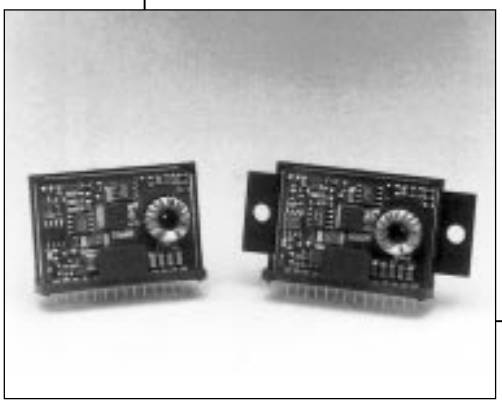
PT6511 Series

SLTS123

(Revised 5/2/97)

8 AMP HIGH-PERFORMANCE 5V TO 3.3V ISR

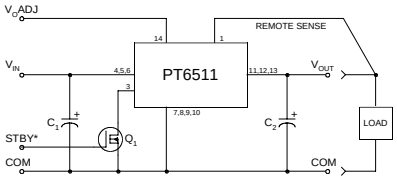


- Single Device 8A Output
- Input Voltage Range: 4.5V to 6.0V
- Adjustable Output Voltage
- 90% Efficiency
- Remote Sense Capability
- Standby Function
- Over-Temperature Protection

The PT6511 is a new addition to the Power Trends high performance +5V to +3.3V family of 14-Pin SIP (Single In-line Package) Integrated Switching Regulators (ISRs), designed for stand alone operation in applications requiring as much as 8A of output current. The operating frequency is laser trimmed to a nominal 660 kHz for frequency sensitive applications.

Only two external capacitors are required for proper operation.

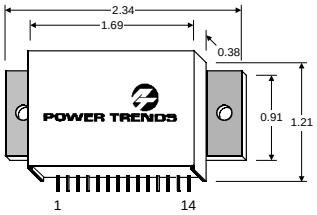
Standard Application



C_1 = Required 330µF electrolytic
C_2 = Required 330µF electrolytic
Q_1 = NFET or Open Collector Gate

Pin-Out Information

Pin No.	Function	Pin No.	Function
1	Remote Sense	8	GND
2	Do Not Connect	9	GND
3	STBY*- Standby	10	GND
4	V_{in}	11	V_{out}
5	V_{in}	12	V_{out}
6	V_{in}	13	V_{out}
7	GND	14	V_{out} Adjust



Ordering Information

PT6511■ = +3.3 Volts

PT Series Suffix (PT1234X)

Case/Pin Configuration	Heat Tab Configuration *None*	*Side*
Vertical Through-Hole	N	R
Horizontal Through-Hole	A	G
Horizontal Surface Mount	C	B

Specifications

Characteristics (T_A = 25°C unless noted)	Symbols	Conditions	PT6511 SERIES Min	Typ	Max	Units
Output Current	I_o	Over V_{in} range	0.1*	—	8.0	ADC
Current Limit	I_{cl}	V_{in} = +5V	—	13.0	20.0	ADC
Short Circuit Current	I_{sc}	V_{in} = +5V	—	15.0	—	Apk
Input Voltage Range	V_{in}	0.1A ≤ I_o ≤ 8.0A	4.5	—	6.0	VDC
Static Voltage Tolerance	V_o	V_{in} = +5V, I_o = 8.0A T_a = 0°C to shutdown	3.2	3.3	3.4	VDC
Output Adjust Range	V_{adj}	V_{nom} = 3.3V	2.25	—	4.2**	VDC
Line Regulation	Reg_{line}	4.5V ≤ V_{in} ≤ 6.0V, I_o = 8.0A	—	±7	±17	mV
Load Regulation	Reg_{load}	V_{in} = +5V, 0.1 ≤ I_o ≤ 8.0A	—	±17	±33	mV
Ripple/Noise	V_n	V_{in} = 5V, I_o = 8.0A	—	50	—	mVpp
Transient Response with C_2 = 330µF	t_{tr} V_{os}	I_o step between 4.0A and 8.0A V_o over/undershoot	— —	100 150	— —	µSec mV
Efficiency	η	V_{in} = +5V, I_o = 3.0A	—	90	—	%
		V_{in} = +5V, I_o = 8.0A	—	83	—	%
Switching Frequency	f_o	Over V_{in} and I_o range	635	660	725	kHz
Operating Temperature	T_a	Free Air Convection (40-60 LFM) Over V_{in} and I_o Ranges	0	—	***	°C
Thermal Resistance	θ_{ja}	Free Air Convection (40-60 LFM)	—	15	—	°C/W
Storage Temperature	T_s	—	-40	—	+125	°C
Mechanical Shock	—	Per Mil-STD-883D, Method 2002.3, 1 msec, Half Sine,	—	—	500	G's
Mechanical Vibration	—	Per Mil-STD-883D, Method 2007.2, 20-2000 Hz, mounted to a fixture	—	—	7.5	G's
Weight	—	—	—	23	—	grams
Relative Humidity	—	Non-condensing	0	—	95	%

* ISR will operate down to no load with reduced specifications.
** V_{in}min = 4.5V or V_o+1.2V
*** See PT6500 series thermal derating curves.
Note: The PT6511 Series requires two 330µF electrolytic capacitors for proper operation in all applications.

5/02/97

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