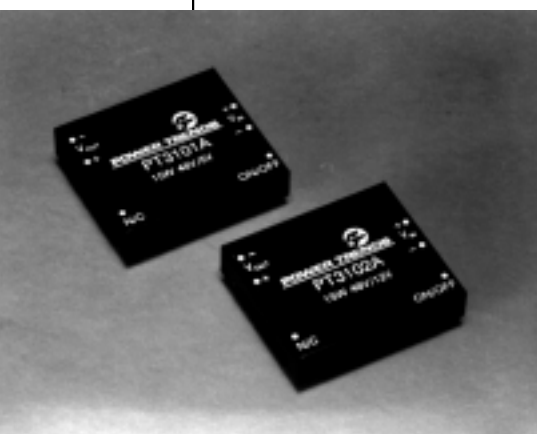


PT3100 Series**48V****15 WATT 48V TO 5V/12V/15V
ISOLATED DC-DC CONVERTER****Revised 8/13/98**

- Power Density 15 Watts/in³
- Wide Input Voltage Range 36V to 75V
- 80% Efficiency
- 500 VDC Isolation
- Industry's Smallest Footprint
- Fast Transient Response
- No External Components Required

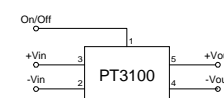
Power Trends' PT3101A (5V),
PT3102A (12V) and PT3103A (15V)

Isolated DC-DC Converters advance the state-of-the-art for board-mounted converters by employing high switching frequencies greater than 650 KHz and planar magnetics and surface-mount construction. They feature the industry's smallest footprint, a power density of 15 Watts/in³, and operate at 80% efficiency. They are designed for Telecom, Industrial, Computer, Medical, and other distributed power applications requiring input-to-output isolation.

Specifications

Characteristics (T _a =25°C unless noted)	Symbols	Conditions	PT3100 SERIES			Units
			Min	Typ	Max	
Output Current	I _o	Over V _{in} range V _o = 5V V _o = 12V V _o = 15V	0 0 0	— — —	3.0 1.25 1.0	A A A
Current Limit	I _{cl}	V _{in} = 36V V _o = 5V V _o = 12V V _o = 15V	— — — —	4.00 1.75 1.4	— — —	A A A
On/Off Standby Current	I _{in standby}	V _{in} = 48V, Pin 1 = -V _{in}	—	7	10	mA
Short Circuit Current	I _{sc}	V _{in} = 48V V _o = 5V V _o = 12V V _o = 15V	— — — —	5.5 3.5 2.0	— — —	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}	I _o = 0.1 to max I _o	36.0	48.0	75.0	V
Output Voltage Tolerance	ΔV _o	Over V _{in} Range T _A = -20°C to 70°C	—	±1.0	±2.0	% V _o
Ripple Rejection	RR	Over V _{in} range @ 120 Hz	—	60	—	dB
Line Regulation	Reg _{line}	Over V _{in} range @ max I _o	—	±0.2	±1.0	% V _o
Load Regulation	Reg _{load}	10% to 100% of I _o max	—	±0.4	±1.0	% V _o
V _o Ripple/Noise	V _n	V _{in} =48V, I _o =3.0A, V _o =5V V _{in} =48V, I _o =1.25A, V _o =12V V _{in} =48V, I _o =1.0A, V _o =15V	— — —	75 120 100	100 150 200	mV _{pp} mV _{pp} mV _{pp}
Transient Response	t _{tr}	50% load change V _o over/undershoot	— —	100 3.0	200 5.0	μSec % V _o
Efficiency	η	V _{in} =48V, I _o =3.0A, V _o =5V V _{in} =48V, I _o =1.25A, V _o =12V V _{in} =48V, I _o =1A, V _o =15V	— — —	79 80 80	— — —	% % %
Switching Frequency	f _o	Over V _{in} and I _o , V _o =5V V _o =12V/15V	800 600	850 650	900 700	kHz kHz
Recommended Operating Temperature Range	T _a	V _{in} = 48V @ max I _o Free air convection, (40-60LFM)	-20	—	+70*	°C
Thermal Resistance	θ _{ja}	Free Air Convection, (40-60LFM)	—	16	—	°C/W
Case Temperature	T _c	@ Thermal shutdown	—	—	100	°C
Storage Temperature	T _s	—	-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	—	—	500	—	—	V
Capacitance	—	—	—	1100	—	pF
Resistance	—	—	10	—	—	MΩ
Flammability	—	Materials meet UL 94V-0	—	—	—	—
Remote On/Off	On Off	Open or 2.5 to 7.0 VDC above -V _{in} Short or 0 to 0.8 VDC above -V _{in}	—	—	—	—

