

# PT79SR100 Series

-1.5 Amp Negative Step-Down Integrated Switching Regulator

**Power Trends Products**  
from Texas Instruments

**SLTS061A**

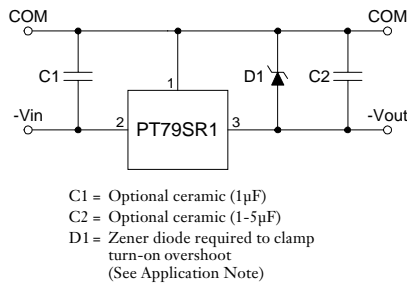
(Revised 6/30/2000)

- High Efficiency > 85%
- Self-Contained Inductor
- Short Circuit Protection
- Over-Temperature Protection

The PT79SR100 is a line of Negative Input/Negative Output 3-terminal Integrated Switching

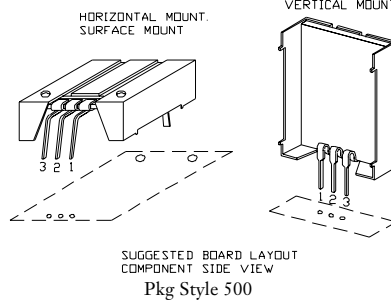
Regulators (ISRs). These ISRs have a maximum output current of -1.5 Amps and an output voltage that is laser trimmed to most industry standard voltages. They have excellent line and load regulation, and are ideal for applications, such as RS232 and Ethernet communications, ECL logic, and op-amp circuitry.

### Standard Application



### Pin-Out Information

Pin	Function
1	GND
2	-V <sub>in</sub>
3	-V <sub>out</sub>



### Ordering Information

PT79SR1 **XX** **Y**

Output Voltage

- 05** = -5.0 Volts
- 52** = -5.2 Volts
- 06** = -6.0 Volts
- 08** = -8.0 Volts
- 09** = -9.0 Volts
- 12** = -12.0 Volts
- 15** = -15.0 Volts

Package Suffix

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

### Specifications

Characteristics (T <sub>a</sub> = 25°C unless noted)	Symbols	Conditions	PT79SR100 SERIES			Units
			Min	Typ	Max	
Output Current	I <sub>o</sub>	Over V <sub>in</sub> range	-0.1*	—	-1.5	A
Short Circuit Current	I <sub>sc</sub>	V <sub>in</sub> =V <sub>o</sub> -4V	—	-3.5	—	A <sub>pk</sub>
Input Voltage Range	V <sub>in</sub>	I <sub>o</sub> =-0.1 to -1.5 A -0.1 ≥ I <sub>o</sub> ≥ -1.5 A	-9 -19	—	-30 -30	V V
Output Voltage Tolerance	ΔV <sub>o</sub>	Over V <sub>in</sub> range, I <sub>o</sub> =-1.5 A T <sub>a</sub> =20°C to shutdown	—	±1.0	±3.0	%V <sub>o</sub>
Line Regulation	Reg <sub>line</sub>	Over V <sub>in</sub> range	—	±1.0	±2.0	%V <sub>o</sub>
Load Regulation	Reg <sub>load</sub>	-0.1 ≤ I <sub>o</sub> ≤ -1.5 A	—	±0.5	±1.0	%V <sub>o</sub>
V <sub>o</sub> Ripple/Noise	V <sub>n</sub>	V <sub>in</sub> =-15V, I <sub>o</sub> =-1.0 A, V <sub>o</sub> =-5V	—	35	—	mV <sub>pp</sub>
Transient Response	t <sub>tr</sub>	50% load change V <sub>o</sub> =overshoot/undershoot	—	100 30	—	μSec %V <sub>o</sub>
Efficiency	η	V <sub>in</sub> =-10V, I <sub>o</sub> =-1.0A, V <sub>o</sub> =-5V	—	85	—	%
Switching Frequency	f <sub>o</sub>	Over V <sub>in</sub> and I <sub>o</sub> ranges	0.95	1.0	1.05	MHz
Absolute Maximum Operating Temperature Range	T <sub>a</sub>		-40	—	+85	°C
Recommended Operating Temperature Range	T <sub>a</sub>	Free Air Convection, (40-60LFM) Over V <sub>in</sub> and I <sub>o</sub> ranges	-40	—	+60**	°C
Thermal Resistance	θ <sub>ja</sub>	Free Air Convection, (40-60LFM)	—	45	—	°C/W
Temperature Coefficient	T <sub>c</sub>	Over V <sub>in</sub> and I <sub>o</sub> ranges	—	±0.5	±1.5	mV/°C
Storage Temperature	T <sub>s</sub>	—	-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	—	—	—	7.0	—	Grams

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

\*\* See Thermal Derating chart.

