

- Input Voltage Range: 18V to 40V
- 1500 VDC Isolation
- Low Profile
- Current Limit
- Short-Circuit Protection
- Over-Temperature Shutdown
- UL1950 recognized
- CSA 22.2 950 certified
- Meets EN60950

The PT4100—24V series of dc/dc converters provide 18 Watts/in<sup>3</sup> of isolated power in a single low-profile module. Designed to operate from a standard 24V telecom bus, these modules employ switching frequencies of up to 850kHz, planar magnetics, and surface-mount construction. They are designed for Telecom, Industrial, Computer, Medical, and other distributed power applications that require input-to-output isolation.

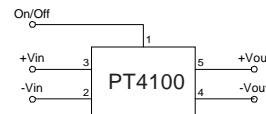
## Specifications

Characteristics (T <sub>a</sub> =25°C unless noted)	Symbols	Conditions	PT4100—24V SERIES			Units
			Min	Typ	Max	
Output Current	I <sub>o</sub>	Over V <sub>in</sub> range, V <sub>o</sub> =5V V <sub>o</sub> =12V V <sub>o</sub> =15V	0 0 0	— — —	3.0 1.25 1.0	A
Current Limit	I <sub>cl</sub>	V <sub>in</sub> = 18V, V <sub>o</sub> =5V V <sub>o</sub> =12V V <sub>o</sub> =15V	— — —	4.0 1.75 1.4	— — —	A
On/Off Standby Current	I <sub>in</sub> standby	V <sub>in</sub> = 24V, Pin 1 = -V <sub>in</sub>	—	7	10	mA
Short Circuit Current	I <sub>sc</sub>	V <sub>in</sub> = 24V, V <sub>o</sub> =5V V <sub>o</sub> =12V V <sub>o</sub> =15V	— — —	6.25 2.5 2.0	— — —	A
Inrush Current	I <sub>ir</sub> t <sub>ir</sub>	V <sub>in</sub> = 24V @ max I <sub>o</sub> On start-up	— —	1.0 1.0	2.0 5.0	A mSec
Input Voltage Range	V <sub>in</sub>	I <sub>o</sub> = 0.1 to max I <sub>o</sub>	18.0	24.0	40.0	V
Output Voltage Tolerance	ΔV <sub>o</sub>	Over V <sub>in</sub> Range T <sub>A</sub> = -40°C to +85°C	—	±1.0	±2.0	%V <sub>o</sub>
Line Regulation	Reg <sub>line</sub>	Over V <sub>in</sub> range @ max I <sub>o</sub>	—	±0.2	±1.0	%V <sub>o</sub>
Load Regulation	Reg <sub>load</sub>	10% to 100% of I <sub>o</sub> max	—	±0.4	±1.0	%V <sub>o</sub>
V <sub>o</sub> Ripple/Noise	V <sub>n</sub>	V <sub>in</sub> =24V, I <sub>o</sub> =3.0A, V <sub>o</sub> =5V V <sub>in</sub> =24V, I <sub>o</sub> =1.25A, V <sub>o</sub> =12V V <sub>in</sub> =24V, I <sub>o</sub> =1.25A, V <sub>o</sub> =15V	— — —	75 75 100	100 150 200	mV <sub>pp</sub>
Transient Response	t <sub>tr</sub>	50% load change V <sub>o</sub> over/undershoot	— —	125 3.0	200 5.0	μSec %V <sub>o</sub>
Efficiency	η	V <sub>in</sub> =24V, I <sub>o</sub> =3.0A, V <sub>o</sub> =5V V <sub>in</sub> =24V, I <sub>o</sub> =1.25A, V <sub>o</sub> =12V V <sub>in</sub> =24V, I <sub>o</sub> =1A, V <sub>o</sub> =15V	— — —	82 82 83	— — —	%
Switching Frequency	f <sub>o</sub>	Over V <sub>in</sub> and I <sub>o</sub> , V <sub>o</sub> =5V V <sub>o</sub> =12V/15V	800 600	850 650	900 700	kHz
Recommended Operating Temperature Range	T <sub>a</sub>	V <sub>in</sub> = 24V @ max I <sub>o</sub> Free air convection, (40-60LFM)	-40	—	+85 <sup>(1)</sup>	°C
Thermal Resistance	θ <sub>ja</sub>	Free air convection, (40-60LFM)	—	12	—	°C/W
Case Temperature	T <sub>c</sub>	@ Thermal shutdown	—	—	100	°C
Storage Temperature	T <sub>s</sub>		-40	—	110	°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, Soldered in a PCB	—	10	—	G's
Weight	—	—	—	28	—	grams
Isolation Capacitance Resistance	—	—	1500 10	— —	— —	V pF MΩ
Flammability	—	Materials meet UL 94V-0				
Remote On/Off	On <sup>(2)</sup> Off	Referenced to -V <sub>in</sub>	2.5 0	—	7.0 0.8	V

**Notes:** (1) See thermal derating curves.

(2) If pin2 is left open, the converter will operate when input power is applied.

