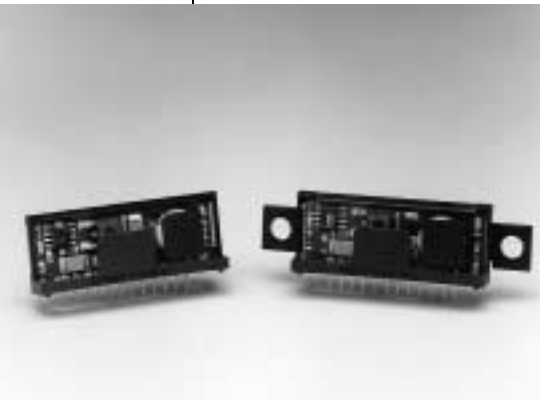


PT6200 Series

SLTS063

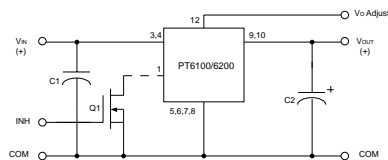
**2 AMP HIGH-PERFORMANCE ADJUSTABLE
ISR WITH ON/OFF CONTROL**


- 90% Efficiency
- Adjustable Output Voltage
- Internal Short Circuit Protection
- Over-Temperature Protection
- On/Off Control (Ground Off)
- Small SIP Footprint
0.36" x 1.64" x 0.60"(H)

The PT6200 Series is a line of High-Performance 2 Amp, 12-Pin SIP (Single In-line Package) Integrated Switching Regulators (ISRs) 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 family offers a unique combination of features combining 90% typical efficiency with open-collector on/off control and adjustable output voltage. Quiescent current in the shutdown mode is less than 100µA.

Standard Application

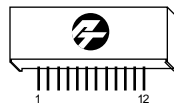


C_1 = Optional ceramic (1µF)
 Q_1 = NFET
 C_2 = Required 100µF electrolytic

Specifications

Pin-Out Information

Pin No.	Function	Pin No.	Function
1	Inhibit	7	GND
2	N/C	8	GND
3	V_{in}	9	V_{out}
4	V_{in}	10	V_{out}
5	GND	11	N/C
6	GND	12	V_{out} Adj



Ordering Information

PT6202□ = +5 Volts

PT6203□ = +3.3 Volts

PT6204□ = +12 Volts

(For dimensions, see page 65.)

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	

(See Thermal Application Notes on page 44 for heat tab application data.)

Characteristics ($T_A = 25^\circ\text{C}$ unless note d)	Symbols	Conditions	PT6200 SERIES			
			Min	Typ	Max	Units
Output Current	I_o	Over V_{in} range	0.1**	—	2.0	Amps
Current Limit	I_{cl}	$V_{in} = V_o + 5V$	—	3.5	4.5	Amps
Short Circuit Current	I_{sc}	$V_{in} = V_o + 5V$	—	5.0	—	Apk
Input Voltage Range	V_{in}	$0.1 \leq I_o \leq 2.0$ Amp $V_o = 3.3V$ $V_o = 5V$ $V_o = 12V$	7 7.25 14.5	— — —	26 30 30	VDC VDC VDC
Static Voltage Tolerance	V_o	Over V_{in} Range, $I_o = 2.0$ Amp $T_A = -40^\circ\text{C}$ to shutdown	—	± 1.0	± 2.0	% V_o
Line Regulation	Reg_{line}	Over V_{in} range	—	± 0.25	± 0.5	% V_o
Load Regulation	Reg_{load}	$0.1 \leq I_o \leq 2.0$ Amp	—	± 0.25	± 0.5	% V_o
Ripple/Noise	V_n	$V_{in} = V_o + 5V$, $I_o = 2.0$ Amp	—	± 2	—	% V_o
Transient Response with $C_o = 100\mu\text{F}$	t_{tr} V_{os}	50% load change V_o over/undershoot	— —	100 3.0	200 5.0	µSec % V_o
Efficiency	η	$V_{in} = 8V$, $I_o = 0.5$ Amp, $V_o = 3.3V$ $V_{in} = 8V$, $I_o = 0.5$ Amp, $V_o = 5V$ $V_{in} = 15V$, $I_o = 0.5$ Amp, $V_o = 12V$	— — —	85 90 93	— — —	% % %
Switching Frequency	f_o	Over V_{in} and I_o ranges, $V_o = 3.3V$ $V_o = 5V$ $V_o = 12V$	400 500 500	500 650 650	600 800 800	KHz KHz KHz
Shutdown Current	I_{sc}	$V_{in} = 15V$	—	100	—	µAmp
Quiescent Current	I_{nl}	$I_o = 0A$, $V_{in} = 10V$	—	10	—	mAmp
Output Voltage Adjustment Range	V_o	Below V_o Above V_o	See Application Notes on page 40.			
Operating Temperature	T_A	Free Air Convection, 3.3V (40-60LFM) 5V Over V_{in} and I_o ranges 12V	-40 -40 -40	— — —	+85* +60* *	C
Thermal Resistance	θ_{JA}	Free Air Convection (40-60LFM) $V_o = 3.3V$ $V_o = 5V$ $V_o = 12V$	— — —	25 30 35	— — —	C/W
Storage Temperature	T_s	—	-40	—	+125	C
Mechanical Shock	Per Mil-STD-883D, Method 2002.3 Condition A, 1 msec, Half Sine, mounted to a fixture		—	—	500	G's
Mechanical Vibration	Per Mil-STD-883D, Method 2007.2 Condition A, 20-2000 Hz		—	—	15	G's
Weight	—	—	—	8.5	—	grams
Relative Humidity	—	Non-condensing	0	—	95	%

