PT79ST2 Series

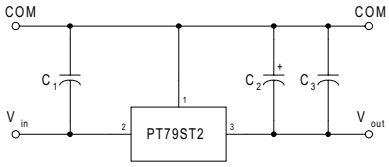
2.0 AMP NEGATIVE STEP-DOWN INTEGRATED SWITCHING REGULATOR

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 (1µF)
C2 = Required Electrolytic (100µF)
C3 = Optional ceramic (1–5µF)

Pin-Out Information

Pin	Function
1	GND
2	$-V_{in}$
3	$-V_{out}$

(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_a = 25°C unless noted)	Symbols	Conditions	PT79ST2 SERIES Min	Typ	Max	Units
Output Current	I_o	Over V_{in} range	–0.1*	—	–2.0	A
Short Circuit Current	I_{sc}	V_{in} =V_o–3V	—	–3.5	—	Apk
Input Voltage Range	V_{in}	–0.1 ≤ I_o ≤ –2.0 Amp, V_o= –5.13V	–8	—	–20	V
Output Voltage Tolerance	ΔV_o	Over Vin range, I_o= –2.0 Amp T_a= 0°C to shutdown	—	±1.0	±3.0	%V_o
Line Regulation	Reg_{line}	Over V_{in} range	—	40	75	mV
Load Regulation	Reg_{load}	–0.1 ≤ I_o ≤ –2.0 Amp	—	30	50	mV
V_o Ripple/Noise	V_n	V_{in}= –8V, I_o= –2.0 A,V_o= –5.13V	—	70	—	mV_{pp}
Transient Response (with req'd output capacitor)	t_{tr}	50% load change V_o=over/undershoot	— —	100 5	— —	µSec %V_o
Efficiency	η	V_{in}= –10V, I_o= –2.0 A,V_o= –5.13V	—	85	—	%
Switching Frequency	f_o	Over V_{in} range, I_o = –2.0A	600	650	700	kHz
Recommended Operating Temperature Range	T_a	Free Air Convection, (40-60LFM) Over V_{in} and I_o ranges	0	—	+65	°C
Thermal Resistance	θ_{ja}	Free Air Convection, (40-60LFM)	—	45	—	°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	—	—	—	7.0	—	Grams

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

PACKAGING INFORMATION

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/Ball Finish	MSL Peak Temp [3]
PT79ST253V	ACTIVE	SIP MODULE	EFD	3	25	TBD	Call TI	Level-1-215C-UNLIM

[1] 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.

[2] 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)

[3] MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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