

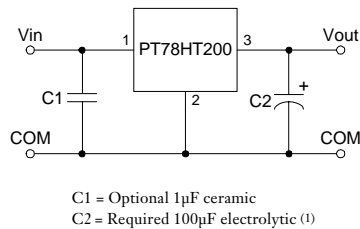
- High Efficiency: Up to 90%
- Wide Input Range
- Self-Contained Inductor
- Short-Circuit Protection
- Over-Temperature Protection
- Fast Transient Response

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.

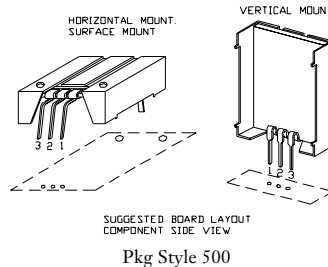
The PT78HT200 series is available in three package outlines, including horizontal SMD. Their small size and output voltage selection makes these regulators ideal for use in a variety of applications.

Standard Application



Pin-Out Information

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



Ordering Information

PT78HT2	XX	Y
Output Voltage		Package Suffix
33	05	V = Vertical Mount
53	65	S = Surface Mount
65	08	H = Horizontal Mount
08		

Specifications

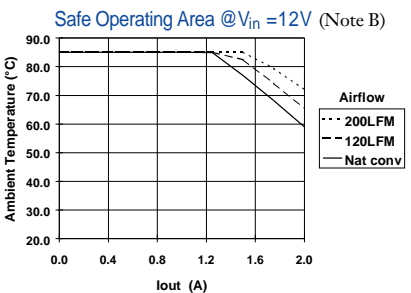
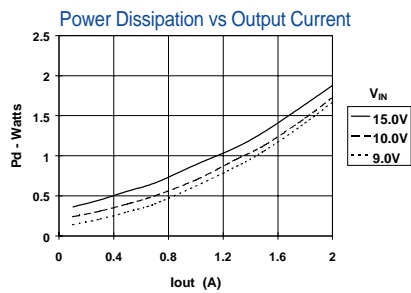
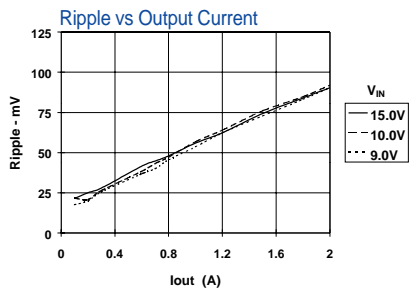
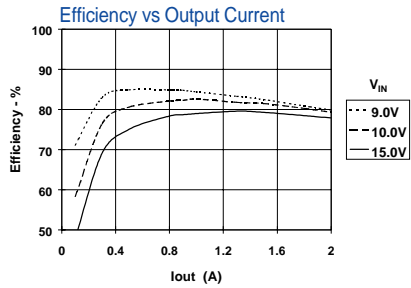
Characteristics (T _a = 25°C unless noted)	Symbols	Conditions	PT78HT200 SERIES			Units	
			Min	Typ	Max		
Output Current	I _o	Over V _{in} range	0.1 (2)	—	2.0	A	
Short Circuit Current	I _{sc}	V _{in} = V _{in min}	—	6.0	—	Apk	
Input Voltage Range	V _{in}	0.1 ≥ I _o ≥ 2.0A					
		V _o = 3.3V	9	—	15	V	
		V _o = 5.0V	9	—	28		
		V _o = 6.5V	10.5	—	28		
		V _o = 8.0V	12	—	28		
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 100µF output cap)	t _{tr}	50% load change V _o over/undershoot	—	100 5.0	—	µSec %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 — —	80 85 90	— — —	%	
Switching Frequency	f _o	Over V _{in} and I _o ranges	V _o ≥ 5.0V V _o = 3.3V	700 950	750 1,000	800 1,050	kHz
Absolute Maximum Operating Temperature Range	T _a	Over V _{in} range	—	—	+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 100µF electrolytic or tantalum output capacitor for proper operation in all applications.

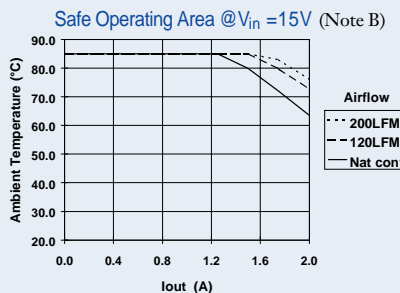
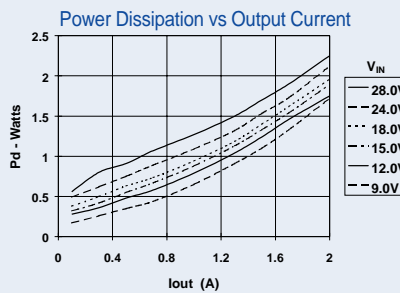
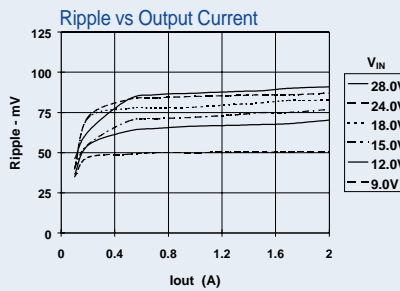
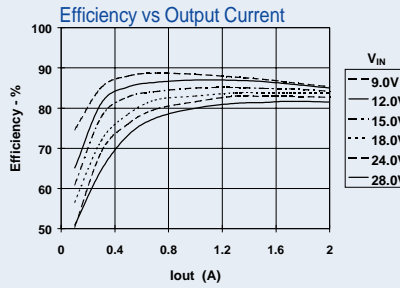
(2) ISR will operate down to no load with reduced specifications.

(3) See Safe Operating Area curves for derating

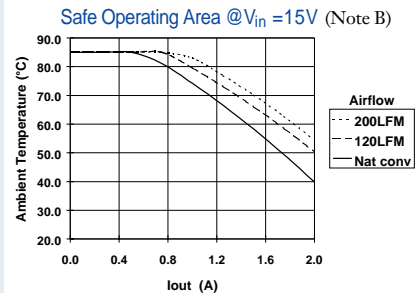
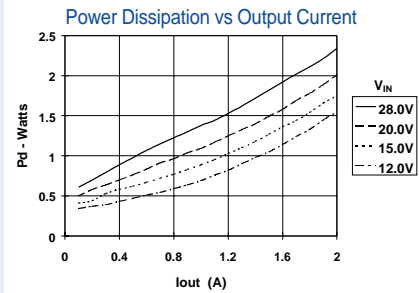
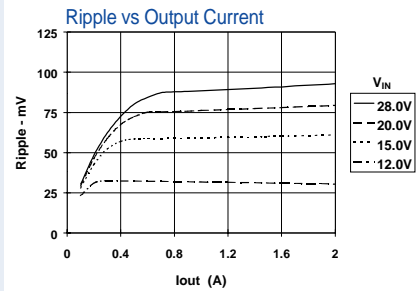
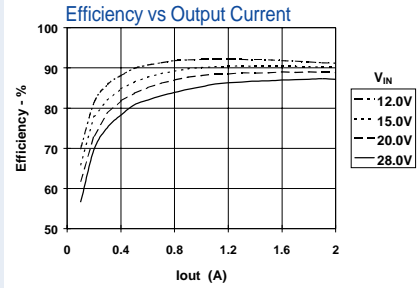
PT78HT233 3.3 VDC (See Note A)



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.

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.