1.0 SCOPE

1.1 Scope.

This specification covers the detail requirements for a high-speed, wide-bandwidth operational amplifier.

It is highly recommended that this data sheet be used as a baseline for new military or aerospace spec control drawings.

1.2 Part Number. The complete part numbers per table I of this specification follow:

Device	Part Number	PACKAGE
A	OP-64AJ/883	J
A	OP-64AZ/883	Z
A	OP-64ARC/883	RC

1.2.3 Case Outline. The case outline is designated as follows:

Letter	Case Outline (Lead Finish per MIL-STD-38510)
J	8-lead metal can (TO-99)
Z	8-lead ceramic dual-in-line package
RC	20-contact, hermetic, leadless chip carrier (LCC)

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

Supply Voltage ..... ±18V
Differential Input Voltage 20V
Input Voltage ..... Supply Voltage
DISABLE Input Voltage ..... Supply Voltage
Output Short-Circuit Duration ..... 10 Seconds
Storage Temperature ..... -65°C to +175°C
Lead Temperature (soldering, 60 sec) ..... +300°C
Operating Temperature Range ..... -55°C to +125°C
Maximum Junction Temperature ..... +175°C

(Cont'd)

1.5 Thermal Characteristics:

Thermal Resistance, TO-99 (J) package:

Junction-to-Case (Θ_{JC}) = 45°C/W MAX
Junction-to-Ambient (Θ_{JA}) = 150°C/W MAX

Thermal Resistance, CERDIP (Z) package:

Junction-to-Case (Θ_{JC}) = 26°C/W MAX
Junction-to-Ambient (Θ_{JA}) = 119°C/W MAX

Thermal Resistance, LCC (RC) package:

Junction-to-Case (Θ_{JC}) = 30°C/W MAX
Junction-to-Ambient (Θ_{JA}) = 120°C/W MAX

TABLE 1

$V_S = \pm 15V$; $R_S = 50\Omega$; $V_{CM} = 0V$; $T_J = T_A = +25°C$ unless otherwise noted.

Characteristic	Symbol	Special Conditions	OP-64/883 LIMITS MIN	MAX	Units
Input Offset Voltage	V_{OS}		--	1.0	mV
		$-55°C \le T_A \le +125°C$	--	2.0	
Input Offset Current	I_{OS}		--	1	µA
		$-55°C \le T_A \le +125°C$	--	2	
Input Bias Current	I_B		--	1	µA
		$-55°C \le T_A \le +125°C$	--	2	
Common Mode Rejection (Note 1)	CMR	V_{CM} = IVR = ±11V	90	--	dB
		V_{CM} = IVR = ±11V, $-55°C \le T_A \le +125°C$	86	--	
Power Supply Rejection Ratio	PSRR	V_S = ±5V to ±18V			
		V_S = ±5V to ±18V, $-55°C \le T_A \le +125°C$	--	17.8	µV/V
			--	31.6	
Output Voltage Swing	V_O	$R_L = 2k\Omega$	±11.0	--	V
		$R_L = 2k\Omega$, $-55°C \le T_A \le +125°C$	±11.0	--	
		$R_L = 200\Omega$	±10	--	V
		$R_L = 200\Omega$, $-55°C \le T_A \le +125°C$	±7.5	--	
Supply Current	I_{SY}	V_O = 0V, No Load	--	8	mA
		V_O = 0V, No Load, $-55°C \le T_A \le +125°C$	--	8.5	
DISABLE Supply Current	$I_{SY\,\overline{DIS}}$	$\overline{DISABLE}$ = 0V	--	1	mA
Slew Rate	SR	A_{VCL} = +5, (Note 2)	130	--	V/µs

TABLE 1 (Cont'd)

$V_S = \pm 15V$; $R_S = 50\Omega$; $V_{CM} = 0V$; $T_J = T_A = +25°C$ unless otherwise noted.

Characteristic	Symbol	Special Conditions	OP-64/883 LIMITS MIN	MAX	Units
Large Signal Voltage Gain	A_{VO}	$V_O = \pm 10V$			
		$R_L = 2k\Omega$	30	--	V/mV
		$R_L = 2k\Omega$, $-55°C \le T_A \le +125°C$	20	--	
		$V_O = \pm 5V$			
		$R_L = 200\Omega$	12.5	--	V/mV
		$R_L = 200\Omega$, $-55°C \le T_A \le +125°C$	7.5	--	

NOTES:

1. IVR is defined as the V_{CM} range used for the CMR test.
2. Effective load resistance is 1kΩ which is the parallel combination of the feedback resistance (2kΩ) and the load resistance (2kΩ).

TABLE 2

OP-64/883

Electrical Test Requirements
For Class B Devices

MIL-STD-883 Test Requirement	Subgroups (see Table 3)
Interim Electrical Parameters (pre Burn-In)	1
Final Electrical Test Parameters	1*, 2, 3, 4, 5, 6, 7
Group A Test Requirements	1, 2, 3, 4, 5, 6, 7

* PDA applies to Subgroup 1 only.
No other Subgroups are included in PDA.

TABLE 3

Group A Inspection

V_S = ±15V; R_S = 50Ω; V_{CM} = 0V; $T_J = T_A$ = +25°C unless otherwise noted.

