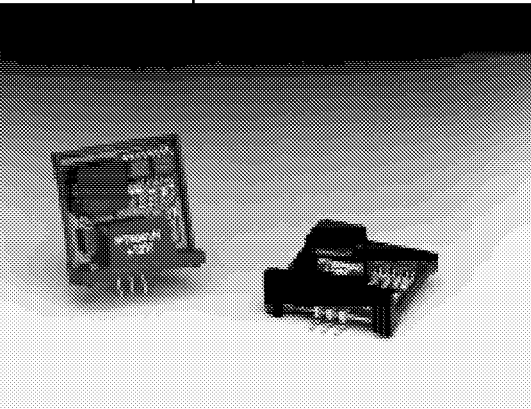


PT5040 Series

1 AMP STEP UP INTEGRATED SWITCHING REGULATOR

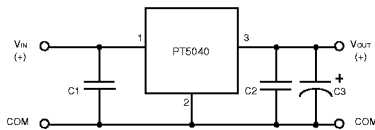
Revised 6/30/98



- Wide Input Voltage Range
- 85% Efficiency
- Internal Over-Temperature Protection
- Laser-trimmed Output Voltage
- Soft Start

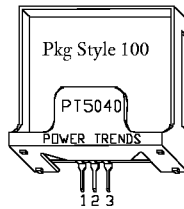
The Power Trends' PT5040 Series is a 3-terminal Integrated Switching Regulator (ISR) designed for use with +5 volt systems that require an additional regulated +8 to +20 volts with up to 1A of output current. These ISRs are packaged in the 3 pin SIP configuration.

Standard Application



C₁ = Optional ceramic (1-5µF)
 C₂ = Optional ceramic (1-5µF)
 C₃ = Required Electrolytic (100µF)

Pin	Function
1	V _{in}
2	GND
3	V _{out}



- ### Ordering Information
- PT5041□ = +12 Volts
 - PT5042□ = +15 Volts
 - PT5044□ = +8 Volts
 - PT5045□ = +9 Volts
 - PT5046□ = +10 Volts
 - PT5047□ = +18 Volts
 - PT5048□ = +12.6 Volts
 - PT5049□ = +20 Volts

PT Series Suffix (PT1234X)

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

NOTE: Boost Topology ISRs are not Short-Circuit Protected.

Specifications

Characteristics (T _a =25°C unless noted)	Symbols	Conditions	PT5040 SERIES			Units	
			Min	Typ	Max		
Output Current	I _o	Over V _{in} range	V _o =20V 0.1* V _o =18V 0.1* V _o =12V 0.1* V _o =15V 0.1* V _o =8V 0.1* V _o =9V 0.1*	—	0.5 0.6 1.0 0.75 1.5 1.25	A	
Current Limit**	I _{cl}	V _{in} = +5V	—	1.5 I _{o,max}	—	A	
Inrush Current	I _{ir} t _{ir}	V _{in} = +5V @ max I _o On start up	—	2.5 1	—	A mSec	
Input Voltage Range	V _{in}	I _o = 0.1 to I _{o,max}	PT5047/5049 4.75 4.75	—	(V _o -1V) 14	V V	
Output Voltage Tolerance	ΔV _o	Over V _{in} Range I _o = I _{o,max} , T _a = -20°C to shutdown	—	±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 ≤ I _o ≤ I _{o,max}	—	±0.5	±1.0	%V _o	
V _o Ripple/Noise	V _n	V _{in} =+5V, I _o =I _{o,max}	—	±2	±5	%V _o	
Transient Response	t _{tr} V _{os}	25% load change V _o over/undershoot	—	500 3.0	— 5.0	µSec %V _o	
Efficiency	η	V _{in} =+5V, I _o =0.5A, V _o =+12V	—	85	—	%	
Switching Frequency	f _o	Over V _{in} and I _o ranges	V _o <15V V _o ≥15V	500 650	650 800	800 950	kHz kHz
Absolute Maximum Operating Temperature Range	T _a	—	-20	—	+85	°C	
Recommended Operating Temperature Range	T _a	Free Air Convection, (40-60LFM) Over V _{in} and I _o ranges	V _o <15V V _o ≥15V	-20 -20	— —	70*** 55***	°C °C
Thermal Resistance	θ _{ja}	Free Air Convection (40-60LFM)	—	40	—	°C/W	
Storage Temperature	T _s	—	-40	—	+125	°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	

