1.1 Scope.

This specification covers the requirements for a monolithic high speed video signal multiplexer whose four channels of video input signals can be randomly switched at megahertz rates to the single output. Multiple devices can be configured in either parallel or cascade arrangements to form switch matrices. Refer to the commercial data sheet for the AD9300 for typical specifications, theory, and applications information.

1.2 Part Number.

The complete part number is as follows:

Device	Part Number
−1	AD9300T(X)/883B

1.2.3 Case Outline.

See Appendix 1 of General Specification ADI-M-1000:

(X)	Package	Description
Q	Q-16	16-Pin Ceramic DIP
E	E-20	20-Pin Leadless Chip Carrier

1.3 Absolute Maximum Ratings. (T_A = +25°C unless otherwise noted)

Power Supply Voltages ($\pm V_S$) ..... ±16 V
Analog Input Voltage Each Input (IN_1 thru IN_4) ..... ±3.5 V
Differential Voltage Between Any Two Inputs (IN_1 thru IN_4) ..... 5 V
Digital Input Voltages (A_0, A_1, ENABLE) ..... −0.5 V to +5.5 V
Output Current
  Sinking ..... 6.0 mA
  Sourcing ..... 6.0 mA
Junction Temperature ..... +175°C
Operating Temperature Range (Case) ..... −55°C to +125°C
Storage Temperature Range (Case) ..... −65°C to +150°C
Lead Temperature (Soldering 10 sec) ..... +300°C

1.5 Thermal Characteristics.

Maximum junction temperature should not be allowed to exceed +175°C. Maximum power dissipation is related to typical thermal impedances:

16-pin ceramic: θ_{JA} = 87°C/W, θ_{JC} = 25°C/W
20-pin LCC: θ_{JA} = 74°C/W, θ_{JC} = 10°C/W

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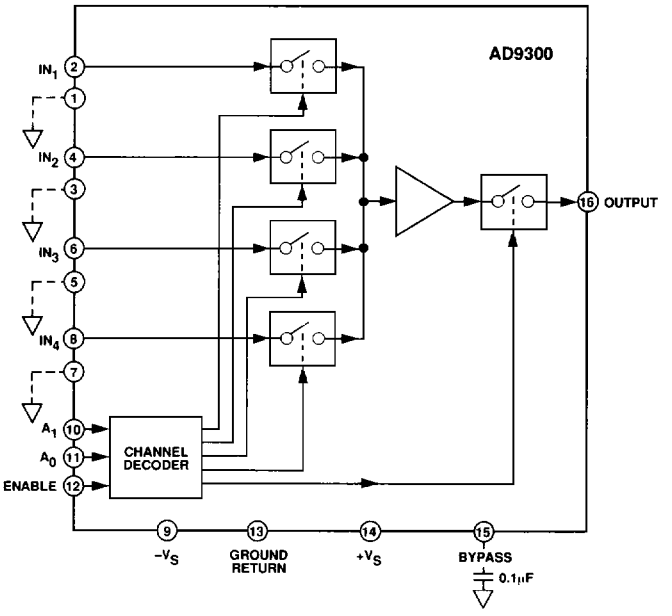
Table 1.

Test	Symbol	Design Limit[1]	Sub Group 1	Sub Group 2, 3	Sub Group 4	Sub Group 9	Test Condition[2]	Units
Input Offset Voltage	V_{OS}		10	18				mV max
Input Bias Current	I_{IB}		37	55				μA max
Voltage Gain[3]	A_V		0.990	0.985				V/V min
Gain Tolerance DC to 5 MHz 5 MHz to 8 MHz	A_E				 0.1 0.3		V_{IN} = ±1 V	 dB max dB max
Full Power Bandwidth[4]	FPBW				27		V_{IN} = 2 V p-p	MHz min
Output Swing	V_{OUT}		±2	±2				V min
Slew Rate[5]	t_{SR}				170			V/μs
A_X Input to Channel HIGH Time	t_{HIGH}					50		ns max
A_X Input to Channel LOW Time	t_{LOW}					45		ns max
Enable to Channel ON Time	t_{ON}					45		ns max
Enable to Channel OFF Time	t_{OFF}					45		ns max
Digital Inputs Logic "1" Voltage Logic "0" Voltage Logic "1" Current Logic "0" Current	 V_{OH} V_{OL} I_{OH} I_{OL}		 2 0.8 5 1	 2 0.8 5 1				 V min V max μA max μA max
Positive Supply Current (+12.0 V)	$+I_S$		16	16				mA max
Negative Supply Current (−12.0 V)	$-I_S$		5	16				mA max
Power Supply Rejection Ratio	PSRR		67	67				dB min

NOTES
[1]Indicates specification which is guaranteed but not tested. Value shown is over full temperature range.
[2]$\pm V_S$ = ±12 V ±5%; C_L = 10 pF; R_L = 2 kΩ, unless otherwise noted.
[3]Measured as slope of V_{OUT} versus V_{IN} with V_{IN} = ±1 V.
[4]Full Power Bandwidth (FPBW) based on Slew Rate (SR). FPBW = SR/2 π V_{Peak}.
[5]Measured between 20% and 80% transition points of ±1 V output.

.3.2.1 Functional Block Diagram and Terminal Assignments.



3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group D58.

4.2.1 Life Test/Burn-In Circuit.

Steady state life test is per MIL-STD-883 Method 1005. Burn-in is per MIL-STD-883 Method 1015 test condition (B).