

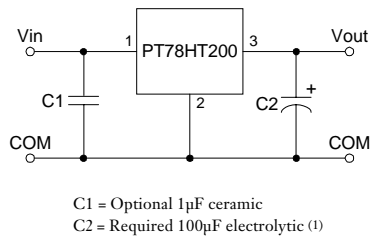
- High Efficiency: Up to 90%
- Wide Input Range
- Self-Contained Inductor
- Short-Circuit Protection
- Over-Temperature Protection
- Fast Transient Response

The PT78HT200 is a series of fixed output, wide-input range, 3-terminal Integrated Switching Regulators (ISRs). These ISRs have a maximum output

current of 2A. The output voltage is also laser trimmed for high accuracy. Features include excellent line and load regulation, internal short-circuit and over-temperature protection.

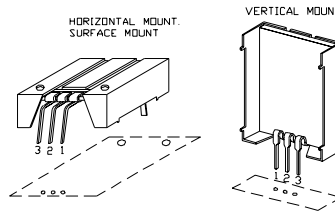
The PT78HT200 series is available in three package outlines, including horizontal SMD. Their small size and output voltage selection makes these regulators ideal for use in a variety of applications.

Standard Application



Pin-Out Information

Pin	Function
1	V _{in}
2	GND
3	V _{out}



SUGGESTED BOARD LAYOUT COMPONENT SIDE VIEW

Pkg Style 500

Ordering Information

PT78HT2 XX Y

Output Voltage

- 33 = 3.3 Volts
- 05 = 5.0 Volts
- 53 = 5.25 Volts
- 65 = 6.5 Volts
- 08 = 8.0 Volts

Package Suffix

- V = Vertical Mount
- S = Surface Mount
- H = Horizontal Mount

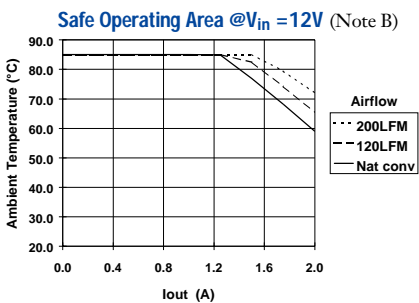
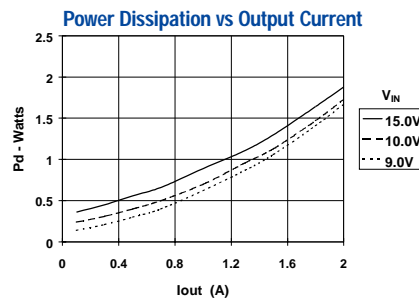
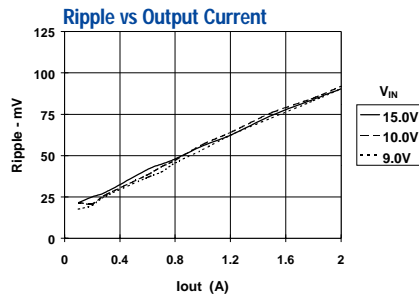
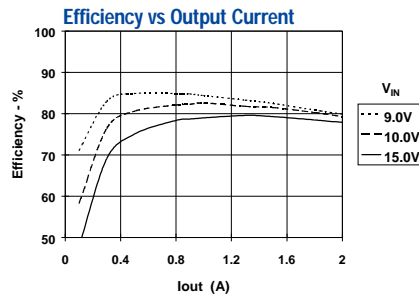
Specifications

Characteristics (T _a = 25°C unless noted)	Symbols	Conditions	PT78HT200 SERIES			Units
			Min	Typ	Max	
Output Current	I _O	Over V _{in} range	0.1 (2)	—	2.0	A
Short Circuit Current	I _{sc}	V _{in} = V _{in} min	—	6.0	—	Apk
Input Voltage Range	V _{in}	0.1 ≥ I _O ≥ 2.0A	V _O = 3.3V 9 V _O = 5.0V 9 V _O = 6.5V 10.5 V _O = 8.0V 12	—	15 28 28 28	V
Output Voltage Tolerance	ΔV _O	Over V _{in} range, I _O = 2.0A T _a = 0°C to +60°C	—	±1.0	±2.0	%V _O
Line Regulation	Reg _{line}	Over V _{in} range	—	±0.4	±0.8	%V _O
Load Regulation	Reg _{load}	0.1 ≤ I _O ≤ 2.0A	—	±0.2	±0.4	%V _O
V _O Ripple/Noise	V _n	V _{in} = V _{in} min, I _O = 2.0A	—	±1	—	%V _O
Transient Response (with 100 μ F output cap)	t _{tr}	50% load change V _O over/undershoot	—	100 5.0	—	μ Sec %V _O
Efficiency	η	V _{in} = 9V, I _O = 2.0A V _{in} = 12V, I _O = 2.0A V _{in} = 15V, I _O = 2.0A	V _O = 3.3V — — — V _O = 5.0V — — — V _O = 8.0V — — —	— 80 85 90	— — — —	%
Switching Frequency	f _o	Over V _{in} and I _O ranges	V _O ≥ 5.0V 950 V _O = 3.3V	750 1,000	800 1,050	kHz
Absolute Maximum Operating Temperature Range	T _a	Over V _{in} range	-40	—	+85 (3)	°C
Thermal Resistance	θ_{ja}	Free Air Convection, (40-60LFM)	—	40	—	°C/W
Storage Temperature	T _s	—	-40	—	+125	°C
Mechanical Shock	—	Per Mil-STD-883D, Method 2002.3	—	500	—	G's
Mechanical Vibration	—	Per Mil-STD-883D, Method 2007.2, 20-2000 Hz, soldered in a PC board	—	5	—	G's
Weight	—	—	—	6.5	—	Grams