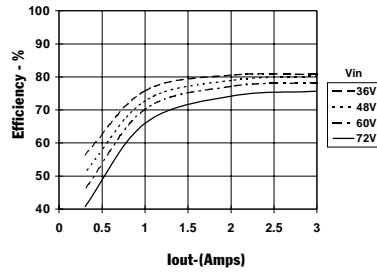
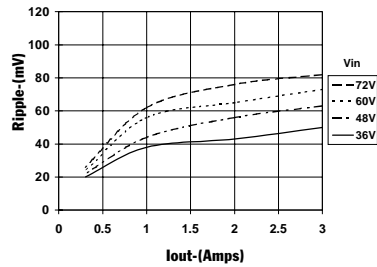
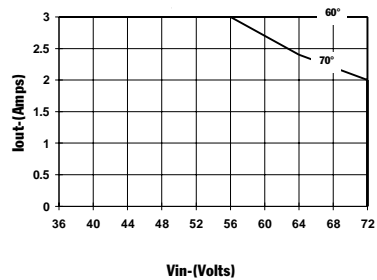
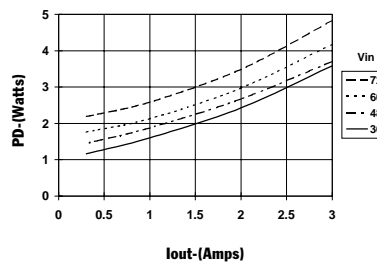
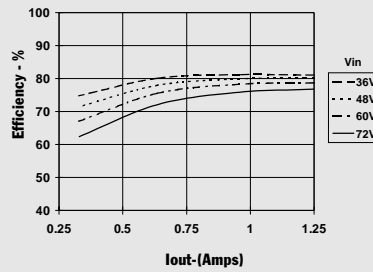
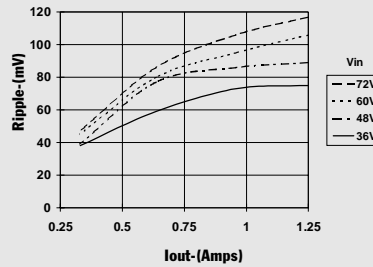
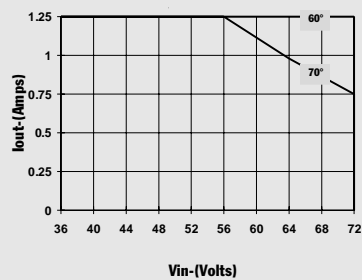
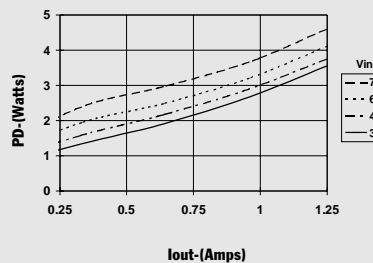
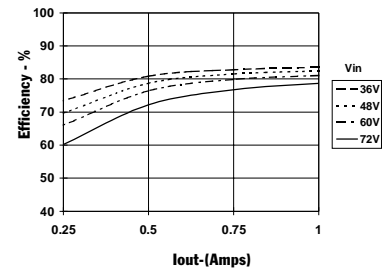
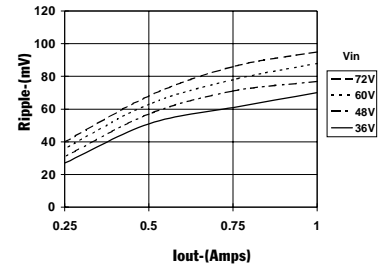
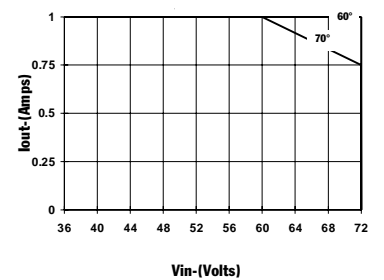
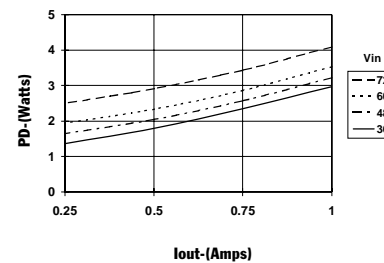
* See Thermal Derating Curves

Standard Application**Pin-Out Information**

Pin	Function
1	Remote ON/OFF
2	-V _{in}
3	+V _{in}
4	-V _{out}
5	+V _{out}
6	Do not connect

Ordering Information*Through-Hole***PT3101A** = 5 Volts**PT3102A** = 12 Volts**PT3103A** = 15 Volts*Surface Mount***PT3101C** = 5 Volts**PT3102C** = 12 Volts**PT3103C** = 15 Volts

(For dimensions and PC
board layout, see Package
Style 700.)

CHARACTERISTIC DATA**PT3100 Series****48V****PT3101, 5.0 VDC** (See Note 1)**Efficiency vs Output Current****Ripple vs Output Current****Thermal Derating (T_a)** (See Note 2)**Power Dissipation vs Output Current****PT3102, 12.0 VDC** (See Note 1)**Efficiency vs Output Current****Ripple vs Output Current****Thermal Derating (T_a)** (See Note 2)**Power Dissipation vs Output Current****PT3103, 15.0 VDC** (See Note 1)**Efficiency vs Output Current****Ripple vs Output Current****Thermal Derating (T_a)** (See Note 2)**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.**Note 2:** Thermal derating graphs are developed in free air convection cooling of 40-60 LFM.

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