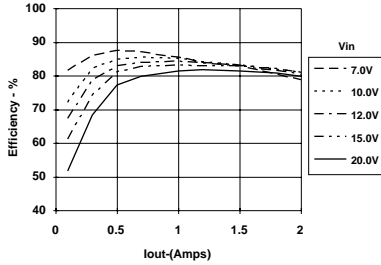
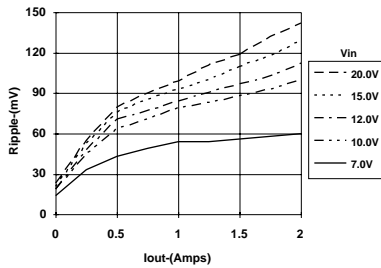
*See Thermal Derating chart.

** ISR will operate down to no load with reduced specifications.

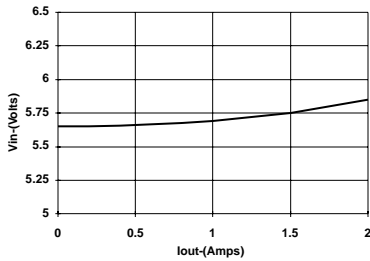
Note: The PT6200 Series requires a 100µF electrolytic or tantalum output capacitor for proper operation in all applications.

CHARACTERISTIC DATA**PT6203, 3.3 VDC**

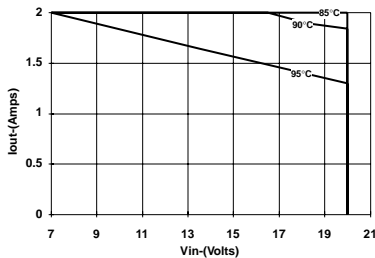
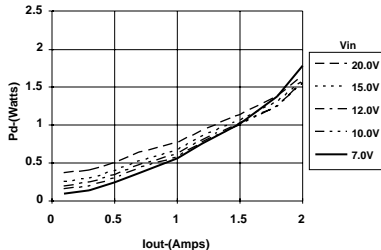
(See Note 1)

Efficiency vs Output Current**Ripple vs Output Current****Minimum Input Voltage**

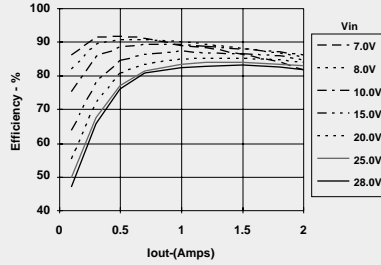
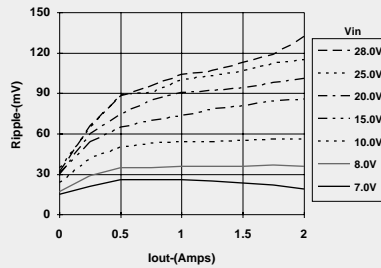
(See Note 2)