## Standard Application



## Pin-Out Information

Pin	Function
1	Remote ON/OFF
2	-V <sub>in</sub>
3	+V <sub>in</sub>
4	-V <sub>out</sub>
5	+V <sub>out</sub>
6	Do not connect

## Ordering Information

### Through-Hole

**PT4104A** = 5 Volts

**PT4105A** = 12 Volts

**PT4106A** = 15 Volts

### Surface Mount

**PT4104C** = 5 Volts

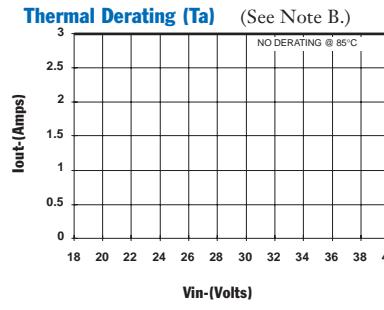
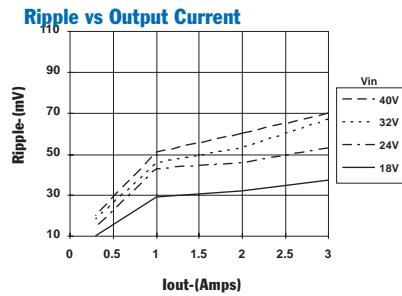
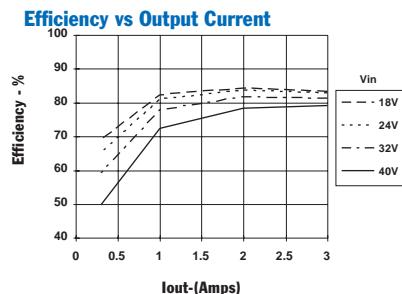
**PT4105C** = 12 Volts

**PT4106C** = 15 Volts

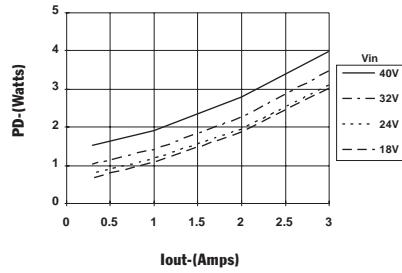
(For dimensions and PC board layout, see Package Style 710.)

## 15 Watt Isolated DC-DC Converter

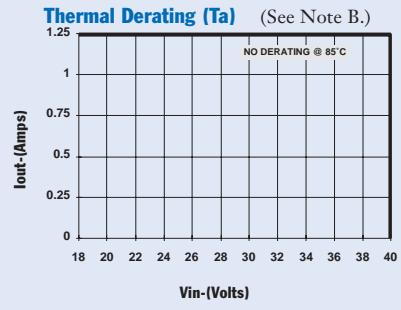
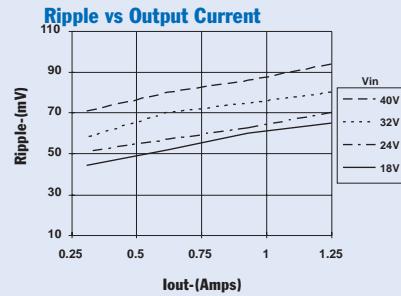
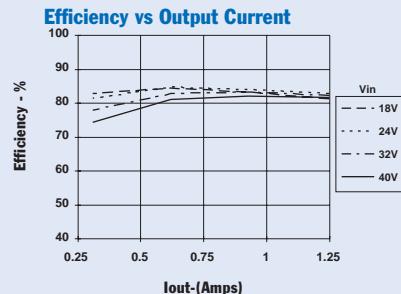
## PT4104, 5.0 VDC (See Note A.)



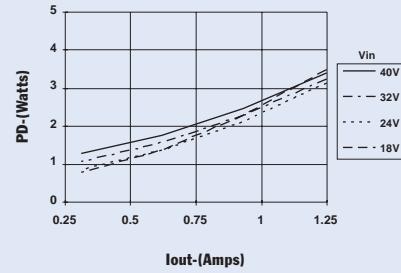
## Power Dissipation vs Output Current



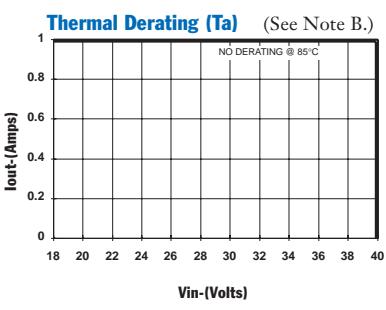
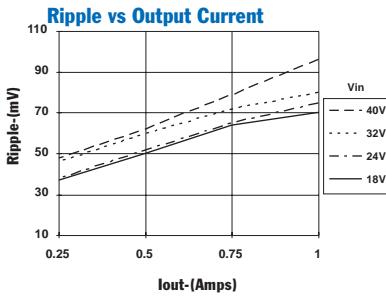
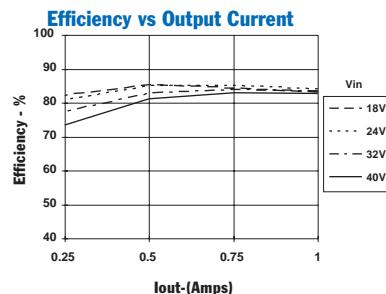
## PT4105, 12.0 VDC (See Note A.)



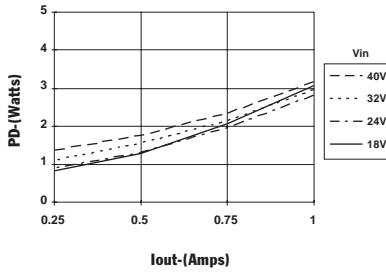
## Power Dissipation vs Output Current



## PT4106, 15.0 VDC (See Note A.)



## 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.

**Note B:** Thermal derating graphs are developed in free air convection cooling of 40-60 LFM.



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