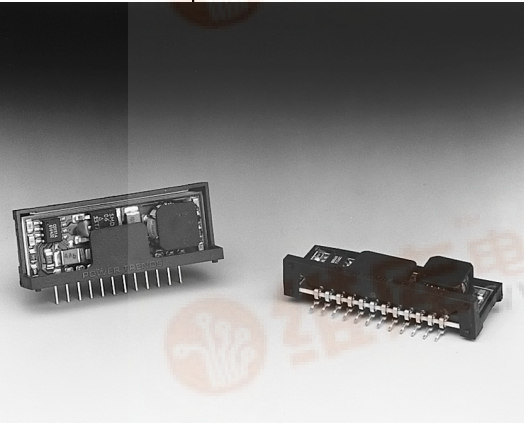


PT6310 Series

2 AMP ADJUSTABLE POSITIVE STEP-DOWN INTEGRATED SWITCHING REGULATOR

SLTS076
 (Revised 8/17/99)



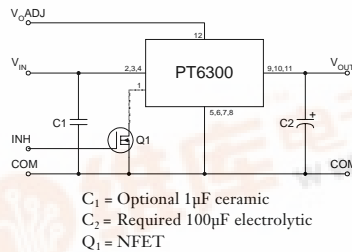
- 87% Efficiency
- Adjustable Output Voltage
- Internal Short Circuit Protection
- Over-Temperature Protection
- On/Off Control (Ground Off)
- Small SIP Footprint
- Wide Input Range

Switching Regulator (ISR) designed to meet the on-board power conversion needs of battery powered or other equipment requiring high efficiency and small size. This high performance ISR offers a unique combination of features combining 87% typical efficiency with open-collector on/off control and adjustable output voltage.

The PT6310 series is a High-Performance 2 Amp, 12-Pin SIP (Single In-line Package) Integrated

Quiescent current in the shutdown mode is typically less than 100µA.

Standard Application



Pin-Out Information

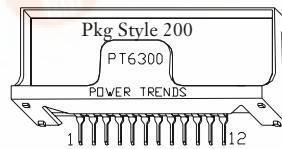
Pin	Function
1	Inhibit (30V max)
2	V_{in}
3	V_{in}
4	V_{in}
5	GND
6	GND
7	GND
8	GND
9	V_{out}
10	V_{out}
11	V_{out}
12	V_{out} Adj

Ordering Information

- PT6310□ = +14.6 Volts
- PT6311□ = +15.5 Volts
- PT6312□ = +15.0 Volts
- PT6313□ = +8.0 Volts

PT Series Suffix (PT1234X)

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



Specifications

Characteristics ($T_a = 25^\circ\text{C}$ unless noted)	Symbols	Conditions	PT6310 Series			
			Min	Typ	Max	Units
Output Current	I_o	Over V_{in} range	0.1*	—	2.0	A
Short Circuit Current	I_{sc}	$V_{in} = V_o + 5V$	—	5.0	—	Apk
Input Voltage Range	V_{in}	$0.1 \leq V_o \leq 2.0 A$	$V_o + 4$	—	38**	V
Output Voltage Tolerance	ΔV_o	Over V_{in} Range, $I_o = 2.0 A$ $T_a = 0^\circ\text{C}$ to $+60^\circ\text{C}$	—	± 1.0	± 2.0	% V_o
Line Regulation	Reg_{line}	Over V_{in} range	—	± 0.25	± 0.5	% V_o
Load Regulation	Reg_{load}	$0.1 \leq I_o \leq 2.0 A$	—	± 0.25	± 0.5	% V_o
V_o Ripple/Noise	V_n	$V_{in} = V_{in\ min}$, $I_o = 2.0 A$	—	± 2	—	% V_o
Transient Response with $C_o = 100\mu F$	t_{rr} V_{os}	50% load change V_o over/undershoot	—	100 5.0	200 —	μSec % V_o
Efficiency	η	$V_{in} = 24V$, $I_o = 2.0 A$	—	87	—	%
Switching Frequency	f_o	Over V_{in} and I_o ranges	600 500	700 550	800 600	kHz kHz
Shutdown Current	I_{sc}	$V_{in} = 15V$	—	100	—	μA
Quiescent Current	I_{nl}	$I_o = 0A$, $V_{in} = 10V$	—	10	—	mA
Output Voltage Adjustment Range	V_o	Below V_o' Above V_o'	See Application Notes.			
Absolute Maximum Operating Temperature Range	T_a		-40	—	+85	$^\circ\text{C}$
Recommended Operating Temperature Range	T_a	Free Air Convection, (40-60LFM) At $V_{in} = 18V$, $I_o = 2.0A$	-40	—	+70	$^\circ\text{C}$
Thermal Resistance	θ_{ja}	Free Air Convection (40-60LFM)	—	30	—	$^\circ\text{C}/W$
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	—	10	—	G's
Weight	—		—	6.5	—	grams

* ISR will operate to no load with reduced specifications.

** Input voltage cannot exceed 30V when the inhibit function is used.

Note: The PT6310 requires a 100µF electrolytic or tantalum output capacitor for proper operation in all applications.



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