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# PT79ST2 Series

## 2.0 AMP NEGATIVE STEP-DOWN INTEGRATED SWITCHING REGULATOR

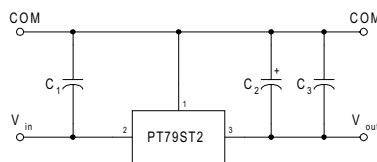
SLTS079  
(Revised 5/31/2000)

- High Efficiency
- Self-Contained Inductor
- Short Circuit Protection
- Over-Temperature Protection

The PT79ST2 Series are Negative 3-terminal Integrated Switching Regulators (ISR). These ISRs have a maximum output current of -2.0 Amps and an output voltage that is laser trimmed. They have excellent

line and load regulation with internal short circuit and over-temperature protection. With high conversion efficiency, these ISRs can power a diversity of circuits used in a wide variety of industrial applications.

### Standard Application



- C1 = Optional ceramic (1 $\mu$ F)  
 C2 = Required Electrolytic (100 $\mu$ F)  
 C3 = Optional ceramic (1-5 $\mu$ F)

### Pin-Out Information

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

(For dimensions and PC board layout, see Package Style 500)

### Ordering Information

PT79ST2	XX	Y
Output Voltage	Package Suffix	
53 = -5.13 Volts	V = Vertical Mount	

### Specifications

Characteristics (T <sub>s</sub> = 25°C unless noted)	Symbols	Conditions	PT79ST2 SERIES			Units
			Min	Typ	Max	
Output Current	I <sub>o</sub>	Over V <sub>in</sub> range	-0.1*	—	-2.0	A
Short Circuit Current	I <sub>sc</sub>	V <sub>in</sub> = V <sub>o</sub> - 3V	—	-3.5	—	A <sub>pk</sub>
Input Voltage Range	V <sub>in</sub>	-0.1 ≤ I <sub>o</sub> ≤ -2.0 Amp, V <sub>o</sub> = -5.13V	-8	—	-20	V
Output Voltage Tolerance	ΔV <sub>o</sub>	Over V <sub>in</sub> range, I <sub>o</sub> = -2.0 Amp T <sub>s</sub> = 0°C to shutdown	—	±1.0	±3.0	%V <sub>o</sub>
Line Regulation	Reg <sub>line</sub>	Over V <sub>in</sub> range	—	40	75	mV
Load Regulation	Reg <sub>load</sub>	-0.1 ≤ I <sub>o</sub> ≤ -2.0 Amp	—	30	50	mV
V <sub>o</sub> Ripple/Noise	V <sub>n</sub>	V <sub>in</sub> = -8V, I <sub>o</sub> = -2.0 A, V <sub>o</sub> = -5.13V	—	70	—	mV <sub>pp</sub>
Transient Response (with req'd output capacitor)	t <sub>tr</sub>	50% load change V <sub>o</sub> = over/undershoot	—	100	—	μSec
Efficiency	η	V <sub>in</sub> = -10V, I <sub>o</sub> = -2.0 A, V <sub>o</sub> = -5.13V	—	85	—	%
Switching Frequency	f <sub>o</sub>	Over V <sub>in</sub> range, I <sub>o</sub> = -2.0A	600	650	700	kHz
Recommended Operating Temperature Range	T <sub>a</sub>	Free Air Convection, (40-60LFM) Over V <sub>in</sub> and I <sub>o</sub> ranges	0	—	+65	°C
Thermal Resistance	θ <sub>ja</sub>	Free Air Convection, (40-60LFM)	—	45	—	°C/W
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.

PACKAGING INFORMATION

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/Ball Finish	MSL Peak Temp <sup>(3)</sup>
PT79ST253V	ACTIVE	SIP MOD ULE	EFD	3	25	TBD	Call TI	Level-1-215C-UNLIM

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS) or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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