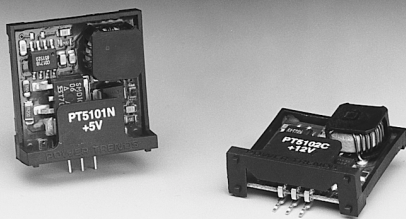
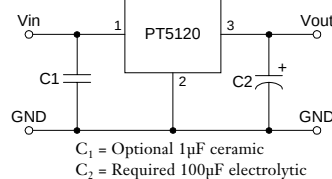


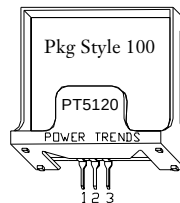
PT5120 Series**1 AMP LOW VOLTAGE INPUT
INTEGRATED SWITCHING REGULATOR****SLTS080**
(Revised 6/4/98)

- Low Voltage Input (7V)
- 85% Efficiency
- Internal Short-Circuit Protection
- Over-Temperature Protection
- Laser-Trimmed Output Voltage

The PT5120 series is a low voltage input (typically 7V) version of Power Trends' easy-to-use, 1A positive step-down, 3-terminal Integrated Switching Regulators (ISRs). These ISRs are designed with premium low-threshold FETs for those power regulation applications requiring very low input/output voltage differentials such as battery powered equipment.

Standard Application**Pin-Out Information**

Pin	Function
1	V_{in}
2	GND
3	V_{out}

**Ordering Information**

PT5121□ = + 5 Volts
PT5123□ = + 3.3 Volts

PT Series Suffix (PT1234X)

Case/Pin Configuration	
Vertical Through-Hole	N
Horizontal Through-Hole	A
Horizontal Surface Mount	C

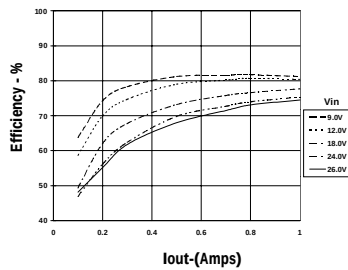
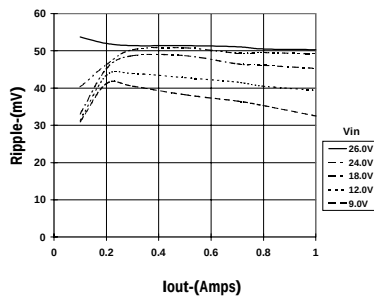
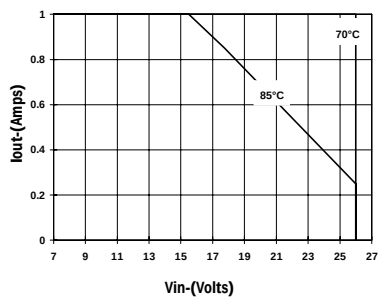
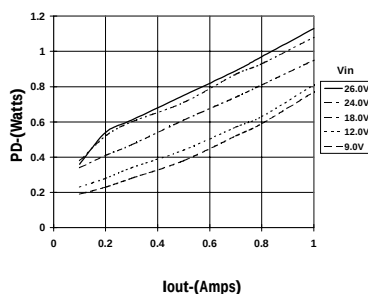
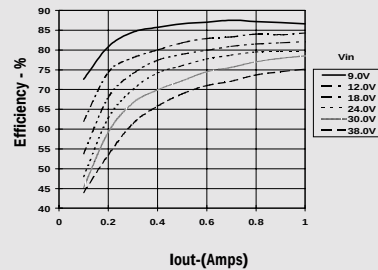
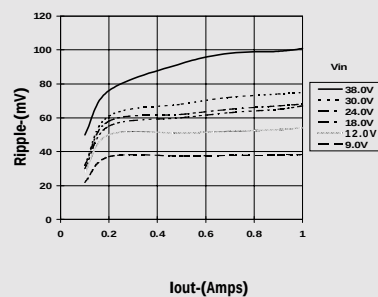
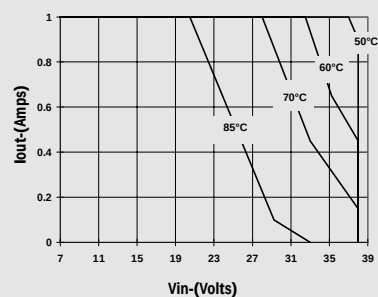
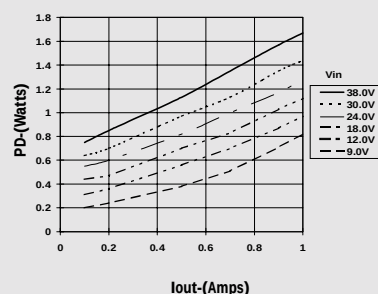
Specifications

