FAIRCHILD
A Schlumberger Company

MIL-STD-883
July 1986—Rev 1[5]

μA715QB High Speed Operational Amplifier

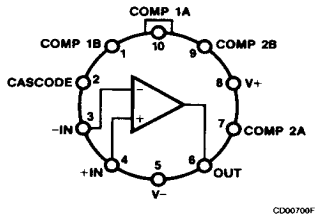
Aerospace and Defense Data Sheet
Linear Products

Description

The μA715QB is a high speed, high gain, monolithic operational amplifier constructed using the Fairchild Planar Epitaxial process. It is intended for use in a wide range of applications where fast signal acquisition or wide bandwidth is required. The μA715QB features fast settling time, high slew rate, low offsets and high output swing for large signal applications. In addition, the device displays excellent temperature stability and will operate over a wide range of supply voltages. The μA715QB is ideally suited for use in A/D and D/A converters, active filters, deflection amplifiers, video amplifiers, phase-locked loops, multiplexed analog gates, precision comparators, sample-and-holds, and general feedback applications requiring DC wide bandwidth operation.[6]

- **High Slew Rate**
- **Fast Settling Time**
- **Wide Bandwidth**
- **Wide Operating Supply Range**
- **Wide Input Voltage Ranges**

Connection Diagram 10-Lead Can (Top View)



Lead 5 connected to case.

Order Information

Part No.	Case/ Finish	Package Code Mil-M-38510, Appendix C
μA715HMQB	IC	A-2 10-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	350 mW
Supply Voltage	±18 V
Differential Input Voltage	±15 V
Input Voltage[10]	±15 V

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
4. Dynamic tests at 25°C
5. Dynamic tests at 125°C
6. Dynamic tests at −55°C
9. AC tests at 25°C

Group C and D Endpoints: Group A, Subgroup 1

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. P_c is guaranteed by I_{CC}: $P_c = 30\ I_{CC}$.
8. V_{IR} is guaranteed by the CMR test.
9. Rating applies to ambient temperatures up to 125°C. Above 125°C ambient, derate linearly at 140°C/W.
10. For supply voltages less than ±15 V, the absolute maximum input voltage is equal to the supply voltage.

μA715QB
Electrical Characteristics $V_{CC} = \pm 15$ V, unless otherwise specified.

Symbol	Characteristic		Condition	Min	Max	Unit	Note	Subgrp
V_{IO}	Input Offset Voltage		$R_S = 50\ \Omega$, $V_{CM} = 0$ V		5.0	mV	1	1
					7.5	mV	1	2,3
I_{IO}	Input Offset Current		$V_{CM} = 0$ V		250	nA	1	1,2
					800	nA	1	3
I_{IB}	Input Bias Current		$V_{CM} = 0$ V		750	nA	1	1,2
					4.0	μA	1	3
I_{CC}	Supply Current				7.0	mA	1	1
P_c	Power Consumption[7]				210	mW	1	1
CMR	Common Mode Rejection		$V_{CM} = \pm 10$ V, $R_S = 10$ kΩ	74		dB	1	1,2,3
V_{IR}	Input Voltage Range[8]			±10		V	1	1,2,3
PSRR	Power Supply Rejection Ratio		± 7.0 V $\leqslant V_{CC} \leqslant \pm 18$ V, $R_S = 10$ kΩ		300	μV/V	1	1,2,3
A_{VS}	Large Signal Voltage Gain		$V_O = \pm 10$ V, $R_L = 2.0$ kΩ	15		V/mV	1	4
				10		V/mV	1	5,6
V_{OP}	Output Voltage Swing		$R_L = 2.0$ kΩ	±10		V	1	4,5,6
$TR(t_r)$	Transient Response	Rise Time	$V_I = 400$ mV, $A_V = 1.0$		60	ns	2	9
$TR(o_s)$		Overshoot			40	%	2	9
SR	Slew Rate		$A_V = 1.0$	15		V/μs	2	9

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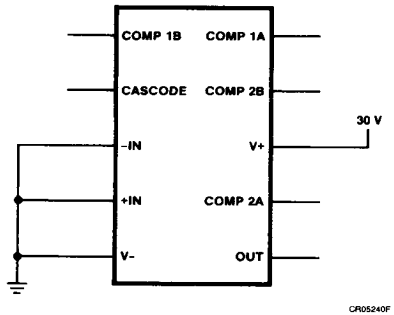
Primary Burn-In Circuit



Equivalent Circuit