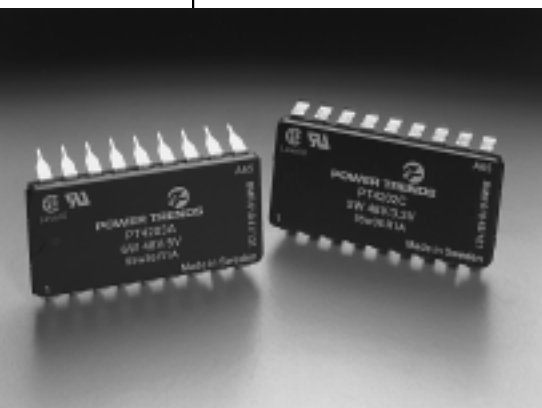


PT42/4300 Series**3-7 WATT 48V INPUT
ISOLATED DC-DC CONVERTER****Revised 5/15/98**

- 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

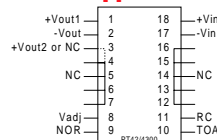
DC to DC converters advance the state-of-the-art for board-mounted converters by employing high switching frequencies, thick-film technology and a high degree of silicon integration. The high reliability and very low package height makes these converters ideal for Telecom and Datacom applications requiring 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	1.5 1.2 0.6	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 — 0.7	3.3 3.3 2.4 1.2	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
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
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 = $\pm 12V/0.25A$

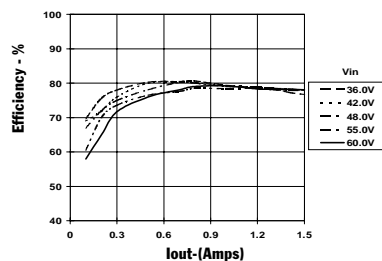
(For dimensions and PC board layout, see Package Style 900.)

PT42/4300 Series

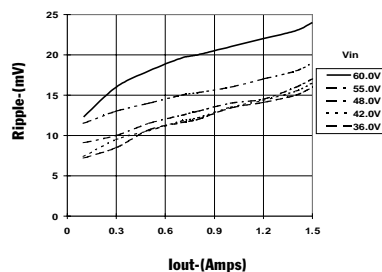
CHARACTERISTIC DATA

PT4202 3.3V (See Note 1)

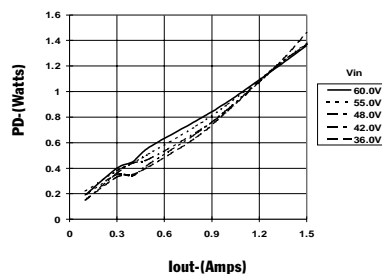
Efficiency vs Output Current



Ripple vs Output Current

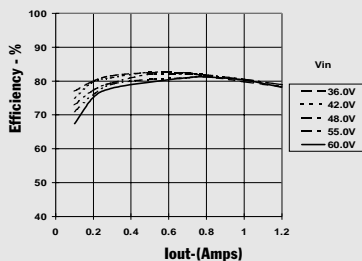


Power Dissipation vs Output Current

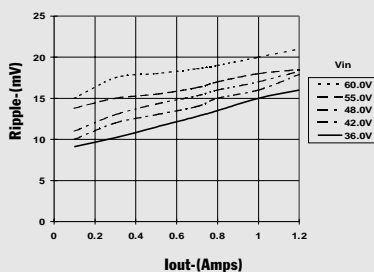


PT4203 5.0V (See Note 1)

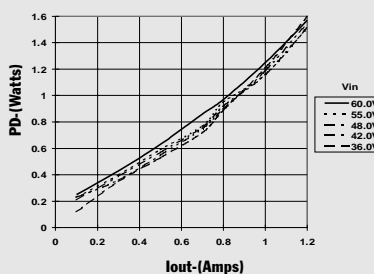
Efficiency vs Output Current



Ripple vs Output Current

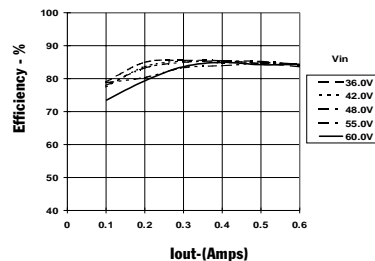


Power Dissipation vs Output Current

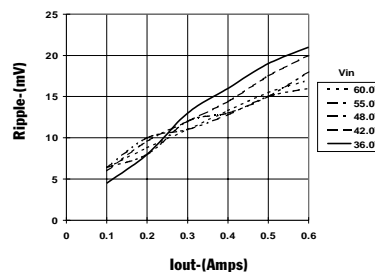


PT4204 12.0V (See Note 1)

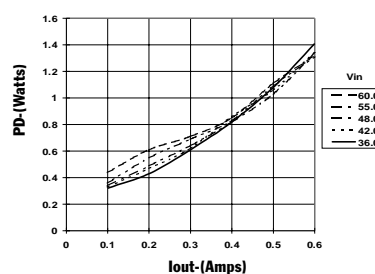
Efficiency vs Output Current



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.

IMPORTANT NOTICE

Texas Instruments and its subsidiaries (TI) reserve the right to make changes to their products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability.

TI warrants performance of its semiconductor products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

CERTAIN APPLICATIONS USING SEMICONDUCTOR PRODUCTS MAY INVOLVE POTENTIAL RISKS OF DEATH, PERSONAL INJURY, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE ("CRITICAL APPLICATIONS"). TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS. INCLUSION OF TI PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE FULLY AT THE CUSTOMER'S RISK.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance or customer product design. TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used. TI's publication of information regarding any third party's products or services does not constitute TI's approval, warranty or endorsement thereof.