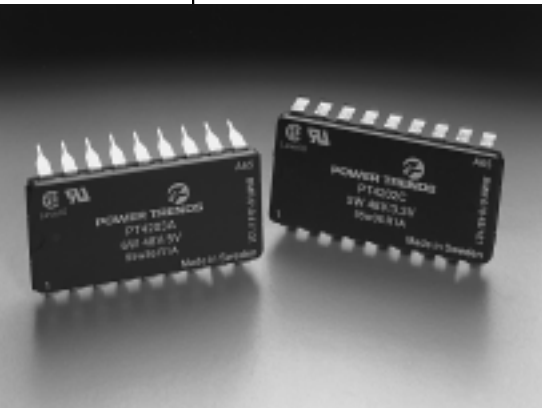


# PT42/4300 Series

**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".

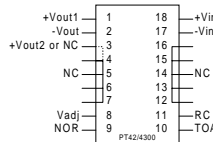
The PT4200 series is offered in a unique molded through-hole or SMD-DIP package with single output voltages of 2V, 3.3V, 5V, and 12V, dual outputs of  $\pm 5V$ ,  $+5V/+3.3V$ , and  $\pm 12V$ .

## 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	$\Delta V_o$	Over $I_o$ Range	—	$\pm 4$	—	—	% $V_o$
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 $I_o$	—	$\pm 0.5$	—	—	% $V_o$
Load Regulation	$Reg_{load}$	10% to 100% of $I_o$ max	—	$\pm 3$	—	—	% $V_o$
$V_o$ Ripple/Noise	$V_n$	$V_{in} = 48V, I_o = I_o\ max$	—	30	70	—	mV <sub>pp</sub>
Transient Response	$t_{tr}$	50% load change $V_o$ over/undershoot	—	100 3.0	300 5.0	—	$\mu\text{Sec}$ % $V_o$
Efficiency	$\eta$	$V_{in} = 48V, I_o = 1.5A, V_o = 2V$ $V_{in} = 48V, I_o = 1.5A, V_o = 3.3V$ $V_{in} = 48V, I_o = 1.2A, V_o = 5V$ $V_{in} = 48V, I_o = 0.6A, V_o = 12V$	— — — —	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 =  $\pm 12V/0.25A$

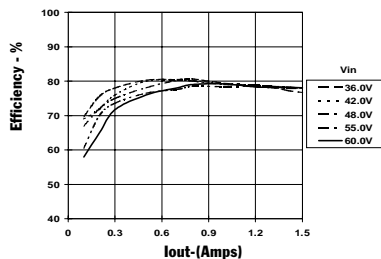
(For dimensions and PC board layout, see Package Style 900.)

# PT42/4300 Series

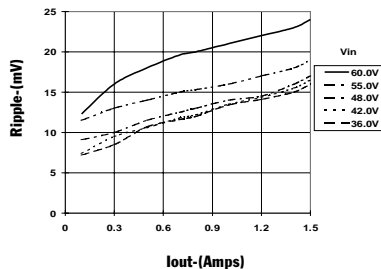
## CHARACTERISTIC DATA

**PT4202 3.3V** (See Note 1)

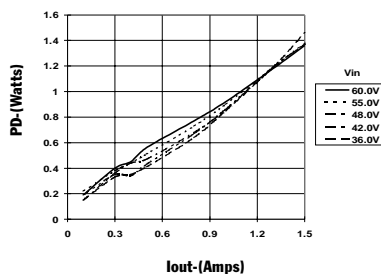
**Efficiency vs Output Current**



**Ripple vs Output Current**

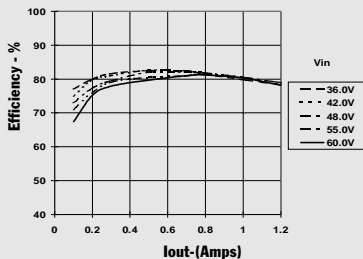


**Power Dissipation vs Output Current**

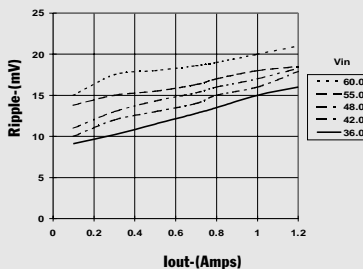


**PT4203 5.0V** (See Note 1)

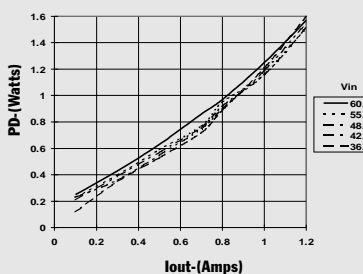
**Efficiency vs Output Current**



**Ripple vs Output Current**

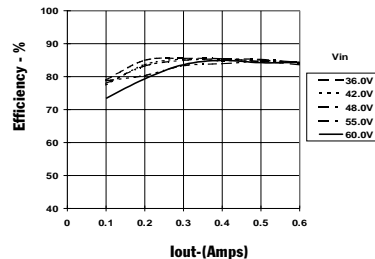


**Power Dissipation vs Output Current**

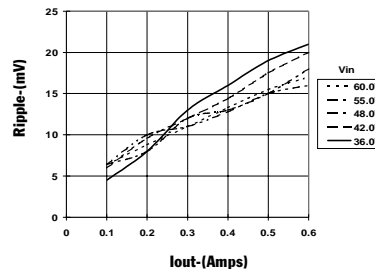


**PT4204 12.0V** (See Note 1)

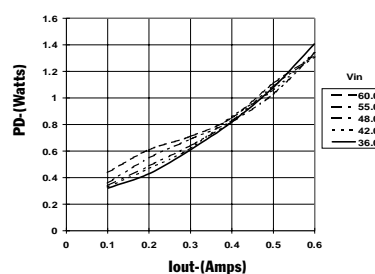
**Efficiency vs Output Current**



**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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