5.0 | A mSec |
| Input Voltage Range | V_{in} | Over I_o Range | 38** | 48 | 72 | V |
| Output Voltage Tolerance | ΔV_o | Over I_o Range | — | ± 4 | — | % V_o |
| Idling Voltage | V_o | $I_o = 0A$ | $V_o = 2V$ $V_o = 3.3V$ $V_o = 5V$ $V_o = 12V$ | — — — — | 2.7 3.65 5.6 14.3 | 3.0 4.0 6.0 17 V V V V |
| Ripple Rejection | RR | Over V_{in} range @ 120 Hz | — | 60 | — | dB |
| Line Regulation | Reg_{line} | Over V_{in} range @ max I_o | — | ± 0.5 | — | % V_o |
| Load Regulation | Reg_{load} | 10% to 100% of I_o max | — | ± 3 | — | % V_o |
| V_o Ripple/Noise | V_n | $V_{in} = 48V, I_o = I_o$ max | — | 30 | 70 | mV _{pp} |
| Transient Response | t_{tr} | 50% load change V_o over/undershoot | — | 100 3.0 | 300 5.0 | μSec % V_o |
| Efficiency | η | $V_{in} = 48V, I_o = 1.5A, V_o = 2V$ $V_{in} = 48V, I_o = 1.5A, V_o = 3.3V$ $V_{in} = 48V, I_o = 1.2A, V_o = 5V$ $V_{in} = 48V, I_o = 0.6A, V_o = 12V$ | — — — — | 73 79 80 83 | — — — — | % % % % |
| Switching Frequency | f_o | Over V_{in} and I_o | — | 485 | — | kHz |
| Operating Temperature | T_a | $V_{in} = 48V$ @ max I_o Free air convection, (40-60LFM) | -40 | — | +85 | $^\circ\text{C}$ |
| Pin Temperature | T_p | @ Pin1 | — | — | 95 | $^\circ\text{C}$ |
| Storage Temperature | T_s | — | -55 | — | +125 | $^\circ\text{C}$ |
| Mechanical Shock | — | Per Mil-STD-202F, Method 213B, 6mS half-sine, mounted to a PCB | — | 50 | — | G's |
| Mechanical Vibration | — | Per Mil-STD-202F, Method 204D, 10-500Hz, mounted to a PCB | — | 10 | — | G's |
| Weight | — | — | — | 20 | — | grams |
| Isolation | — | — | 1500 | — | — | VDC |
| Flammability | — | Materials meet UL 94V-0 | — | — | — | — |

** Minimum input voltage is adjustable - See application note.

Standard Application



Pin-Out Information

| Pin | Function |
|-----|----------------------------------|
| 1 | V_{out1} |
| 2 | V_{out} return |
| 3 | V_{out2} or N/C |
| 4 | Do not connect |
| 5 | Do not connect |
| 6 | Do not connect |
| 7 | Do not connect |
| 8* | V_{adj} |
| 9* | Nominal output voltage resistor |
| 10 | Turn-on/off input voltage adjust |
| 11 | Remote on/off |
| 12 | Do not connect |
| 13 | Do not connect |
| 14 | Do not connect |
| 15 | Do not connect |
| 16 | Do not connect |
| 17 | $-V_{in}$ |
| 18 | $+V_{in}$ |

* Please note that when the V_{out} adjust is not used, pin 8 must be connected to pin 9.

Ordering Information

Through-Hole

PT4201A = 2V/1.5A
 PT4202A = 3.3V/1.5A
 PT4203A = 5V/1.2A
 PT4204A = 12V/0.6A
 PT4301A = $\pm 5V/1A$
 PT4302A = $+5.2V/1A,$
 $+3.3V/1A$
 PT4303A = $\pm 12V/0.25A$

Surface Mount

PT4201C = 2V/1.5A
 PT4202C = 3.3V/1.5A
 PT4203C = 5V/1.2A
 PT4204C = 12V/0.6A
 PT4301C = $\pm 5V/1A$
 PT4302C = $+5.2V/1A,$
 $+3.3V/1A$
 PT4303C = $\pm 12V/0.25A$

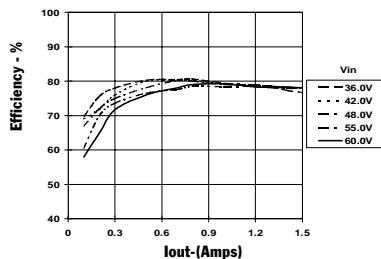
(For dimensions and PC board layout, see Package Style 900.)

