

μ A9616HQB Triple Line Driver

MIL-STD-883
July 1986—Rev 2⁵

Aerospace and Defense Data Sheet
Linear Products

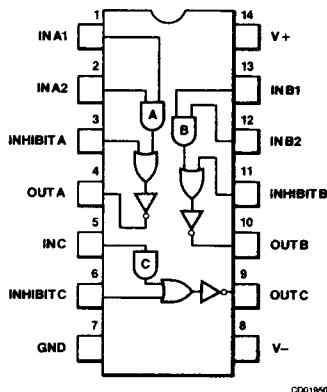
Description

The μ A9616HQB is a triple line driver which meets the electrical interface specifications of EIA RS-232-C and CCITT V.24 and/or MIL-STD-188C. Each driver converts TTL/DTL logic levels to EIA/CCITT and/or MIL-STD-188C logic levels for transmission between data terminal equipment and data communications equipment. The output slew rate is internally limited and can be lowered by an external capacitor; all output currents are short circuit limited. The outputs are protected against RS-232-C fault conditions. A logic HIGH on the inhibit terminal interrupts signal transfer and forces the output to a V_{OL} (EIA/CCITT MARK) state.

For the complementary function, see the μ A9627QB Dual EIA RS-232-C and MIL-STD-188C Line Receiver.⁶

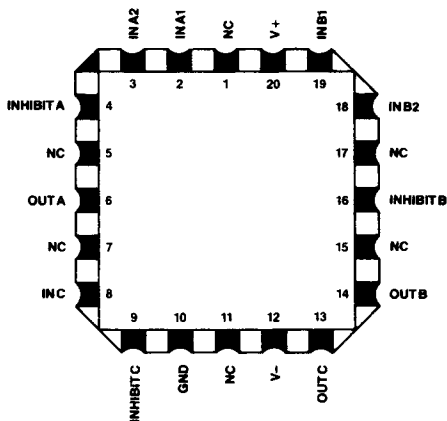
- Internal Slew Rate Limiting
- Meets EIA RS-232-C And CCITT V.24 And/Or MIL-STD-188C
- Logic True Inhibit Function
- Output Short Circuit Current-Limiting
- Output Voltage Levels Independent Of Supply Voltages

Connection Diagram 14-Lead DIP (Top View)



CD01950F

Connection Diagram 20-Terminal CCP (Top View)



CD01950F

Order Information

Part No.	Case/ Finish	Package Code
μ A9616HDMQB	CA	D-1 14-Lead DIP
μ A9616HLMQB	2C	C-2 20-Terminal CCP

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 ¹⁰	
DIP and CCP	400 mW
Supply Voltage	±15 V
Input or Inhibit Voltage	-1.5 V to +6.0 V
Output Signal Voltage	±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:

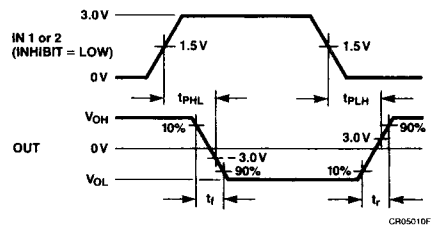
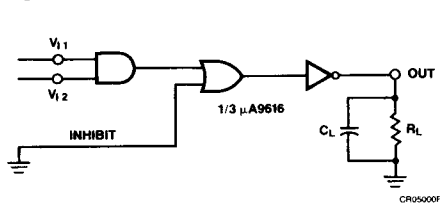
1. Static tests at 25°C
2. Static tests at 125°C
3. Static tests at -55°C
9. AC tests at 25°C
10. AC tests at 125°C
11. AC tests at -55°C

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. V_{IH} and V_{IL} are guaranteed by the V_{OH} and V_{OL} tests.
8. All input and supply leads are grounded.
9. An external capacitor may be needed to meet signal wave shaping requirements of MIL-STD-188C at the applicable modulation rate. No external capacitor is needed to meet RS-232-C.
10. Rating applies to ambient temperatures up to 125°C. Above 125°C ambient, derate linearly at 120°C/W.

