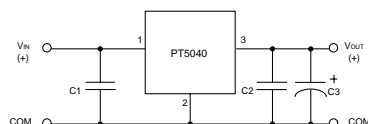


- Wide Input Voltage Range
- 85% Efficiency
- Internal Over-Temperature Protection
- Laser-trimmed Output Voltage
- Soft Start

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.

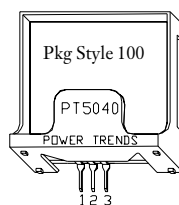
Standard Application



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

Pin-Out Information

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	
Vertical Through-Hole	N
Horizontal Through-Hole	A
Horizontal Surface Mount	C

Specifications

Characteristics (T _a =25°C unless noted)	Symbols	Conditions	PT5040 SERIES			
			Min	Typ	Max	Units
Output Current	I _O	Over V _{in} range V _O =20V V _O =18V V _O =12V V _O =15V V _O =8V V _O =9V	0.1* 0.1* 0.1* 0.1* 0.1* 0.1*	— — — — — —	0.5 0.6 1.0 0.75 1.5 1.25	A A A A A A
Current Limit**	I _{CL}	V _{in} = +5V	—	1.5 I _{Omax}	—	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 _{Omax} PT5047/5049	4.75 4.75	— —	(V _O -1V) 14	V V
Output Voltage Tolerance	ΔV _O	Over V _{in} Range I _O = I _{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 _{Omax}	—	±0.5	±1.0	%V _O
V _O Ripple/Noise	V _n	V _{in} = +5V, I _O = I _{Omax}	—	±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, (40-60LEF) Over V _{in} and I _O ranges V _O < 15V V _O ≥ 15V	-20 -20	— —	70*** 55***	°C °C
Thermal Resistance	θ _{pa}	Free Air Convection (40-60LEF)	—	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.

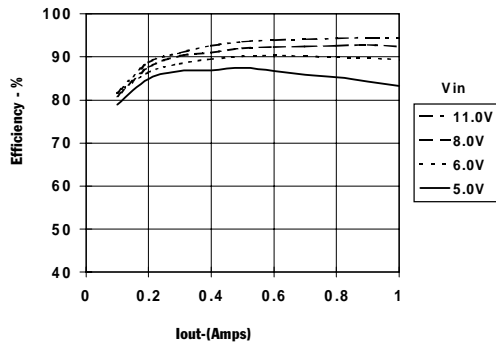
** Boost topology ISRs are not short circuit protected.

*** See SOA Curves.

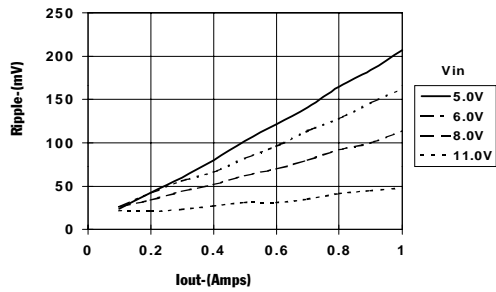
NOTE: Boost Topology ISRs are not Short-Circuit Protected.

PT5041, +12.0 VDC (See Note 1)

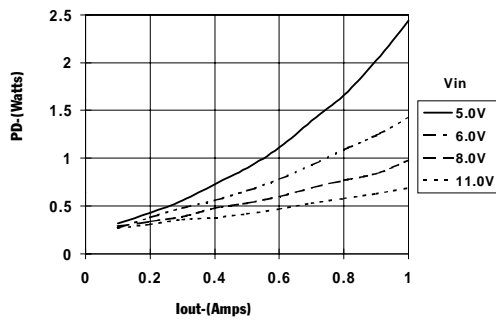
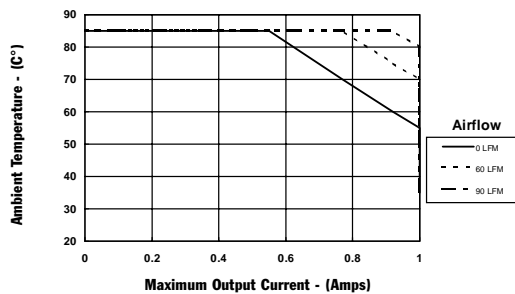
Efficiency vs Output Current



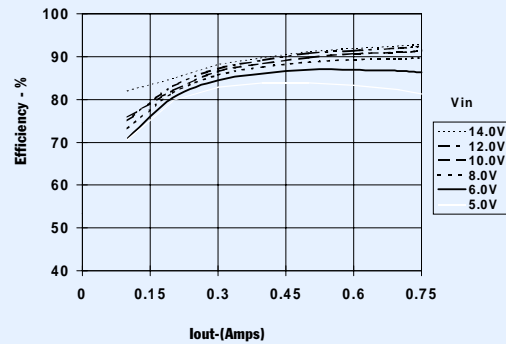
Ripple Voltage vs Output Current



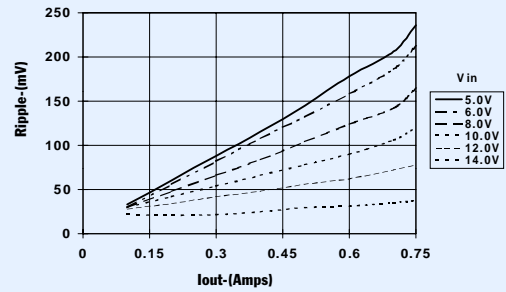
Power Dissipation vs Output Current

Safe Operating Area ($V_{IN}=5V$)**PT5042, +15.0 VDC** (See Note 1)

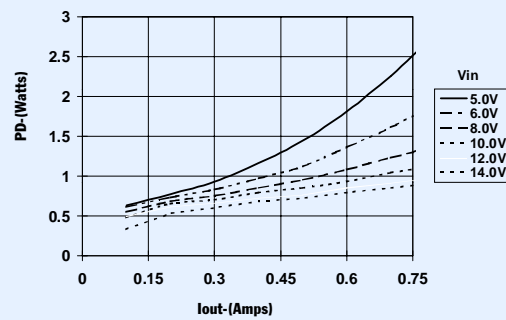
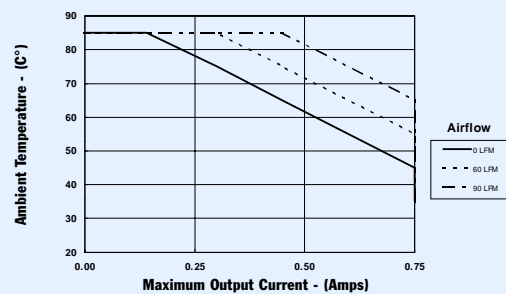
Efficiency vs Output Current



Ripple Voltage vs Output Current



Power Dissipation vs Output Current

Safe Operating Area ($V_{IN}=5V$)

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.

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