

1.1 Scope.

This specification covers the detail requirements for a precision monolithic laser-trimmed BiFET amplifier.

1.2 Part Number.

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

Device	Part Number
- 1	AD648S(X)/883B
- 2	AD648T(X)/883B

1.2.3 Case Outline.

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

(X)	Package	Description
Q	Q-8A	8-Pin Cerdip Package
H	H-08B	8-Pin Metal Package

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

Supply Voltage	$\pm 18\text{V}$
Internal Power Dissipation ¹	
Q-8A	900mW
H-08B	600mW
Differential Input Voltage	$+V_S$ and $-V_S$
Output Short Circuit Duration	Indefinite
Storage Temperature Range	-65°C to $+150^\circ\text{C}$
Operating Temperature Range	-55°C to $+125^\circ\text{C}$
Lead Temperature Range (Soldering 60sec)	$+300^\circ\text{C}$

NOTE

¹Maximum package power dissipation vs. ambient temperature.

Package Type	MAXIMUM AMBIENT Temperature for Rating	DERATE ABOVE MAXIMUM Ambient Temperature
Q-8A	75°C	$9.0\text{mW}/^\circ\text{C}$
H-08B	80°C	$6.3\text{mW}/^\circ\text{C}$

1.5 Thermal Characteristics.

Thermal Resistance θ_{JC}	$= 22^\circ\text{C}/\text{W}$ for Q-8A
θ_{JA}	$= 110^\circ\text{C}/\text{W}$ for Q-8A
θ_{JC}	$= 65^\circ\text{C}/\text{W}$ for H-08B
θ_{JA}	$= 150^\circ\text{C}/\text{W}$ for H-08B

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Table 1.

Test	Symbol	Device	Sub Group 1	Sub Group 2, 3	Sub Group 4	Test Condition ¹	Units
Input Offset Voltage	V _{OS}	-1	2.0	3.0			± mV max
		-2	2.0	2.0	1.0		
Input Offset Voltage Drift	TCV _{OS}	-1		20			± μV/°C max
		-2		20	10		
Power Supply Rejection Ratio	PSRR	-1	80	76			dB min
		-2	80	80	86		
Input Bias Current ²	I _B	-1	20			Either Input, V _{CM} = 0	± pA max
		-2	20		10	Either Input, V _{CM} = 0	
		-1	30			Either Input, V _{CM} = +10V	± pA max
		-2	30		15	Either Input, V _{CM} = +10V	
Input Offset Current ²	I _{OS}	-1	10			V _{CM} = 0	± pA max
		-2	10		5	V _{CM} = 0	
Slew Rate	t _{SR}	-1, 2	1.0			Unity Gain	V/μs min
Common-Mode Rejection Ratio	CMRR	-1	76	76		V _{CM} = ±10V	dB min
		-2	76	82	82	V _{CM} = ±10V	
		-1	70	70		V _{CM} = ±11V	dB min
		-2	70	76	76	V _{CM} = ±11V	
Open Loop Gain	A _{OL}	-1, 2	150/300	150/300		R _L = 5k/10k	V/mV min
Output Voltage Swing	V _{OUT}	-1, 2	±12/±11	±12/±11		R _L = 10k/5kΩ	± V min
Power Supply Current	I _Q	-1, 2	0.4				mA max
Input Offset Voltage Match ³	V _{OSM}	-1	2.0	3.0			± mV max
		-2	2.0	2.0	1.0		
Input Bias Current Match ³	I _{BM}	-1	10				± pA max
		-2	10		5		

NOTES

¹V_S = ±15V unless otherwise noted.

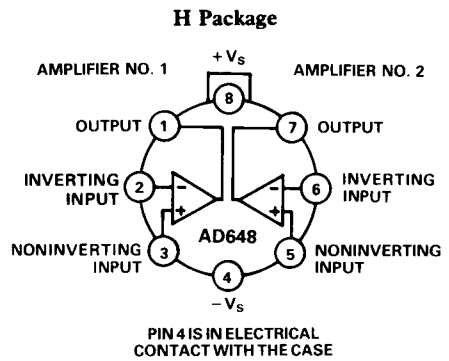
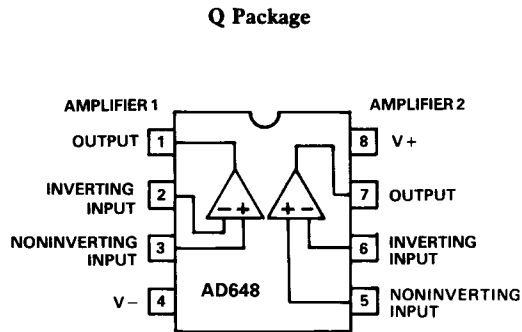
²Bias current specifications guaranteed after 5 minutes of operation at T_A = +25°C.

For temperatures above +25°C, the current doubles every 10°C.

³Matching is defined as the difference between parameters of the two amplifiers.

3.2.1 Functional Block Diagram and Terminal Assignments.

Top View



3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group (85).

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).

