

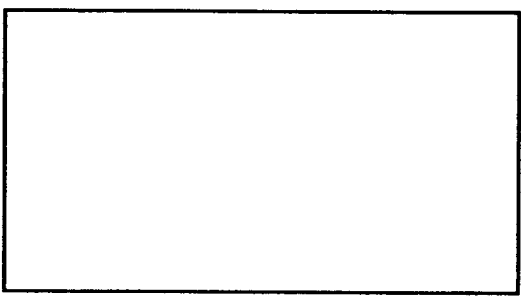


SP9490

16-Bit, 1MHz Sampling A/D Converter

Features

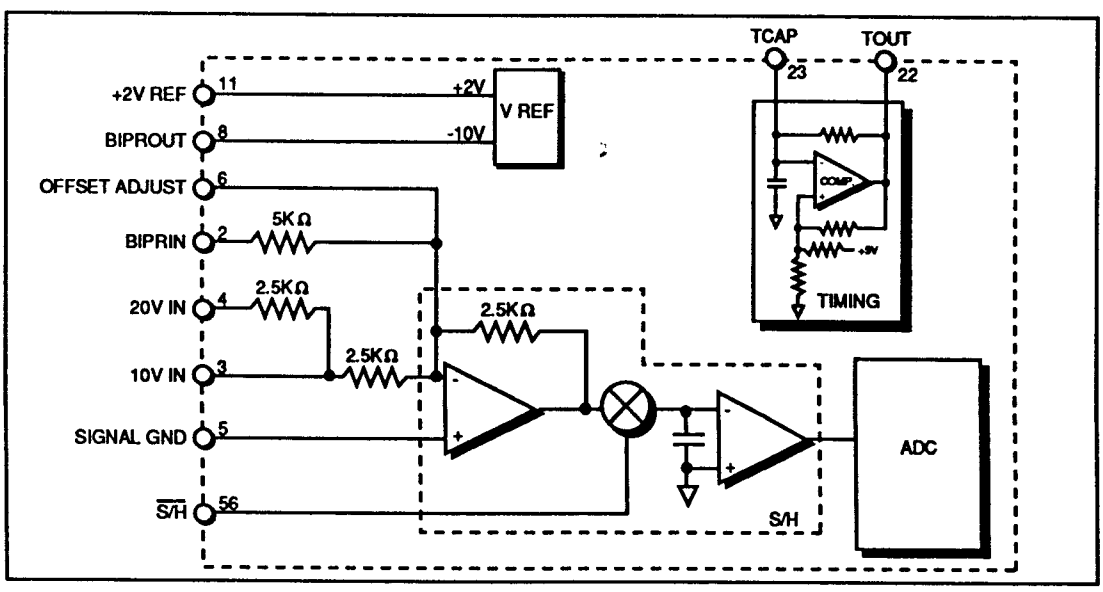
- 16-bit Resolution
- 1µs acquisition/conversion time
- 93dB SNR
- 93dB THD
- 3.25W Power Dissipation



Applications

- Medical Imaging
- Signal Processing
- High-speed Data Acquisition
- Communications
- Automated Test Equipment

The SP9490 is a complete 16-bit sampling A/D Converter with a throughput rate of 1MHz. The SP9490 features a 16-bit accurate sample-and-hold with a 250ns acquisition time and a 750ns 16-bit accurate ADC in the same package. All reference and timing circuitry are included. Tri-state output latches and a single S/H mode/conversion control make interfacing to most microprocessors very straightforward. The SP9490 features 93dB SNR and THD dynamic performance. Both commercial (0°C to +70°C) and military (-55°C to +125°C) temperature ranges are available.