Figure 1 Switching Time Test Circuit and Waveforms



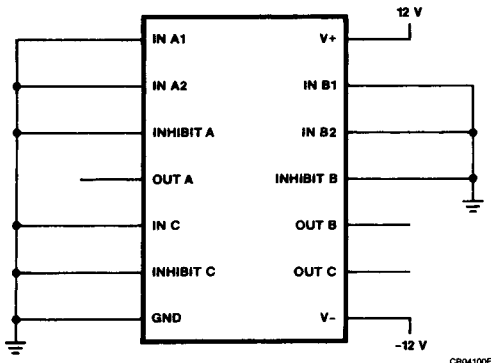
Omit V_{I2} for channel 'C'.
 Input: PRR = 50 kHz
 Pulse Width = 20 μs
 $t_r = t_f = 10 \pm 5.0$ ns

μA9616HQB

Electrical Characteristics $\pm 10.8 \text{ V} \leq V_{CC} \leq \pm 13.2 \text{ V}$, $R_L = 3.0 \text{ k}\Omega$, unless otherwise specified.

Symbol	Characteristic	Condition	Min	Max	Unit	Note	Subgrp
V_{OH}	Output Voltage HIGH	V_{I1} and/or $V_{I2} = V_{INHIBIT} = 0.8 \text{ V}$	5.0	7.0	V	1	1,2,3
V_{OL}	Output Voltage LOW	$V_{I1} = V_{I2} = V_{INHIBIT} = 2.0 \text{ V}$	-7.0	-5.0	V	1	1,2,3
V_{OH} to V_{OL}	Output Voltage HIGH to Output Voltage LOW Magnitude Matching Error			± 10	%	1	1,2,3
I_{OS+}	Positive Output Short Circuit Current	$R_L = 0 \text{ }\Omega$, V_{I1} and/or $V_{I2} = V_{INHIBIT} = 0.8 \text{ V}$	-45	-12	mA	1	1,2,3
I_{OS-}	Negative Output Short Circuit Current	$R_L = 0 \text{ }\Omega$, $V_{I1} = V_{I2} = V_{INHIBIT} = 2.0 \text{ V}$	12	60	mA	1	1,2,3
V_{IH}	Input Voltage HIGH ⁷		2.0		V	1	1,2,3
V_{IL}	Input Voltage LOW ⁷			0.8	V	1	1,2,3
I_{IH}	Input Current HIGH	$V_{I1} = V_{I2} = 2.4 \text{ V}$		40	μA	1	1,2,3
		$V_{I1} = V_{I2} = 5.5 \text{ V}$		1.0	mA	1	1,2,3
I_{IL}	Input Current LOW	$V_{I1} = V_{I2} = 0.4 \text{ V}$	-1.6		mA	1	1,2,3
$I+$	Positive Supply Current	$V_{I1} = V_{I2} = V_{INHIBIT} = 0.8 \text{ V}$		25	mA	1	1,2,3
		$V_{I1} = V_{I2} = V_{INHIBIT} = 2.0 \text{ V}$		15	mA	1	1,2,3
$I-$	Negative Supply Current	$V_{I1} = V_{I2} = V_{INHIBIT} = 0.8 \text{ V}$	-1.0		mA	1	1,2,3
		$V_{I1} = V_{I2} = V_{INHIBIT} = 2.0 \text{ V}$	-25		mA	1	1,2,3
R_O	Output Resistance, Power Off ⁸	$-2.0 \text{ V} \leq V_O \leq 0.5 \text{ V}$	300		Ω	1	1,2,3
SR+	Positive Slew Rate ⁹	$C_L = 2500 \text{ pF}$, $R_L = 3.0 \text{ k}\Omega$ (See Fig. 1)	4.0	30	V/ μs	1	9
			4.0	30	V/ μs	2	10,11
SR-	Negative Slew Rate ⁹	$C_L = 2500 \text{ pF}$, $R_L = 3.0 \text{ k}\Omega$ (See Fig. 1)	-30	-4.0	V/ μs	1	9
			-30	-4.0	V/ μs	2	10,11

Primary Burn-In Circuit



Equivalent Circuit (1/3 of circuit)