Characteristics ($T_a = 25^\circ\text{C}$ unless noted)	Symbols	Conditions	PT5120 SERIES			
			Min	Typ	Max	Units
Output Current	I_o	Over V_{in} range	0.1*	—	1.0	A
Short Circuit Current	I_{sc}	$V_{in} = V_{in \text{ min}}$	—	3.5	—	Apk
Input Voltage Range	V_{in}	$0.1 \leq I_o \leq 1.0 \text{ A}$ $V_o = 3.3\text{V}$ $V_o = 5\text{V}$	7 7	—	26 38	V V
Output Voltage Tolerance	ΔV_o	Over V_{in} Range, $I_o = 1.0 \text{ A}$ $T_a = 0^\circ\text{C}$ to $+60^\circ\text{C}$	—	± 1.5	± 3.0	% V_o
Line Regulation	Reg_{line}	Over V_{in} range	—	± 0.5	± 1.0	% V_o
Load Regulation	Reg_{load}	$0.1 \leq I_o \leq 1.0 \text{ A}$	—	± 0.5	± 1.0	% V_o
V_o Ripple/Noise	V_n	$V_{in} = V_{in \text{ min}}$, $I_o = 1.0 \text{ A}$	—	± 2	—	% V_o
Transient Response with $C_o = 100\mu\text{F}$	t_{tr} V_{os}	25% load change V_o over/undershoot	— —	100 5.0	200 —	μSec % V_o
Efficiency	η	$V_{in} = 9\text{V}$, $I_o = 0.5\text{A}$, $V_o = 3.3\text{V}$ $V_{in} = 9\text{V}$, $I_o = 0.5\text{A}$, $V_o = 5\text{V}$	— —	82 85	— —	% %
Switching Frequency	f_o	Over V_{in} and I_o ranges, $V_o = 3.3\text{V}$ $V_o = 5\text{V}$	575 500	725 650	875 800	kHz
Absolute Maximum Operating Temperature Range	T_a		-20	—	+85	$^\circ\text{C}$
Recommended Operating Temperature Range	T_a	Free Air Convection, (40-60LFM) $V_o = 3.3\text{V}$ $V_o = 5\text{V}$	-20 -20	— —	+80** +80**	$^\circ\text{C}$
Thermal Resistance	θ_{ja}	Free Air Convection (40-60LFM) $V_o = 3.3\text{V}$ $V_o = 5\text{V}$	— —	45 50	— —	$^\circ\text{C/W}$
Storage Temperature	T_s		-40	—	+125	$^\circ\text{C}$
Mechanical Shock		Per Mil-STD-883D, Method 2002.3 1 msec, Half Sine, mounted to a fixture	—	500	—	G's
Mechanical Vibration		Per Mil-STD-883D, Method 2007.2 20-2000 Hz, Soldered in a PC board	—	5	—	G's
Weight			—	4.5	—	grams

* ISR will operate down to no load with reduced specifications.

**See Thermal Derating chart.

Note: The PT5120 Series requires a 100µF electrolytic or tantalum output capacitor for proper operation in all applications.

CHARACTERISTIC DATA**PT5120 Series****PT5123, 3.3 VDC** (See Note 1)**Efficiency vs Output Current****Ripple vs Output Current****Thermal Derating (T_a)** (See Note 2)**Power Dissipation vs Output Current****PT5121, 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**

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 ISR.

Note 2: Thermal derating graphs are developed in free air convection cooling of 40-60 LFM. (See Thermal Application Notes.)

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