FAIRCHILD
A Schlumberger Company

MIL-STD-883
July 1986—Rev 1[5]

μA760QB High Speed Differential Comparator

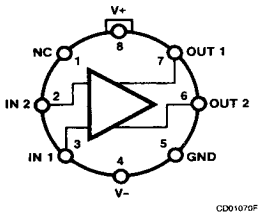
Aerospace and Defense Data Sheet
Linear Products

Description

The μA760QB is a differential voltage comparator offering considerable speed improvement over the μA710QB and operates from symmetric supplies of ±4.5 V to ±6.5 V. The μA760QB can be used in high speed analog-to-digital conversion systems and as a zero crossing detector in disc file and tape amplifiers. The μA760QB output features balanced rise and fall times for minimum skew and close matching between the complementary outputs. The outputs are TTL compatible with a minimum sink capability of two gate loads.[6]

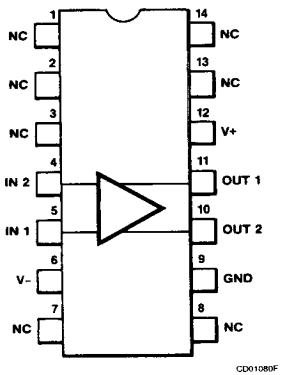
- **Guaranteed High Speed**
- **Guaranteed Delay Matching On Both Outputs**
- **Complementary TTL Compatible Outputs**
- **High Sensitivity**
- **Standard Supply Voltages**

Connection Diagram 8-Lead Can (Top View)



Lead 4 connected to case.

Connection Diagram 14-Lead DIP (Top View)



Order Information

Part No.	Case/ Finish	Package Code Mil-M-38510, Appendix C
μA760DMQB	CA	D-1 (14-Lead DIP)
μA760HMQB	GC	A-1 (8-Lead Can)

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Absolute Maximum Ratings

Storage Temperature Range	−65°C to 175°C
Operating Temperature Range	−55°C to 125°C
Lead Temperature (soldering, 60 s)	300°C
Internal Power Dissipation[9]	
Can	330 mW
DIP	400 mW
Supply Voltage	±8 V
Peak Output Current	10 mA
Differential Input Voltage	±5 V
Input Voltage[10]	±8 V

Notes

1. 100% Test and Group A
2. Group A
3. Periodic tests, Group C
4. Guaranteed but not tested
5. When changes occur, FSC will make data sheet revisions available. Contact local sales representative for the latest revision.
6. For more information on device function, refer to the Fairchild Linear Data Book Commercial Section.
7. Response time measured from the 50% point of a 30 mV_{p-p} 10 MHz sinusoidal input to the 50% point of the output.
8. Response time measured from the 50% point of a 2 V_{p-p} 10 MHz sinusoidal input to the 50% point of the output.
9. Rating applies to ambient temperatures up to 125°C. Above 125°C ambient, derate linearly at 150°C/W for the Can and 120°C/W for the DIP.
10. For supply voltages less than ±8 V, the absolute maximum input voltage is equal to the supply voltage.

Processing: MIL-STD-883, Method 5004

Burn-In: Method 1015, Condition A, PDA calculated using Method 5005, Subgroup 1

Quality Conformance Inspection: MIL-STD-883, Method 5005

Group A Electrical Tests Subgroups:

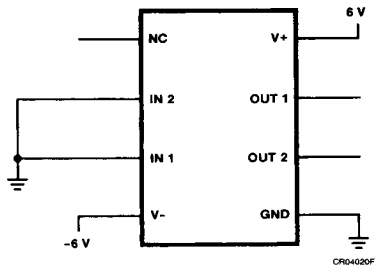
1. Static tests at 25°C
2. Static tests at 125°C
3. Static tests at −55°C
9. AC tests at 25°C

Group C and D Endpoints: Group A, Subgroup 1

μA760QB
Electrical Characteristics $\pm 4.5\ V \leq V_{CC} \leq \pm 6.5\ V$, unless otherwise specified.

Symbol	Characteristic	Condition	Min	Max	Unit	Note	Subgrp
V_{IO}	Input Offset Voltage	$R_S = 50\ \Omega$		6.0	mV	1	1,2,3
I_{IO}	Input Offset Current			7.5	μA	1	1,2,3
I_{IB}	Input Bias Current			60	μA	1	1,2,3
V_{IR}	Input Voltage Range	$V_{CC} = \pm 6.5\ V$	±4.0		V	1	1,2,3
V_{OH}	Output Voltage HIGH (either output)	$V_{CC} = \pm 5.0\ V$, $0\ mA \leq I_{OH} \leq 5.0\ mA$	2.4		V	1	1,2,3
		$V_{CC} = \pm 4.5\ V$, $I_{OH} = 80\ \mu A$	2.4		V	1	1,2,3
V_{OL}	Output Voltage LOW (either output)	$I_{OL} = 3.2\ mA$		0.4	V	1	1,2,3
I+	Positive Supply Current	$V_{CC} = \pm 6.5\ V$		32	mA	1	1,2,3
I–	Negative Supply Current	$V_{CC} = \pm 6.5\ V$		16	mA	1	1,2,3
t_{PD}	Response Time[7]			30	ns	2	9
t_{PD}	Response Time[8]			25	ns	2	9
	Response Time Difference Between Outputs[7]						
Δt_{PD}	(t_{PD} of $+V_{I1}$) – (t_{PD} of $-V_{I2}$)			5.0	ns	2	9
Δt_{PD}	(t_{PD} of $+V_{I2}$) – (t_{PD} of $-V_{I1}$)			5.0	ns	2	9
Δt_{PD}	(t_{PD} of $+V_{I1}$) – (t_{PD} of $+V_{I2}$)			7.5	ns	2	9
Δt_{PD}	(t_{PD} of $-V_{I1}$) – (t_{PD} of $-V_{I2}$)			7.5	ns	2	9

Primary Burn-In Circuit



Equivalent Circuit