

PT78NR200 Series

10-12W Plus to Minus Voltage
Integrated Switching Regulator



Power Trends Products
from Texas Instruments

SLTS074A

(Revised 6/30/2000)

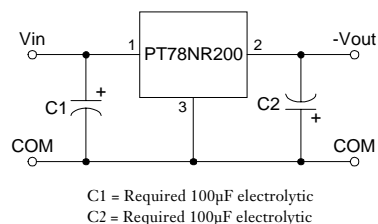
- Negative output from positive input
- Wide Input Range
- Self-Contained Inductor
- Short Circuit Protection
- Over-Temperature Protection
- Fast Transient Response

The PT78NR200 series creates negative output voltage from a positive

input voltage greater than 9V. These easy-to-use, 3-terminal, Integrated Switching Regulators (ISRs) have maximum output power of 10 to 12 watts and a negative output voltage that is laser trimmed. They also have excellent line and load regulation.

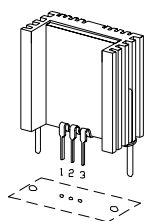
The PT78NR200 requires 100 LFM of airflow at its maximum output current.

Standard Application



Pin-Out Information

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



SUGGESTED BOARD LAYOUT
COMPONENT SIDE VIEW
Pkg Style 600

Ordering Information

PT78NR2 XX Y

Output Voltage

52 = -5.2 Volts
06 = -6.0 Volts
12 = -12.0 Volts
15 = -15.0 Volts

Package Suffix

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

(For dimensions and PC board layout, see
Package Styles 600 and 610.)

Specifications

Characteristics (T _a = 25°C unless noted)	Symbols	Conditions	PT78NR200 SERIES			
			Min	Typ	Max	Units
Output Current	I _o	Over V _{in} range V _o = -5.2V V _o = -12.0V	0.1* 0.1*	—	2.0 1.0	A A
Short Circuit Current	I _{sc}	V _{in} = 10V	—	4 × I _{max}	—	A _{pk}
Inrush Current	I _{ir} t _{ir}	V _{in} = 10V On start-up	— —	4 0.5	—	A mSec
Input Voltage Range	V _{in}	0.1 ≤ I _o ≤ I _{max}	9	—	15	V
Output Voltage Tolerance	ΔV _o	Over V _{in} range T _a = 0°C to +70°C	—	±1.0	±3.0	%V _o
Line Regulation	Reg _{line}	Over V _{in} range	—	±0.5	±1.0	%V _o
Load Regulation	Reg _{load}	0.3 ≤ I _o ≤ I _{max}	—	±0.5	±1.0	%V _o
V _o Ripple/Noise	V _n	V _{in} = 10V, I _o = I _{max}	—	±2	—	%V _o
Transient Response (with 100µF output cap)	t _{tr}	50% load change V _o over/undershoot	— —	100 5.0	250 —	µSec %V _o
Efficiency	η	V _{in} = 9V, I _o = 0.5 × I _{max} , V _o = -12V	—	78	—	%
Switching Frequency	f _o	Over V _{in} and I _o ranges	600	650	700	kHz
Absolute Maximum Operating Temperature Range	T _a	100 LFM airflow Over V _{in} and I _o Ranges	0	—	+85	°C
Recommended Operating Temperature Range	T _a	100 LFM airflow Over V _{in} and I _o Ranges	0	—	+60**	°C
Thermal Resistance	θ _{ja}	100 LFM airflow	—	35	—	°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	—	10	—	G's
Weight	—	—	—	11	—	Grams

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

**See Thermal Derating chart.

Note: The PT78NR200 series requires a 100µF electrolytic or tantalum output capacitor for proper operation in all applications.



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