**Thermal Derating (T_a)**

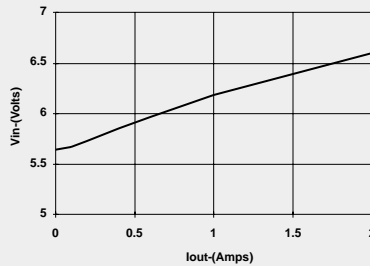
(See Note 3)

**Power Dissipation vs Output Current****PT6202, 5.0 VDC**

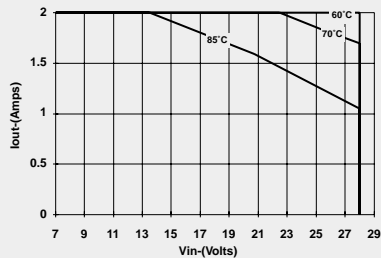
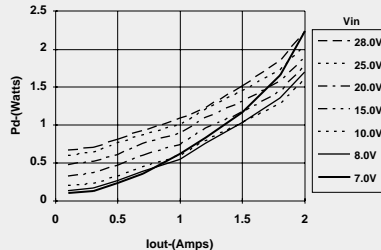
(See Note 1)

Efficiency vs Output Current**Ripple vs Output Current****Minimum Input Voltage**

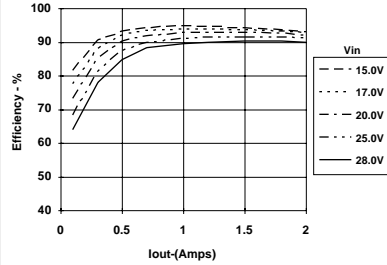
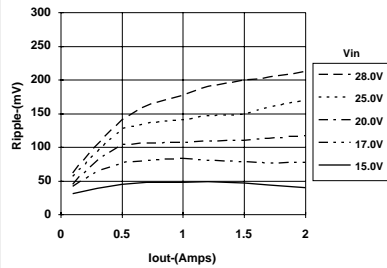
(See Note 2)

**Thermal Derating (T_a)**

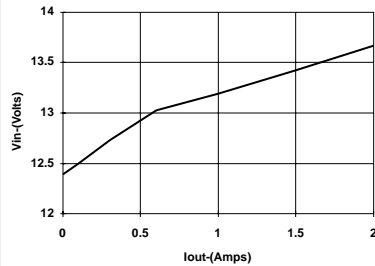
(See Note 3)

**Power Dissipation vs Output Current****PT6204, 12.0 VDC**

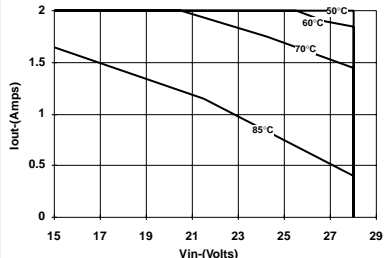
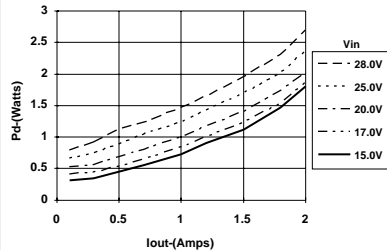
(See Note 1)

Efficiency vs Output Current**Ripple vs Output Current****Minimum Input Voltage**

(See Note 2)

**Thermal Derating (T_a)**

(See Note 3)

**Power Dissipation vs Output Current****Note 1:** All data listed in the above graphs, except for derating data, has been developed from actual products tested at 25°C. This data is considered typical data for the ISR.**Note 2:** Minimum V_{in} data is typical and is not guaranteed. The data corresponds to a 2% output voltage drop.**Note 3:** Thermal derating graphs are developed in free air convection cooling of 40-60 LFM with no optional heat tab. (See Thermal Application Notes).

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