

1.1 Scope.

This specification covers the requirements for a low distortion, wide bandwidth operational amplifier. Consult the commercial data sheet for theory and applications information.

1.2 Part Number.

The complete part number per Table 1 of this specification is as follows:

Device	Part Number
-1	AD9617S(X)/883B
-2	AD9617T(X)/883B

1.2.3 Case Outline.

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

(X)	Package	Description
Q	Q-8	8-Pin Ceramic DIP
Z	Z-8	8-Pin Ceramic Flatpack (Gull Wing)

1.3 Absolute Maximum Ratings. ($T_A = +25^\circ\text{C}$ unless otherwise noted)

Supply Voltages ($\pm V_S$)	± 7 V
Common-Mode Input Voltage	$\pm V_S$
Differential Input Voltage	3 V
Continuous Output Current*	70 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

*Output is short circuit protected to ground, but not to supplies. Continuous short circuit to ground may affect device reliability.

1.5 Thermal Characteristics.

Thermal Resistance	$\theta_{JA} = 120^\circ\text{C}/\text{W}$ for Flatpack
	$\theta_{JC} = 20^\circ\text{C}/\text{W}$ for Flatpack
	$\theta_{JA} = 110^\circ\text{C}/\text{W}$ for Ceramic DIP
	$\theta_{JC} = 20^\circ\text{C}/\text{W}$ for Ceramic DIP

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Table 1.

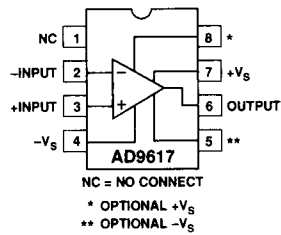
Test	Symbol	Device	Design Limit ¹	Sub Group 1	Sub Group 2	Sub Group 3	Sub Group 4, 6	Sub Group 5	Test Condition ²	Units
Input Offset Voltage	V _{OS TC}	All	-4/+25							μV/°C min/max
Input Bias Current TC Inverting	I _{B TC}	All	-50/+150							nA/°C min/max
			-50/+125							nA/°C min/max
Common-Mode Input Range	CMIR	All		±1.7	±1.4	±1.7				V min
Common-Mode Rejection Ratio	CMRR	All					50	50		dB min
Power Supply Rejection Ratio	PSRR	All					50	50	ΔV _S = ±5%	dB min
Output Current	I _{OUT}	All		60	60	50			50 Ω Load	mA min
Small Signal Bandwidth	SSBW	All					145	145	V _{OUT} ≤ 2 V p-p	MHz min
Large Signal Bandwidth	LSBW	All	115						V _{OUT} = 4 V p-p	MHz min
Output Peaking		All					0.3		<50 MHz; T = T _{MIN} to +25°C	dB max
							0.6		<50 MHz; T = T _{MAX}	
							0.8		>50 MHz; T = T _{MIN} to +25°C	
Output Rolloff		All					0.6	0.6	<75 MHz	dB max
Second Harmonic Distortion	HD ₂	All	-78						V _{OUT} = 2 V p-p, F = 4.3 MHz	dBc max
			-59						V _{OUT} = 2 V p-p, F = 20 MHz	dBc max
						-43	-43	V _{OUT} = 2 V p-p, F = 60 MHz	dBc max	
Third Harmonic Distortion	HD ₃	All	-75						V _{OUT} = 2 V p-p, F = 4.3 MHz	dBc max
			-61						V _{OUT} = 2 V p-p, F = 20 MHz	dBc max
						-46	-46	2 V p-p; 60 MHz	dBc max	
Slew Rate	t _{SR}	All	1100						V _{OUT} = 4 V Step	V/μs min
Rise/Fall Time	t _{RF}	All	2.5						V _{OUT} = 2 V Step, +25°C to T _{MAX}	ns max
			3.3						V _{OUT} = 4 V Step, +25°C to T _{MAX}	ns max
			3.5						V _{OUT} = 4 V Step, T = T _{MIN}	ns max
Overshoot Amplitude		All	14					V _{OUT} = 2 V Step	% max	
Settling Time	t _{SL}	All	15						2 V Step; to 0.1%	ns max
			23						2 V Step; to 0.02%	nsmax
			16						4 V Step; to 0.1%	ns max
			24						4 V Step; to 0.02%	ns max
V _{CC} Supply Current	+I _S	All		48	48	48			V _{CC} = +5 V	mA max
V _{EE} Supply Current	-I _S	All		48	48	48			V _{EE} = -5 V	mA max

NOTES

¹Indicates specification which is guaranteed but not tested. Value shown is over full temperature range.

²Unless otherwise noted, A_v = +3; ±V_S = ±5 V; R_F = 400 Ω; R_{LOAD} = 100 Ω.

3.2.1 Functional Block Diagram and Terminal Assignments.



3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group (D-49).

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).

