

PT42/4300 Series

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

SLTS023B

(Revised 1/3/2002)

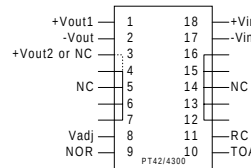
- Wide Input Voltage Range: 38V to 72V
- 83% Efficiency
- 1,500 VDC Isolation
- 18 Pin DIP Package
- 3.5 Million Hour MTBF
- Meets FCC/EN55022 Class A
- UL and CSA approved
- No External Components Required
- Adjustable Output Voltage

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 = $\pm 12V/0.25A$

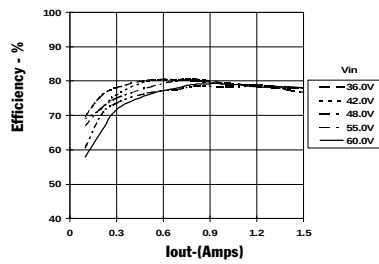
Surface Mount

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 = $\pm 12V/0.25A$

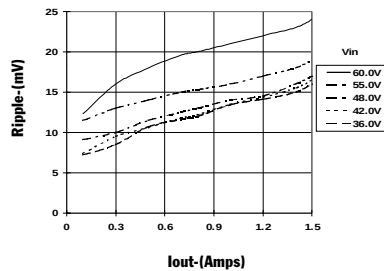
(For dimensions and PC board layout, see Package Style 900.)

PT4202 3.3V (See Note A)

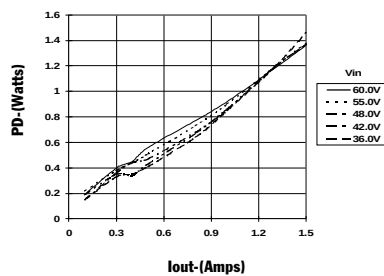
Efficiency vs Output Current



Ripple vs Output Current

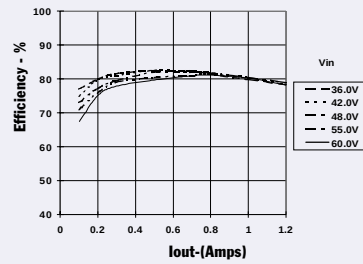


Power Dissipation vs Output Current

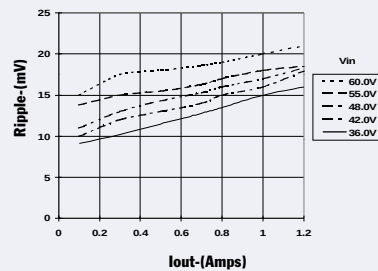


PT4203 5.0V (See Note A)

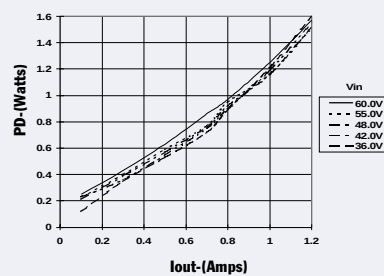
Efficiency vs Output Current



Ripple vs Output Current

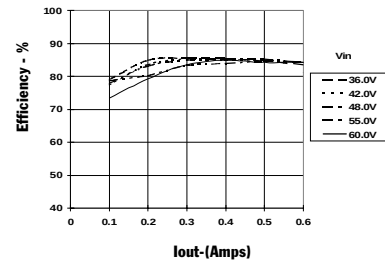


Power Dissipation vs Output Current

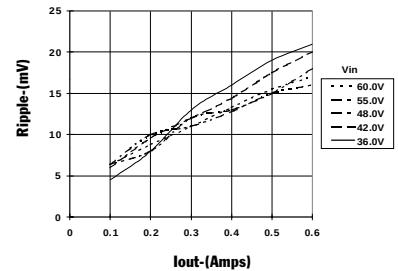


PT4204 12.0V (See Note A)

