



### Features

- Wide Input Voltage Range: 38V to 72V
- 1,500 VDC Isolation
- 6 Pin DIP Package
- Low-Profile (8mm)
- Pin-compatible with PT4200 Series
- No External Components Required
- Safety Approvals —Pending

### Description

The PT4210 is a series of low-power isolated DC-DC converters that is pin-compatible to Power Trends' popular PT4200 series. These small, low-profile converters require no external components and are ideal for Telecom and Datacom applications where board space and height are at a premium.

The PT4210 series is offered in both through-hole or SMD-DIP package types with single non-adjustable output voltages of 3.3V, 5V, and 12V.

### Ordering Information

**PT4212□** = 3.3V/1.5A  
**PT4213□** = 5V/1.2A  
**PT4214□** = 12V/0.6A

### Package Suffix (PT1234X)

**Case/Pin Configuration**

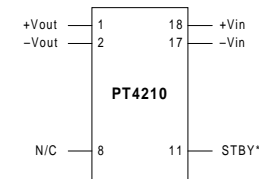
Through-Hole	<b>A</b>
Surface Mount	<b>C</b>

(For dimensions and PC board layout, see Package Style 910)

### Pin-Out Information

Pin	Function
1	V <sub>out1</sub>
2	V <sub>out</sub> return
8	N/C
11	STBY*
17	-V <sub>in</sub>
18	+V <sub>in</sub>

### Package Top View

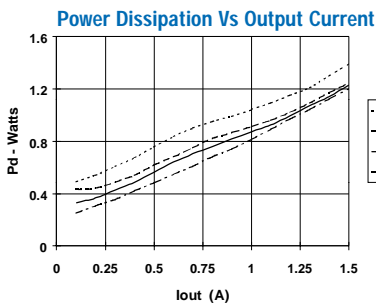
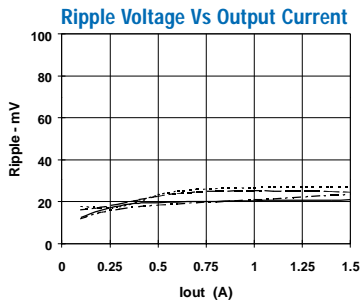
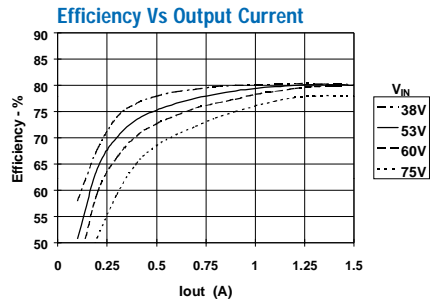


