

DM7417

Hex Buffers with High Voltage Open-Collector Outputs

General Description

This device contains six independent gates each of which performs a buffer function. The open-collector outputs require external pull-up resistors for proper logical operation.

Pull-Up Resistor Equations

$$R_{MAX} = \frac{V_O (Min) - V_{OH}}{N_1 (I_{OH}) + N_2 (I_{IH})}$$

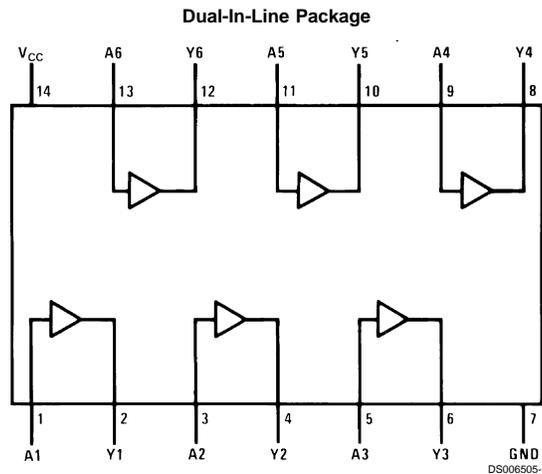
$$R_{MIN} = \frac{V_O (Max) - V_{OL}}{I_{OL} - N_3 (I_{IL})}$$

Where: $N_1 (I_{OH})$ = total maximum output high current for all outputs tied to pull-up resistor

$N_2 (I_{IH})$ = total maximum input high current for all inputs tied to pull-up resistor

$N_3 (I_{IL})$ = total maximum input low current for all inputs tied to pull-up resistor

Connection Diagram



Order Number DM5417J, DM5417W or DM7417N
See Package Number J14A, N14A or W14B

Function Table

Y = A

Input	Output
A	Y
L	L
H	H

H = High Logic Level
L = Low Logic Level

Absolute Maximum Ratings (Note 1)

Supply Voltage	7V
Input Voltage	5.5V
Output Voltage	15V

Operating Free Air Temperature Range

DM54	-55°C to +125°C
DM74	0°C to +70°C
Storage Temperature Range	-65°C to +150°C

Recommended Operating Conditions

Symbol	Parameter	DM5417			DM7417			Units
		Min	Nom	Max	Min	Nom	Max	
V _{CC}	Supply Voltage	4.5	5	5.5	4.75	5	5.25	V
V _{IH}	High Level Input Voltage	2			2			V
V _{IL}	Low Level Input Voltage			0.8			0.8	V
V _{OH}	High Level Output Voltage			15			15	V
I _{OL}	Low Level Output Current			30			40	mA
T _A	Free Air Operating Temperature	-55		125	0		70	°C

Note 1: The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the "Electrical Characteristics" table are not guaranteed at the absolute maximum ratings. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

Electrical Characteristics

over recommended operating free air temperature range (unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ (Note 2)	Max	Units
V _I	Input Clamp Voltage	V _{CC} = Min, I _I = -12 mA			-1.5	V
I _{CEX}	High Level Output Current	V _{CC} = Min, V _O = 15V V _{IH} = Min			250	μA
V _{OL}	Low Level Output Voltage	V _{CC} = Min, I _{OL} = Max V _{IL} = Max			0.7	V
		I _{OL} = 16 mA, V _{CC} = Min			0.4	
I _I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 5.5V			1	mA
I _{IH}	High Level Input Current	V _{CC} = Max, V _I = 2.4V			40	μA
I _{IL}	Low Level Input Current	V _{CC} = Max, V _I = 0.4V			-1.6	mA
I _{CCH}	Supply Current with Outputs High	V _{CC} = Max		29	41	mA
I _{CCL}	Supply Current with Outputs Low	V _{CC} = Max		21	30	mA

