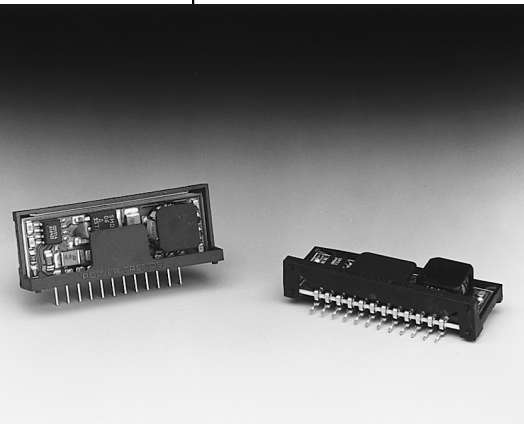


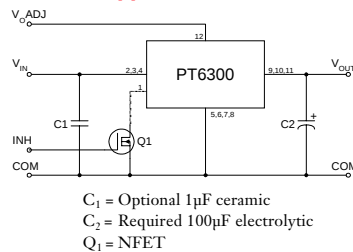
PT6310 Series**2 AMP ADJUSTABLE POSITIVE STEP-DOWN
INTEGRATED SWITCHING REGULATOR****SLTS076**
(Revised 8/17/99)

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

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

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.

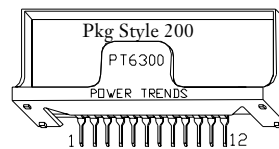
Quiescent current in the shutdown mode is typically less than 100µA.

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	
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}	$0.1 \leq I_o \leq 2.0 A$	$V_o + 4$	—	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_{tr} 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.

IMPORTANT NOTICE

Texas Instruments and its subsidiaries (TI) reserve the right to make changes to their products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgment, including those pertaining to warranty, patent infringement, and limitation of liability.

TI warrants performance of its semiconductor products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

Customers are responsible for their applications using TI components.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance or customer product design. TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used. TI's publication of information regarding any third party's products or services does not constitute TI's approval, warranty or endorsement thereof.