

PT42/4300 Series

3-7 Watt 48V-Input
Isolated DC/DC Converter

SLTS023B

(Revised 1/3/2002)

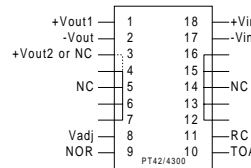
- Wide Input Voltage Range: 38V to 72V
- 83% Efficiency
- 1,500 VDC Isolation
- 18 Pin DIP Package
- 3.5 Million Hour MTBF
- Meets FCC/EN55022 Class A
- UL and CSA approved
- No External Components Required
- Adjustable Output Voltage

The PT4200 series of isolated DC/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 $\pm 12V$.

Package (Top View)



Specifications

Characteristics (T _a = 25°C unless noted)	Symbols	Conditions	PT42/4300 SERIES			
			Min	Typ	Max	Units
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 (1)	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	°C
Pin Temperature	T _p	@ Pin1	—	—	95	°C
Storage Temperature	T _s	—	-55	—	+125	°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				

Notes: (1) The minimum input voltage is adjustable. See the specific application note on the PT4200/4205/4300 Series.

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

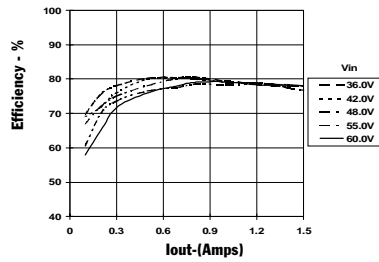
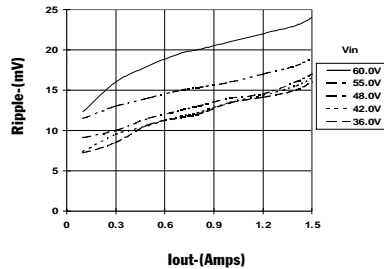
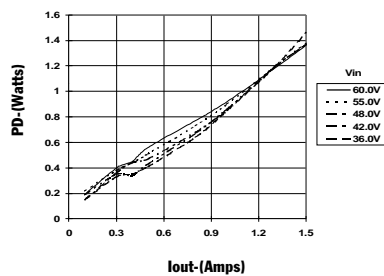
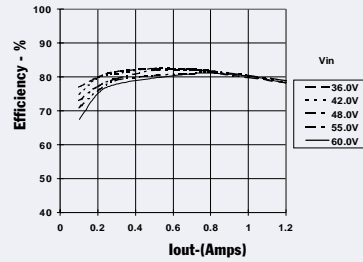
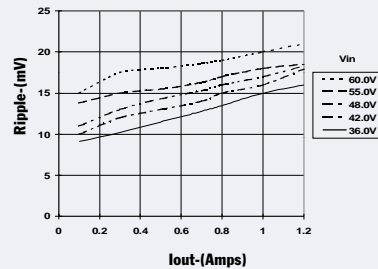
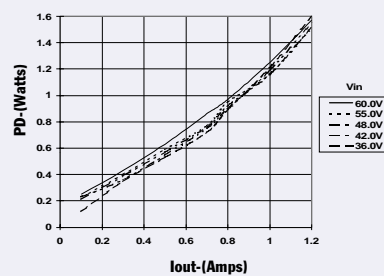
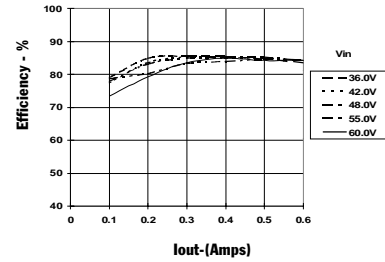
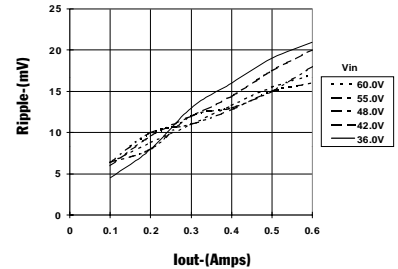
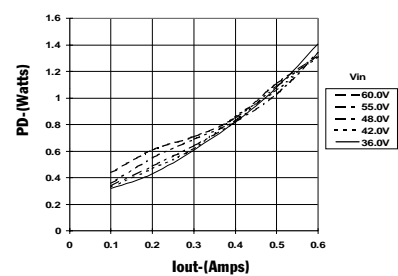
Through-Hole

PT4201A = 2V/1.5A
PT4202A = 3.3V/1.5A
PT4203A = 5V/1.2A
PT4204A = 12V/0.6A
PT4301A = $\pm 5V/1A$
PT4302A = $\pm 5.2V/1A$,
 $+3.3V/1A$
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 = $\pm 5.2V/1A$,
 $+3.3V/1A$
PT4303C = $\pm 12V/0.25A$