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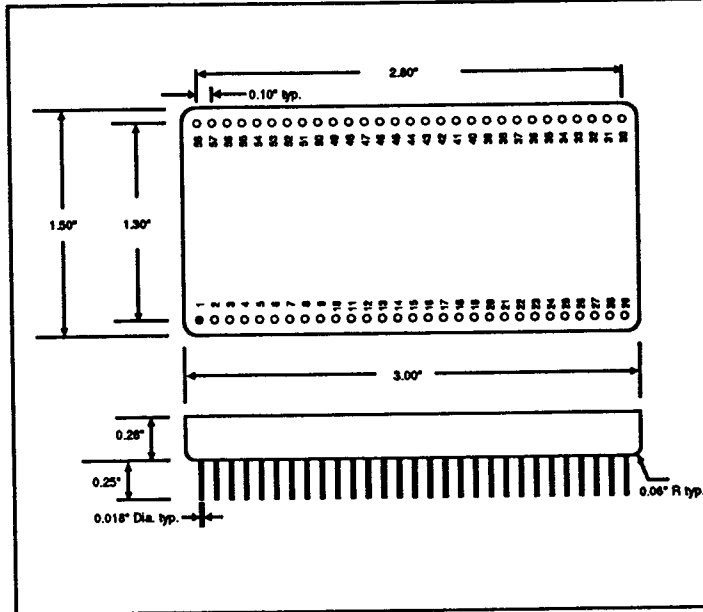
SPECIFICATIONS

(Typical @ 25°C and nominal supply voltages unless otherwise specified); * Indicates SP9490B specification same as SP9490C.

MODEL	SP9490C	SP9490B	Units
RESOLUTION	16	*	Bits
ANALOG INPUT			
Input Voltage Ranges	0 to +10 ±5 ±10	• • •	Volts Volts Volts
Input Impedance	2.5K, 10V input 5K, 20V input	• •	Ω Ω
DIGITAL INPUTS			
Logic Levels	TTL	*	
DYNAMIC PERFORMANCE			
Sample Rate	1 max.	•	MHz
Acquisition Time	250 max.	•	ns
Conversion Time	750 max.	•	ns
Signal-to Noise Ratio	90 min., 93 typ.	•	dB
THD	90 min., 93 typ.	•	dB
Integral Non-linearity	±0.0015 min. ±0.003 max.	• •	% FSR % FSR
Differential Non-linearity	±0.003 typ.	•	% FSR
No Missing Codes	16	•	bits
Noise	70 typ.	•	μV rms
SAMPLE-AND-HOLD			
Acquisition Time			
±20V step, to ±0.005%	350 typ., 500 max.	•	ns
±10V step, to ±0.005%	250 typ.	•	ns
±5V step, to ±0.01%	200 typ.	•	ns
Sample Distortion			
5V _{pp} @ 100kHz	-90 typ.	•	dB
20V _{pp} @ 10kHz	-88 typ.	•	dB
Frequency Response			
Small Signal (-3dB)	30 typ.	•	MHz
Full Power			
20V _{pp}	2 typ.	•	MHz
10V _{pp}	4 typ.	•	MHz
Slew Rate	75 min., 120 typ.	•	V/μs
Hold Mode Dynamics			
Pedestal Offset Error	±0.2 typ., ±1.0 max.	•	mV
Pedestal Gain Error	±0.002 typ.	•	% FSR
Pedestal Linearity Error	±0.0005 typ. ±0.002 max.	• •	% FSR % FSR
Droop Rate	±1 typ., ±100 max.	•	μV/μs
Dielectric Absorption	0.0005 typ.	•	% FSR
Aperture Delay	30 typ.	•	ns
Aperture Uncertainty	75	•	ps rms
POWER REQUIREMENTS			
+15V	77 typ.	•	mA
-15V	43 typ.	•	mA
+5V Analog	240	•	mA
-5V Analog	79	•	mA
+5V Digital	10	•	mA
Dissipation	3.5 typ.	•	W
ENVIRONMENTAL			
Operating Temperature	0 to +70	-55 to +125	°C

