

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 ($\pm V_S$)	$\pm 7\text{ V}$
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	$\theta_{JA} = 120^\circ\text{C/W}$ for Flatpack
	$\theta_{JC} = 20^\circ\text{C/W}$ for Flatpack
	$\theta_{JA} = 110^\circ\text{C/W}$ for Ceramic DIP
	$\theta_{JC} = 20^\circ\text{C/W}$ for Ceramic DIP

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Table 1.

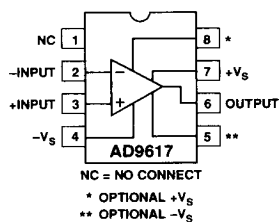
Test	Symbol	Device	Design Limit ¹	Sub Group 1	Sub Group 2	Sub Group 3	Sub Group 4, 6	Sub Group 5	Test Condition ²	Units
Input Offset Voltage	V_{OS} TC	All	−4/+25							$\mu\text{V}/^\circ\text{C}$ min/max
Input Bias Current TC	I_B TC	All								
Inverting			−50/+150							nA/ $^\circ\text{C}$ min/max
Noninverting			−50/+125							nA/ $^\circ\text{C}$ 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	$\Delta V_S = \pm 5\%$	dB min
Output Current	I_{OUT}	All		60	60	50			50 Ω Load	mA min
Small Signal Bandwidth	SSBW	All					145	145	$V_{OUT} \leq 2$ 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 $+25^\circ\text{C}$	dB max
							0.6		<50 MHz; $T = T_{MAX}$	
							0.8		>50 MHz; $T = T_{MIN}$ to $+25^\circ\text{C}$	
Output Roll-off		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	$t_{R/F}$	All	2.5						$V_{OUT} = 2$ V Step, $+25^\circ\text{C}$ to T_{MAX}	ns max
			3.3						$V_{OUT} = 4$ V Step, $+25^\circ\text{C}$ 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%	ns max
			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, $A_V = +3$; $\pm V_S = \pm 5$ V; $R_F = 400 \Omega$; $R_{LOAD} = 100 \Omega$.

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).