PT42/4300 Series

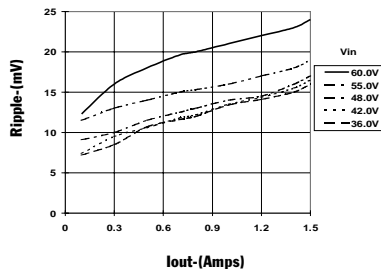
CHARACTERISTIC DATA

PT4202 3.3V (See Note 1)

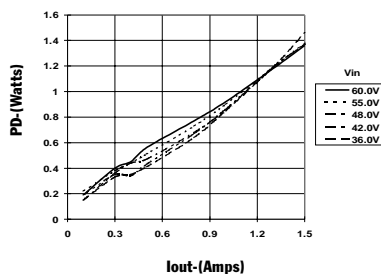
Efficiency vs Output Current



Ripple vs Output Current

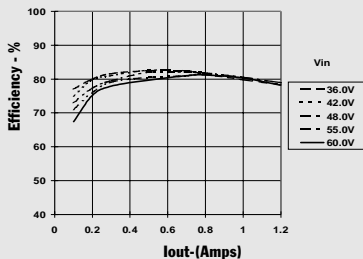


Power Dissipation vs Output Current

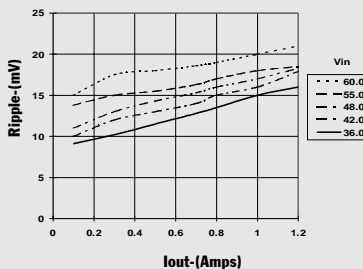


PT4203 5.0V (See Note 1)

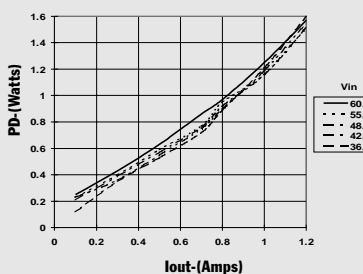
Efficiency vs Output Current



Ripple vs Output Current

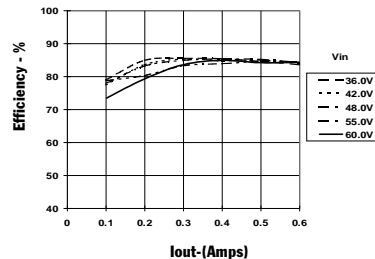


Power Dissipation vs Output Current

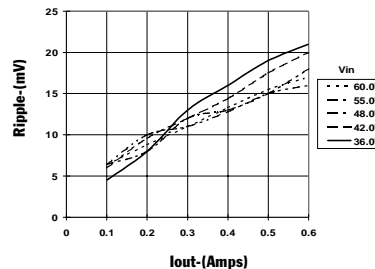


PT4204 12.0V (See Note 1)

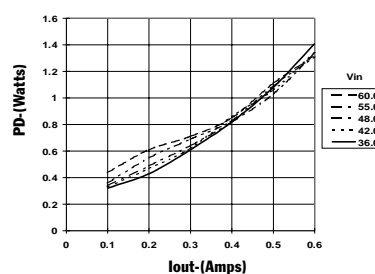
Efficiency vs Output Current



Ripple vs Output Current



Power Dissipation vs Output Current



Note 1: All data listed in the above graphs, except for derating data, has been developed from actual products tested at 25°C. This data is considered typical data for the DC-DC Converter.

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