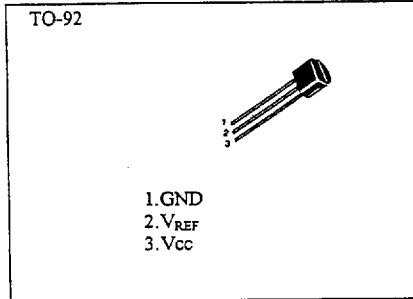


## Features

- Stabilizes Power Supply Feedback Loop
- Reduces Power Supply Signal Gain
- Effective For Signals:  $100 < \text{Hz}$  to 100MHz
- Effective Impedance for Power Supply Noise Signal:  $< 1 \text{ Ohm}$
- Low Energy Storage (Important For Safety Applications)
- Eliminates The Need For Series Ferrite Beads For Power Supply Filtering (Application Dependent)



The P103 Power Supply Damping Circuit (PSDC) suppresses high frequency noise on the DC power supply lines as well as reducing EMI radiated from the applications themselves. To achieve this the P103 provides a low impedance path from V<sub>CC</sub> to GND for signals above 100KHz.

This device is designed to stabilize power supply resonance circuits in applications such as:

- Logic circuits
- Radio/TV frequency systems
- High performance ADC and DAC
- Mixed signal applications

By connecting the V<sub>REF</sub> input through a series resistor to V<sub>CC</sub> the PSDC impedance can be lowered further (Note: By exceeding the maximal allowable current consumption of 30mA the device may be damaged). When the V<sub>REF</sub> input is connected to GND the PSDC will become inactive which is useful in high frequency test applications.

The PSDC functions as an AC coupled shunt regulator and can be paralleled to improve the performance of a system.

## Absolute Maximum Ratings

Characteristics	Symbol	Rating	Units
Power Supply Voltage	V <sub>CC</sub>	8	V
Max Current Consumption	I <sub>CC</sub>	30	mA
Max Reference Input Current	I <sub>REF</sub>	4	mA
Operating Ambient Temperature Range	T <sub>A</sub>	-20...+125	°C
Storage Temperature Range	T <sub>S</sub>	-55...+150	°C

## DC Electrical Characteristics at $T_A=+25^\circ\text{C}$ (unless otherwise noted)

Characteristics	Symbol	Test Conditions	Limits			
			Min	Typ	Max	Units
Supply Voltage	$V_{CC}$		4.5		5.5	V
Supply Current	$I_{CC}$	$V_{CC}=5V$ $V_{REF}=\text{OPEN}$	0.72	1.2	1.68	mA
		$V_{CC}=5V$ $V_{REF}=2.2K\Omega$ to $V_{CC}$	6.2	10.4	14.5	mA
Reference Input Voltage	$V_{REF}$	$V_{REF}=\text{Open Circuit}$	1.3		1.9	V

## AC Electrical Characteristics at $T_A=+25^\circ\text{C}$ (unless otherwise noted)

Characteristics	Symbol	Test Conditions	Limits			
			Min	Typ	Max	Units
Supply Impedance	$Z_{V_{CC}-V_{OND}}$	$V_{REF}=\text{Open}$ $f<1KHz$	5K			Ohm
		$V_{REF}=\text{Open}$ $f<10KHz$	5K			Ohm
		$V_{REF}=\text{Open}$ $f=1MHz$			80	Ohm
		$V_{REF}=\text{Open}$ $f=10MHz$			40	Ohm
		$V_{REF}=\text{Open}$ $f=100MHz$			45	Ohm

## PSDC Impedance versus Frequency