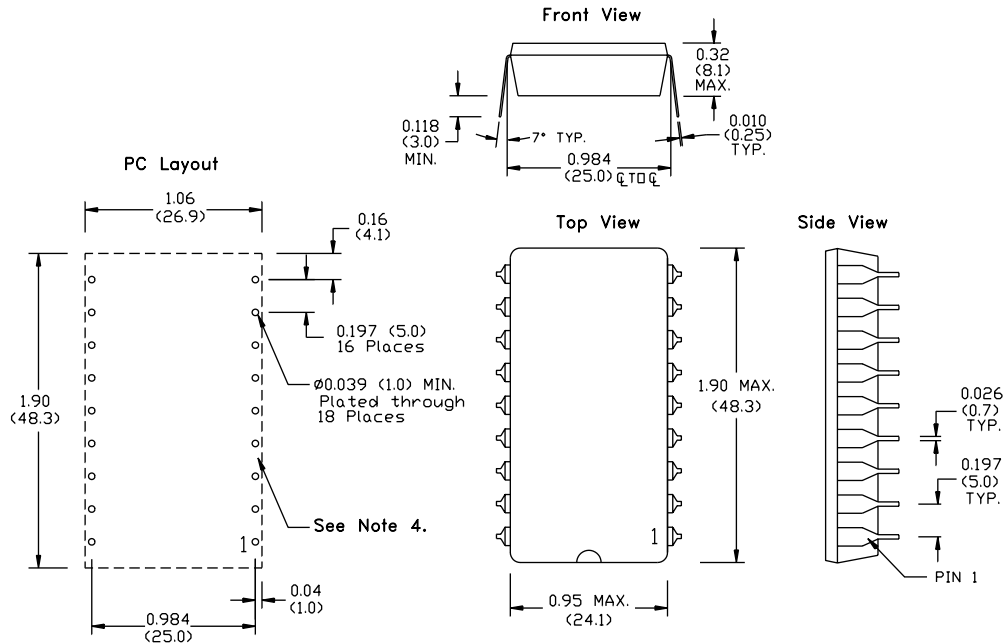
(For dimensions and PC board layout, see Package Style 900.)

PT4202 3.3V (See Note A)**Efficiency vs Output Current****Ripple vs Output Current****Power Dissipation vs Output Current****PT4203 5.0V** (See Note A)**Efficiency vs Output Current****Ripple vs Output Current****Power Dissipation vs Output Current****PT4204 12.0V** (See Note A)**Efficiency vs Output Current****Ripple vs Output Current****Power Dissipation vs Output Current**

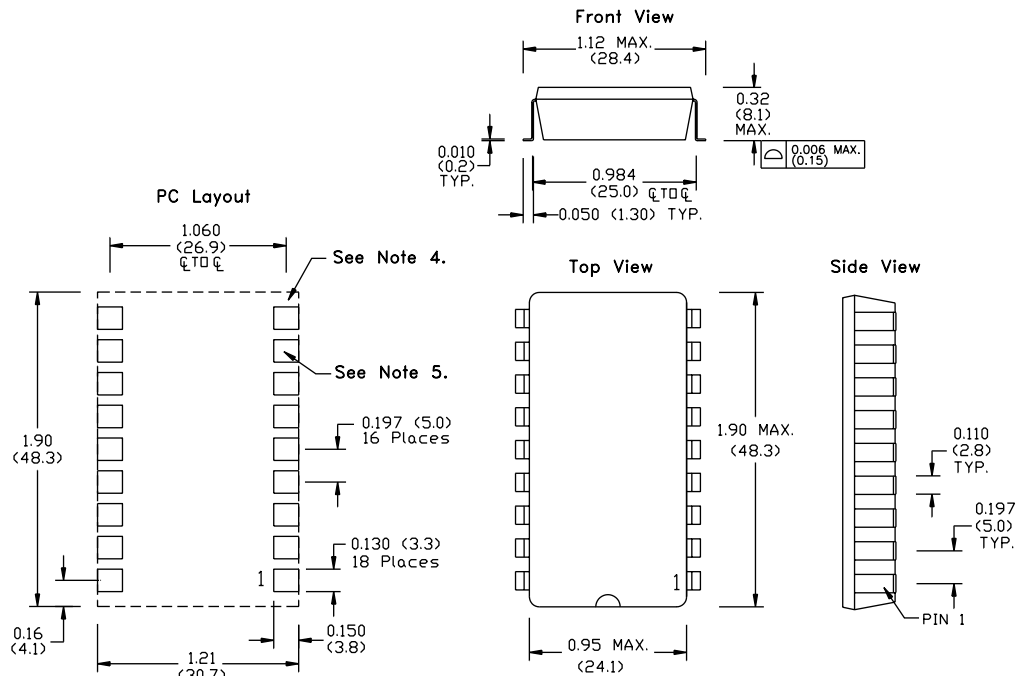
Note A: All data listed in the above graphs, except for derating data, has been developed from actual products tested at 25°C. This data is considered typical data for the DC-DC Converter.

PACKAGE INFORMATION AND DIMENSIONS

Horizontal Through-Hole Mount (Suffix A)



Surface Mount (Suffix C)



Notes: (Rev. A)

- 1: All dimensions are in inches (mm).
- 2: 2 place decimals are ± 0.030 (± 0.8 mm).
- 3: 3 place decimals are ± 0.010 (± 0.3 mm).
- 4: Recommended mechanical keep out area.
- 5: Power pin connections should utilize two or more vias per input, ground and output pin.

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