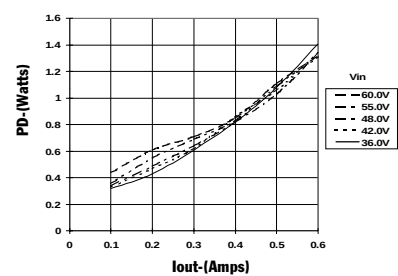
Efficiency vs Output Current



Ripple vs Output Current



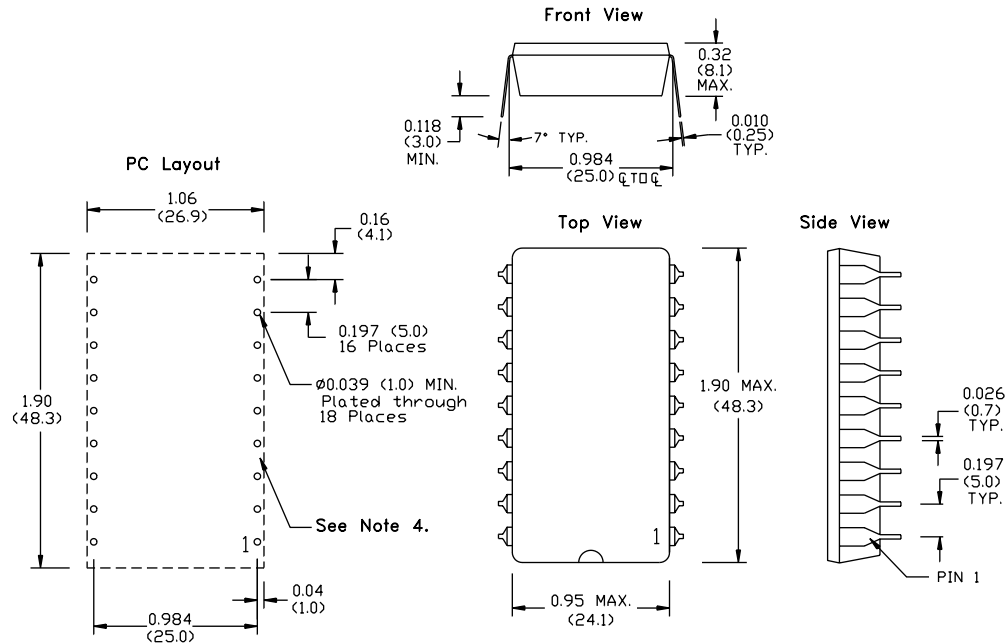
Power Dissipation vs Output Current



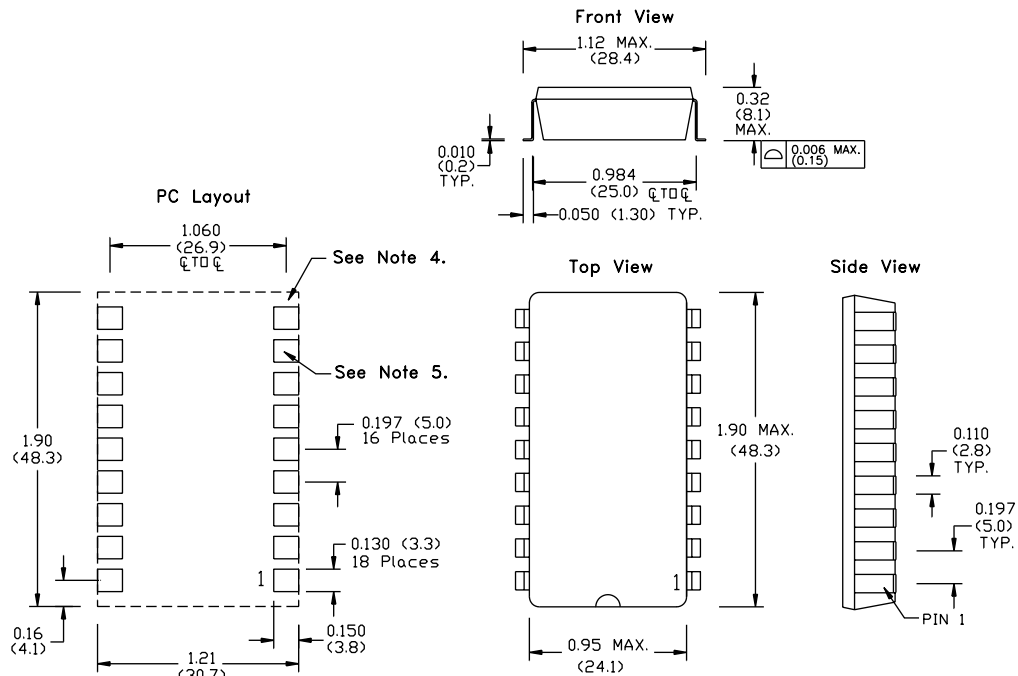
Note A: All data listed in the above graphs, except for derating data, has been developed from actual products tested at 25°C. This data is considered typical data for the DC-DC Converter.

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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