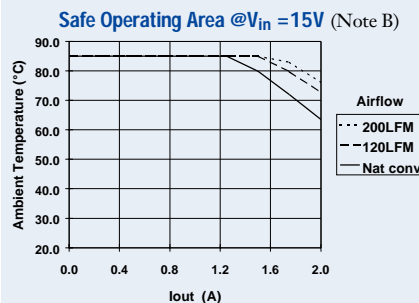
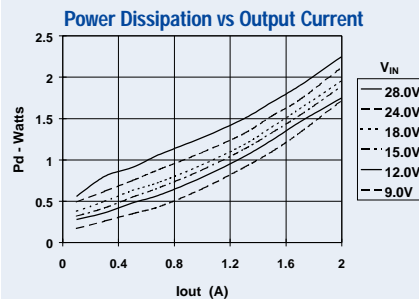
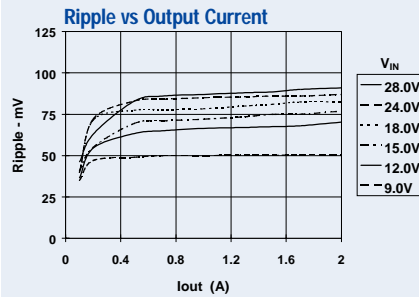
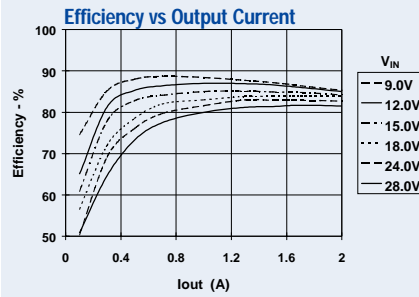
- Notes:** (1) The PT78HT200 Series requires a 100 μ F electrolytic or tantalum output capacitor for proper operation in all applications.
(2) ISR will operate down to no load with reduced specifications.
(3) See Safe Operating Area curves for derating

2 Amp Positive Step-Down
Integrated Switching Regulator

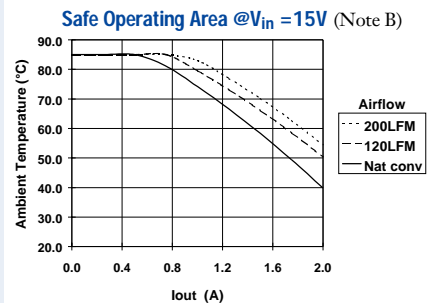
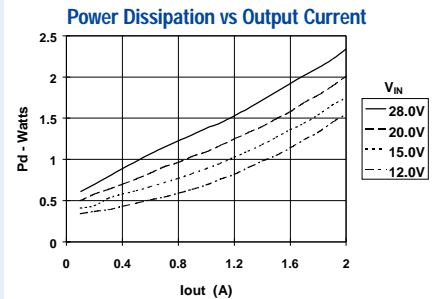
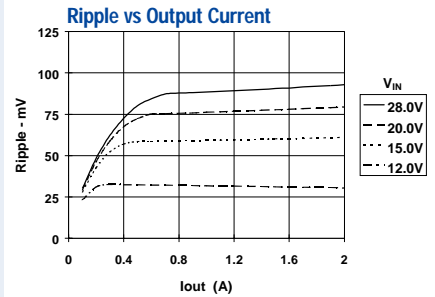
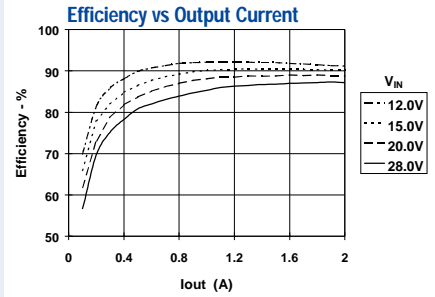
PT78HT233 3.3 VDC (See Note A)



PT78HT205 5.0 VDC (See Note A)



PT78HT208 8.0 VDC (See Note A)



Note A: All characteristic data has been developed from actual products tested at 25°C. This data is considered typical data for the ISR.
Note B: SOA curves represent operating conditions at which internal components are at or below manufacturer's maximum rated operating temperatures.

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