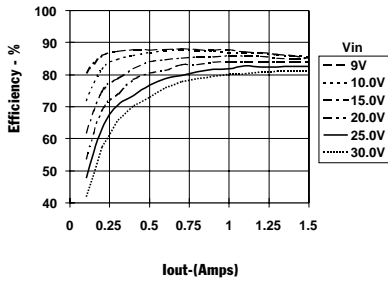
# PT79SR100 Series

# Typical Characteristics

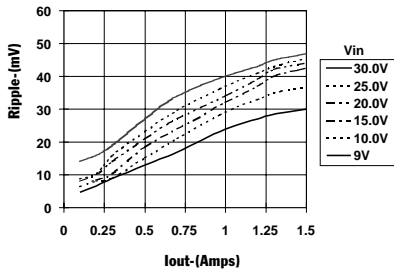
-1.5 Amp Negative Step-Down Integrated Switching Regulator

**PT79SR105, -5.0 VDC** (See Note 1)

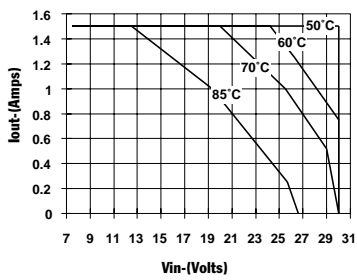
**Efficiency vs Output Current**



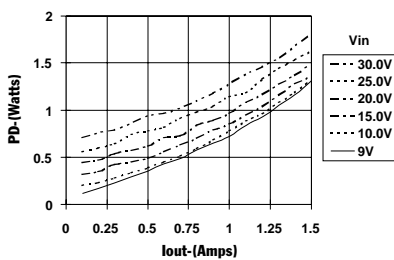
**Ripple vs Output Current**



**Thermal Derating (T<sub>a</sub>)** (See Note 2)

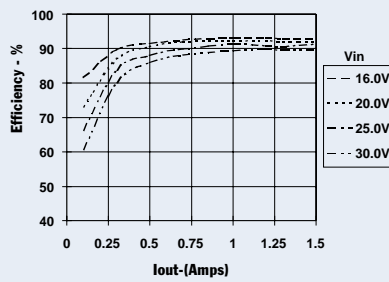


**Power Dissipation vs Output Current**

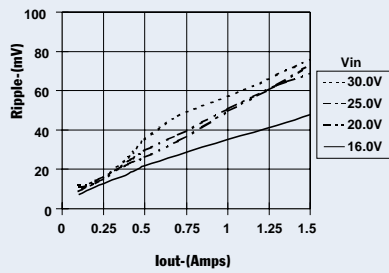


**PT79SR112, -12.0 VDC** (See Note 1)

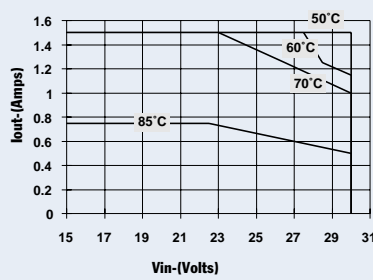
**Efficiency vs Output Current**



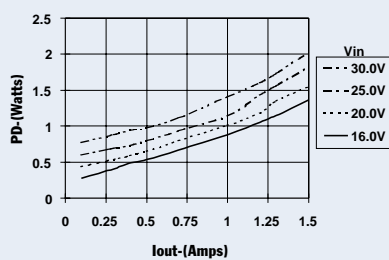
**Ripple vs Output Current**



**Thermal Derating (T<sub>a</sub>)** (See Note 2)

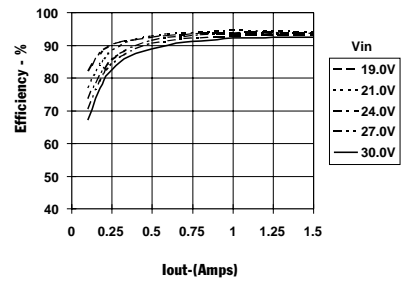


**Power Dissipation vs Output Current**

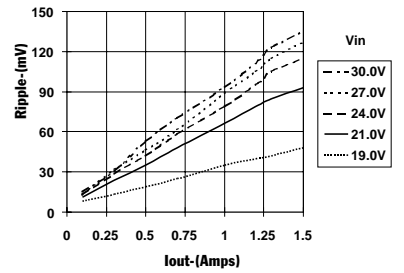


**PT79SR115, -15.0 VDC** (See Note 1)

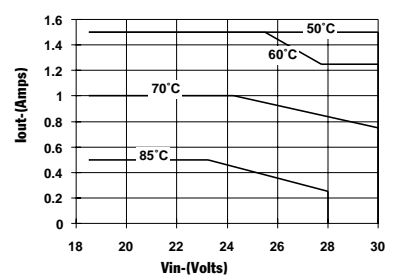
**Efficiency vs Output Current**



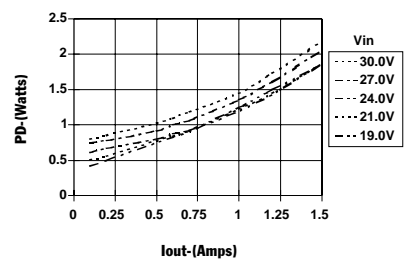
**Ripple vs Output Current**



**Thermal Derating (T<sub>a</sub>)** (See Note 2)



**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: Thermal derating graphs are developed in free air convection cooling of 40-60 LFM soldered in a printed circuit board. (See Thermal Application Notes.)

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