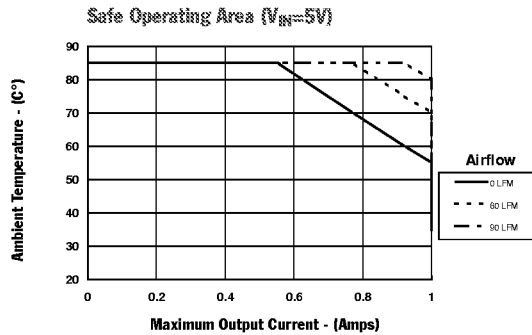
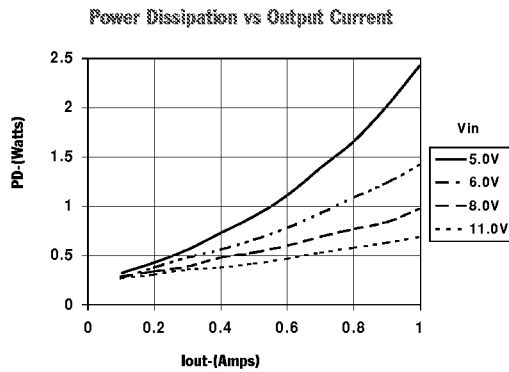
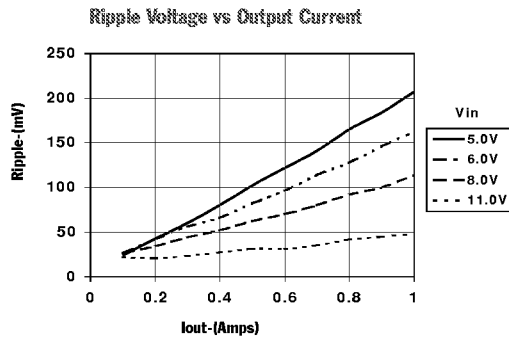
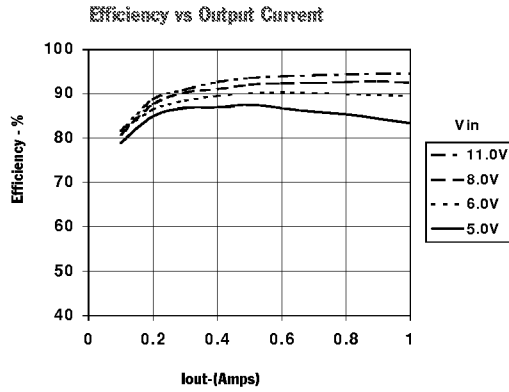
* ISR will operate down to no load with reduced specifications.
 ** Boost topology ISRs are not short circuit protected.
 *** See SOA Curves.

CHARACTERISTIC DATA

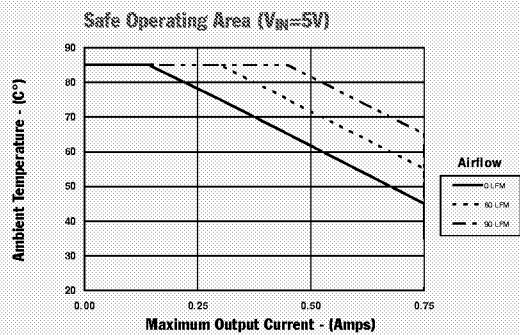
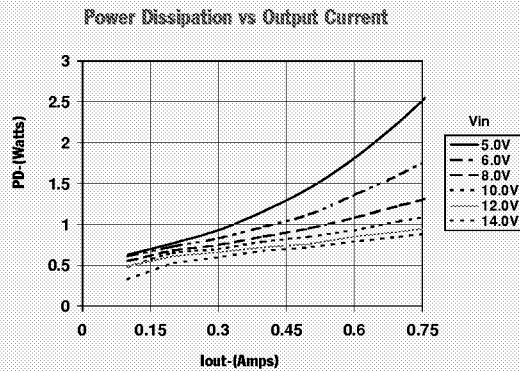
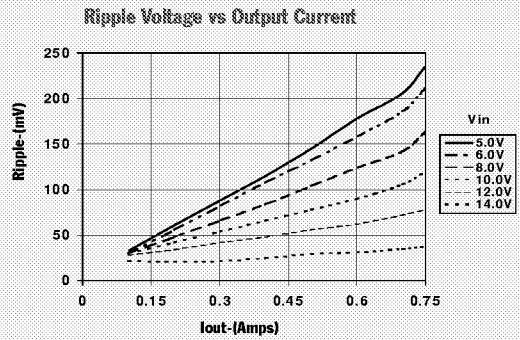
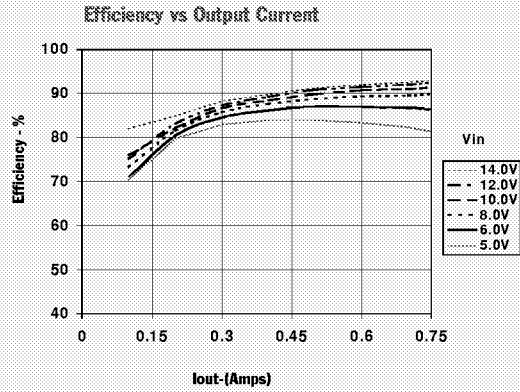
PT5040 Series

5V Bus Products
DATA SHEETS

PT5041, +12.0 VDC (See Note 1)



PT5042, +15.0 VDC (See Note 1)



Note 1: All data listed in the above graphs has been developed from actual products tested at 25°C. This data is considered typical data for the ISR.