PACKAGE OUTLINE

PIN ASSIGNMENTS



1. BIPROUT	DO NOT CONN. 58.
2. BIPRIN	DO NOT CONN. 57.
3. 10V IN	S/R 56.
4. 20V IN	+15V 55.
5. SIG GND	-15V 54.
6. OFFSET ADJUST	DO NOT CONN. 53.
7. DO NOT CONN.	DO NOT CONN. 52.
8. -10V REF	DO NOT CONN. 51.
9. NC	DO NOT CONN. 50.
10. DO NOT CONN.	DO NOT CONN. 49.
11. +2V REF	OE 48.
12. -5V ANA	BIT 1 (MSB) 47.
13. +5V ANA	BIT 2 46.
14. ANA GND.	BIT 3 45.
15. NC	BIT 4 44.
16. NC	BIT 5 43.
17. READY/BUSY	BIT 6 42.
18. DO NOT CONN.	BIT 7 41.
19. DO NOT CONN.	BIT 8 40.
20. EOC	BIT 9 39.
21. AD CLK	BIT 10 38.
22. TOUT	BIT 11 37.
23. TCAP	BIT 12 36.
24. -5V ANA	BIT 13 35.
25. -15V ANA	BIT 14 34.
26. +15V ANA	BIT 15 33.
27. ANA GND	BIT 16 (LSB) 32.
28. +5V	+5V DIG 31.
29. NC	DIG GND 30.

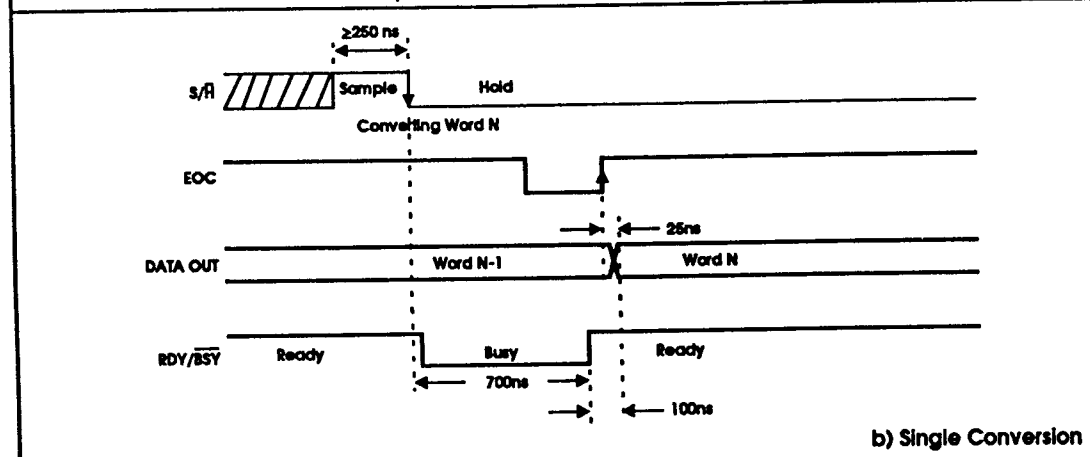
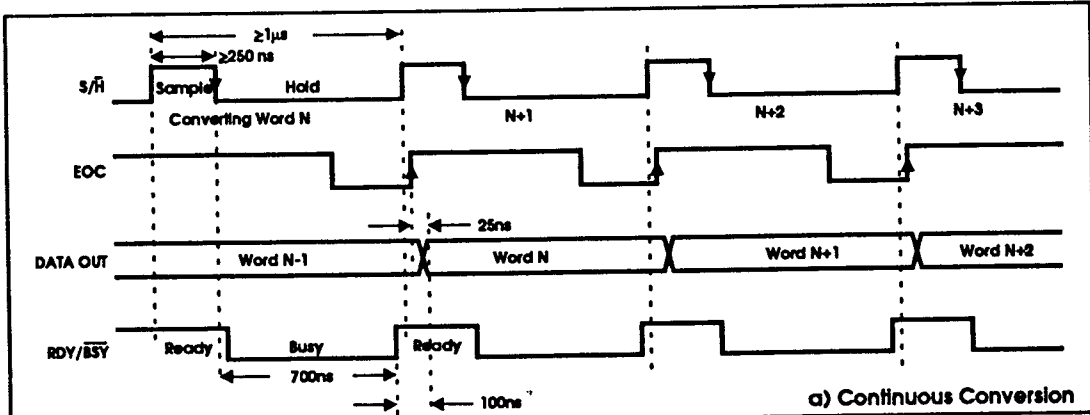


Figure 1. Timing

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SIGNAL PROCESSING EXCELLENCE

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