Subgroup	Symbol	Special Conditions	OP-64/883 LIMITS MIN	MAX	Units
Subgroup 1 T_A = +25°C	V_{OS}		--	1.0	mV
	I_B		--	1	µA
	I_{OS}		--	1	µA
	CMR	V_{CM} = ±11V	90	--	dB
	PSRR	V_S = ±10V, ±20V	--	17.8	µV/V
	I_{SY}	V_O = 0V, No Load	--	8	mA
	$I_{SY\,\overline{DIS}}$	$\overline{DISABLE}$ = 0V	--	1	mA
Subgroup 2 T_A = +125°C	V_{OS}		--	2.0	mV
	I_B		--	2	µA
	I_{OS}		--	2	µA
	CMR	V_{CM} = ±11V	86	--	dB
	PSRR	V_S = ±5V, ±18V	--	31.6	µV/V
	I_{SY}	V_O = 0V, No Load	--	8.5	mA

TABLE 3

Group A Inspection

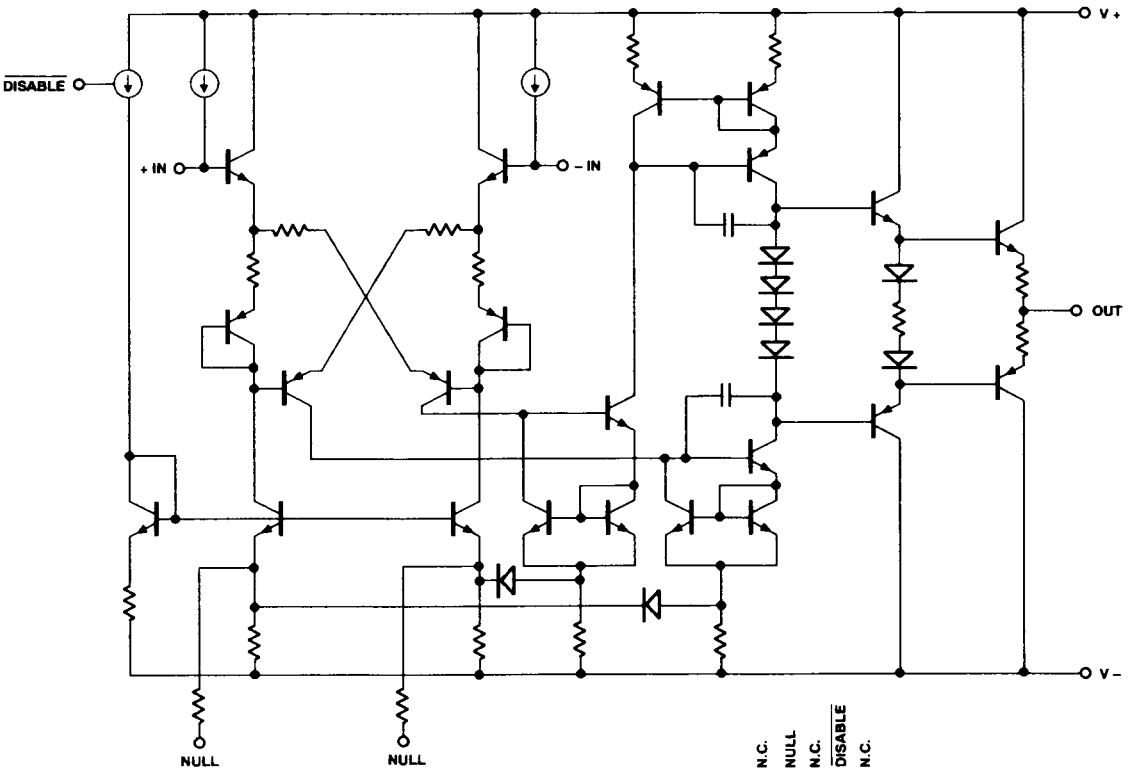
$V_S = \pm 15V$; $R_S = 50\Omega$; $V_{CM} = 0V$; $T_J = T_A = +25°C$ unless otherwise noted.

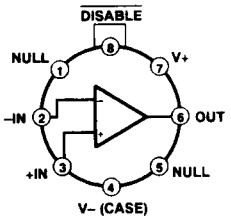
Subgroup	Symbol	Special Conditions	OP-64/883 LIMITS MIN	MAX	Units
Subgroup 3 T_A = -55°C		All tests, limits and conditions are the same as for Subgroup 2			
Subgroup 4 T_A = +25°C	V_O	$R_L = 2k\Omega$ $R_L = 200\Omega$	±11.0 ±10	-- --	V
	A_{VO}	$V_O = \pm 10V$, $R_L = 2k\Omega$ $V_O = \pm 5V$, $R_L = 200\Omega$	30 12.5	-- --	V/mV
Subgroup 5 T_A = +125°C	V_O	$R_L = 2k\Omega$ $R_L = 200\Omega$	±11.0 ±7.5	-- --	V
	A_{VO}	$V_O = \pm 10V$, $R_L = 2k\Omega$ $V_O = \pm 5V$, $R_L = 200\Omega$	20 7.5	-- --	V/mV
Subgroup 6 T_A = -55°C		All tests, limits and conditions are the same as for Subgroup 5			
Subgroup 7 T_A = +25°C	SR	A_{VCL} = +5 (Note 1)	130	--	V/μs

NOTES:

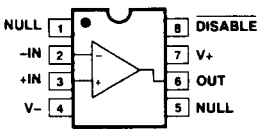
1. Effective load resistance is 1kΩ which is the parallel combination of the feedback resistance (2kΩ) and the load resistance (2kΩ).

3.2.1 Simplified Schematic and Pin Connections

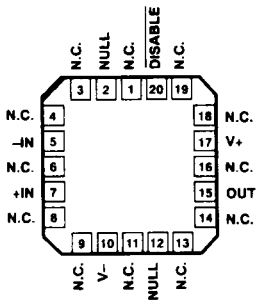




TO-99
(J-Suffix)



8-PIN CERDIP
(Z-Suffix)



20-LEAD HERMETIC LCC
(RC-Suffix)

3.2.4 Microcircuit Group Assignment. This microcircuit is covered by microcircuit group 80.

4.2 Life Test/Burn-In Circuit. Pinout shown for DIP package.