### Specifications

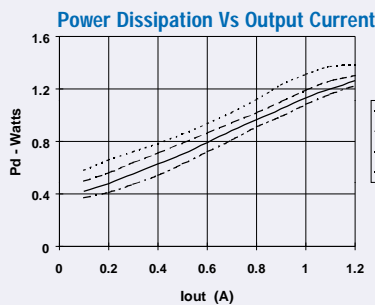
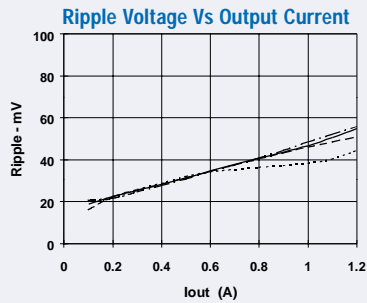
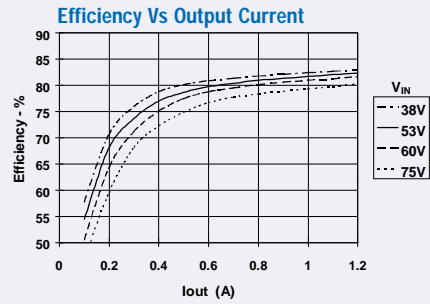
Characteristics (T <sub>a</sub> = 25°C unless noted)	Symbols	Conditions	PT4210 SERIES			Units	
			Min	Typ	Max		
Output Current	I <sub>o</sub>	Over V <sub>in</sub> range	PT4212 (3.3V) PT4213 (5.0V) PT4214 (12V)	0 0 0	— — —	1.5 1.2 0.6	A
Current Limit	I <sub>lim</sub>	Over V <sub>in</sub> range	PT4212 PT4213 PT4214	— — —	3.0 3.0 TBD	—	A
Short Circuit Current	I <sub>sc</sub>	Over V <sub>in</sub> range	PT4212 PT4213 PT4214	— — —	2.4 1.5 0.5	—	A
Inrush Current	I <sub>ir</sub> t <sub>ir</sub>	V <sub>in</sub> = 48V @ max I <sub>o</sub> On start-up	—	—	0.6 1.0	1.0 5.0	A mSec
Input Voltage Range	V <sub>in</sub>	Over I <sub>o</sub> range	—	38	—	75	V
Output Voltage Tolerance	ΔV <sub>o</sub>	Over V <sub>in</sub> range, 10% I <sub>o</sub> max ≤ I <sub>o</sub> ≤ I <sub>o</sub> max, -40°C < T <sub>a</sub> < 85°C	PT4212 PT4213 PT4214	3.17 4.85 11.5	— — —	3.5 5.25 12.5	V
Idling Voltage	V <sub>o</sub>	I <sub>o</sub> = 0A	PT4212 PT4213 PT4214	— — —	— — —	3.9 5.9 17	V
Line Regulation	Reg <sub>line</sub>	Over V <sub>in</sub> range @ max I <sub>o</sub>	—	—	±10	—	mV
Load Regulation	Reg <sub>load</sub>	10% I <sub>o</sub> max ≤ I <sub>o</sub> ≤ I <sub>o</sub> max	—	—	±3	—	%V <sub>o</sub>
V <sub>o</sub> Ripple/Noise	V <sub>n</sub>	V <sub>in</sub> = 48V, I <sub>o</sub> = I <sub>o</sub> max	—	—	30	70	mV <sub>pp</sub>
Transient Response	t <sub>tr</sub>	50% load change V <sub>o</sub> over/undershoot	—	—	100 3.0	300 5.0	μSec %V <sub>o</sub>
Efficiency	η	V <sub>in</sub> = 53V, I <sub>o</sub> = 1.5A, V <sub>in</sub> = 53V, I <sub>o</sub> = 1.2A, V <sub>in</sub> = 53V, I <sub>o</sub> = 0.6A,	PT4212 PT4213 PT4214	— — —	79 80 82	—	%
Switching Frequency	f <sub>o</sub>	Over V <sub>in</sub> and I <sub>o</sub> ranges	—	400	—	500	kHz
Operating Temperature	T <sub>a</sub>	Over V <sub>in</sub> range	—	-40	—	+85 (1)	°C
Storage Temperature	T <sub>s</sub>	—	—	-40	—	+125	°C
Mechanical Shock	—	Per Mil-STD-202F, Method 213B, 6mS half-sine, mounted to a PCB	—	—	TBD	—	G's
Mechanical Vibration	—	Per Mil-STD-202F, Method 204D, 10-500Hz, mounted to a PCB	—	—	TBD	—	G's
Weight	—	—	—	—	10	—	grams
Isolation	—	—	—	1500	—	—	VDC
Flammability	—	Materials meet UL 94V-0	—	—	—	—	—

**Notes:** (1) See SOA curves or consult the factory for the appropriate derating.

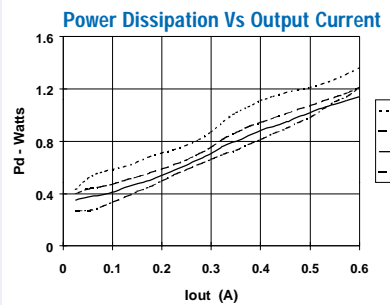
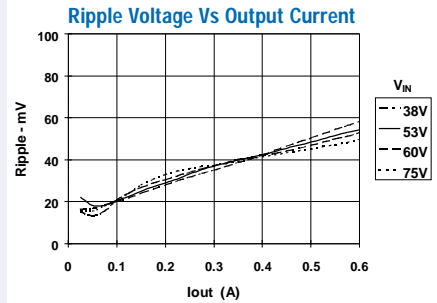
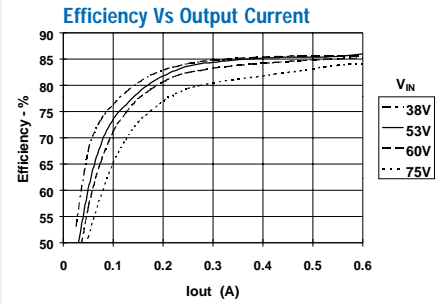
### PT4212 Performance (See Note A)



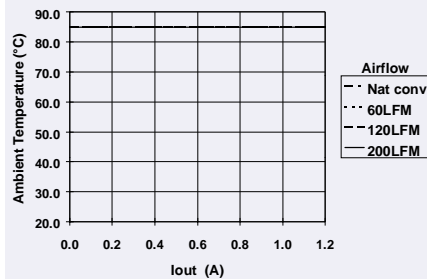
### PT4213 Performance (See Note A)



### PT4214 Performance (See Note A)



### Safe Operating Area, VIN = 36V – 60V



Note A: All Characteristic data in the above graphs has been developed from actual products tested at 25°C. This data is considered typical data for the converter.  
 Note B: SOA curves represent operating conditions at which internal components are at or below manufacturer's maximum rated operating temperatures.