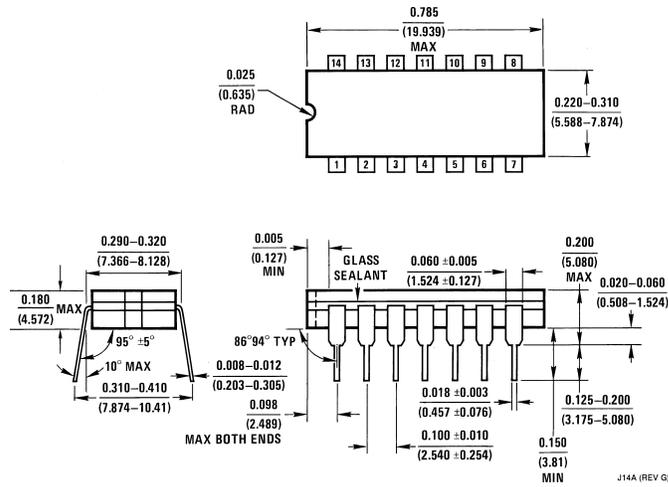
Switching Characteristics

at V_{CC} = 5V and T_A = 25°C

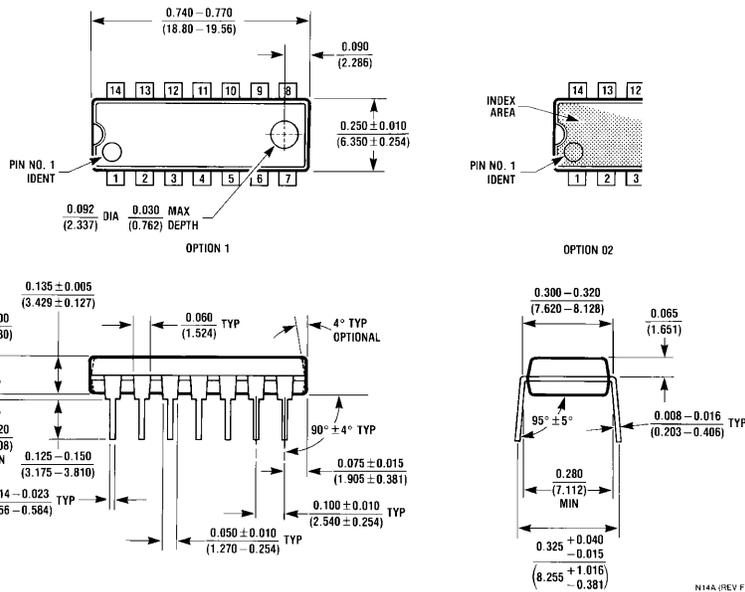
Symbol	Parameter	Conditions	Min	Max	Units
t _{PLH}	Propagation Delay Time Low to High Level Output	C _L = 15 pF R _L = 110Ω		10	ns
t _{PHL}	Propagation Delay Time High to Low Level Output				30

Note 2: All typicals are at V_{CC} = 5V, T_A = 25°C.

Physical Dimensions inches (millimeters) unless otherwise noted

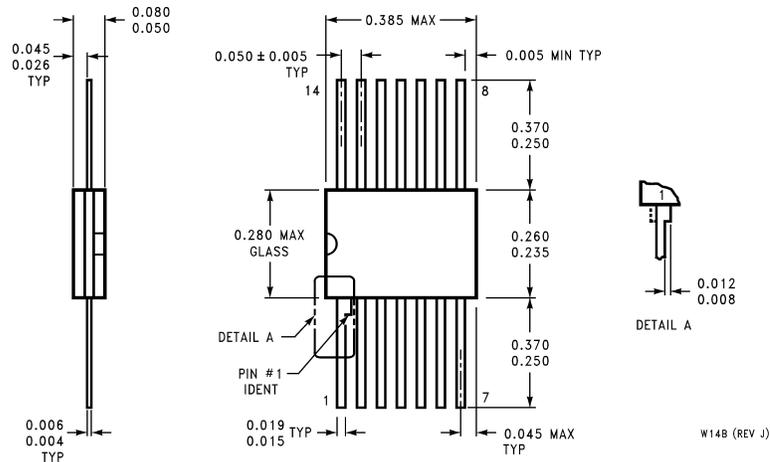


14-Lead Ceramic Dual-In-Line Package (J)
Order Number DM5417J
Package Number J14A



14-Lead Molded Dual-In-Line Package (N)
Order Number DM7417N
Package Number N14A

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



14-Lead Ceramic Flat Package (W)
Order Number DM5417W
Package Number W14B

W14B (REV J)

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Fairchild Semiconductor Corporation Americas
 Customer Response Center
 Tel: 1-888-522-5372

Fairchild Semiconductor Europe
 Fax: +49 (0) 1 80-530 85 86
 Email: europe.support@nsc.com
 Deutsch Tel: +49 (0) 8 141-35-0
 English Tel: +44 (0) 1 793-85-68-56
 Italy Tel: +39 (0) 2 57 5631

Fairchild Semiconductor Hong Kong Ltd.
 13th Floor, Straight Block,
 Ocean Centre, 5 Canton Rd.
 Tsimshatsui, Kowloon
 Hong Kong
 Tel: +862 2737-7200
 Fax: +852 2314-0061

National Semiconductor Japan Ltd.
 Tel: 81-3-5620-6175
 Fax: 81-3-5620-6179

www.fairchildsemi.com