Rochester Electronics

Datasheet

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
    - Class Q Military
    - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

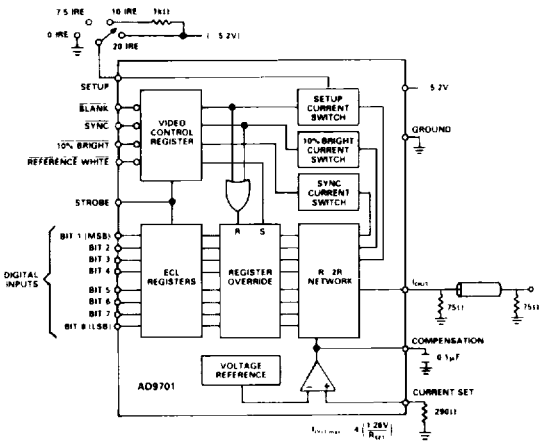
250 MSPS Video Digital-to-Analog Converter

AD9701

FEATURES
250 MSPS Update Rate
Low Glitch Impulse
Complete Composite Functions
Internal Voltage Reference
Single -5.2 V Supply

APPLICATIONS
Raster Scan Displays
Color Graphics
Automated Test Equipment
TV Video Reconstruction

FUNCTIONAL BLOCK DIAGRAM



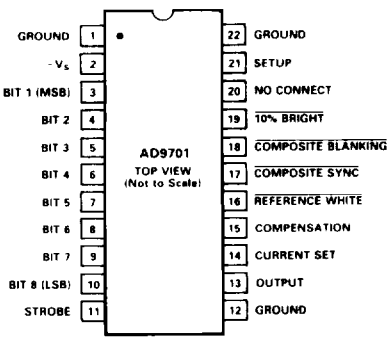
GENERAL DESCRIPTION

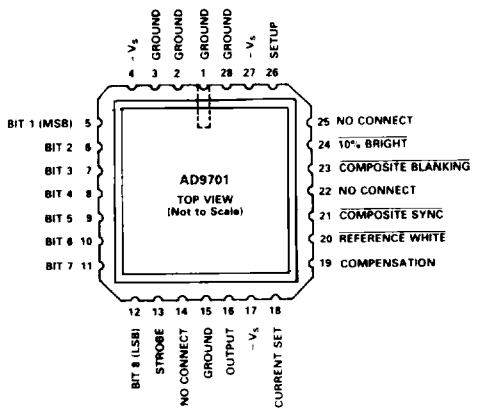
The AD9701 is a high-speed, 8-bit digital-to-analog converter with fully integrated composite video functions. High-speed ECL input registers provide synchronous operation of data and control functions up to 250 MSPS.

The AD9701 incorporates on-board control functions including horizontal sync, blanking, reference white level, and a 10% bright signal for highlighting. The setup level is also adjustable from 0 IRE units to 20 IRE units, through the control pin. An internal voltage reference allows the AD9701 to operate as a stand-alone video reconstruction DAC.

The AD9701 is available as an industrial temperature range device, -25°C to +85°C, and as an extended temperature range device, -55°C to +125°C. Both grades of the AD9701 are packaged in a 22-pin ceramic DIP, with the extended temperature device also available in a 28-pin LCC package.

PIN CONFIGURATIONS





ORDERING GUIDE

Device	Temperature Range	Description	Package Option*
AD9701BQ	-25°C to +85°C	22-Pin DIP, Industrial Temperature	Q-22
AD9701SE	-55°C to +125°C	28-Pin LCC, Extended Temperature	E-28A
AD9701SQ	-55°C to +125°C	22-Pin DIP, Extended Temperature	Q-22

*E = Leadless Ceramic Chip Carrier; Q = Cerdip. For outline information see Package Information section.

To obtain the most recent version or complete data sheet, call our fax retrieval system at 1-800-446-6212 or visit our World Wide Web site at http://www.analog.com.

AD9701–SPECIFICATIONS

ELECTRICAL CHARACTERISTICS (Supply Voltages = –5.2 V; R_L = 37.5 Ω; Setup = 0 V, unless otherwise noted)

Parameter	Temp	AD9701BQ Min	AD9701BQ Typ	AD9701BQ Max	AD9701SQ/SE Min	AD9701SQ/SE Typ	AD9701SQ/SE Max	Units
RESOLUTION		8			8			Bits
DC ACCURACY								
Differential Linearity	+25°C		0.25	0.5		0.25	0.5	LSB
	Full			1.0			1.0	LSB
Integral Linearity	+25°C		0.25	0.5		0.25	0.5	LSB
	Full			1.0			1.0	LSB
Monotonicity	Full		Guaranteed			Guaranteed		
INITIAL OFFSET ERROR								
Zero-Scale Offset Error	+25°C		0.05	0.9		0.05	0.9	mV
	Full			0.9			0.9	mV
Zero-Scale Offset Drift Coefficient	Full		2			2		µV/°C
Full-Scale Drift Coefficient	Full		50			50		µV/°C
ANALOG OUTPUT								
Voltage Output								
10% Bright	Full	0.9	0		-0.9	0		mV
Reference White	Full	67.45	71	-74.55	67.45	-71	74.55	mV
Blanking (Setup = 0IRE)	Full	698.55	708.5	-718.45	-698.55	-708.5	-718.45	mV
Sync (Setup = 0IRE)	Full	-979.25	993.5	1007.75	979.25	993.5	1007.75	mV
Current output								
10% Bright	Full	0.024	0		-0.024	0		mA
Reference White	Full	1.805	1.9	1.996	1.805	1.9	1.995	mA
Blanking (Setup = 0IRE)	Full	18.63	18.9	19.16	18.63	18.9	19.16	mA
Sync (Setup = 0IRE)	Full	26.11	26.5	26.87	-26.11	-26.5	26.87	mA
Output Compliance Range	Full		1.6; +0.1			-1.6; +0.1		V
Output Resistance	+25°C	640	800		640	800		Ω
DYNAMIC PERFORMANCE								
Update Rate	+25°C	225	250		225	250		MSPS
Output Propagation Delay	+25°C		5	6		5	6	ns
Output Settling Time								
Current	+25°C		8			8		ns
Voltage	+25°C		12			12		ns
Output Slew Rate	+25°C	255	300		255	300		V/µs
Output Rise Time	+25°C		1.7	2.0		1.7	2.0	ns
Output Fall Time	+25°C		1.7	2.0		1.7	2.0	ns
Glitch Impulse	+25°C		60	70		60	70	pV-s
SETUP CONTROL								
Setup Level (Grounded)	Full		0			0		IRE
Setup Level (Open)	Full		7.5			7.5		IRE
Setup Level								
(Tied to –5.2 V with 1 kΩ)	Full		10			10		IRE
Setup Level (–5.2 V)	Full		20			20		IRE
DIGITAL INTPUTS								
Logic "1" Voltage	Full	1.1			1.1			V
Logic "0" Voltage	Full			1.5			1.5	V
Logic "1" Current	Full			100			100	µA
Logic "0" Current	Full			15			15	µA
Input Capacitance	+25°C		4	5.5		4	5.5	pF
Data Setup Time	+25°C	0.1			0.1			ns
Data Hold Time	+25°C	1.4			1.4			ns
POWER SUPPLY								
Supply Current (–5.2 V)	+25°C		140	160		140	160	mA
	Full			160			160	mA
Nominal Power Dissipation	+25°C		728			728		mW*
Power Supply Rejection Ratio	Full		3	6		3	6	mV/V

Specifications subject to change without notice.