

June 1989

5432/DM5432/DM7432 Quad 2-Input OR Gates

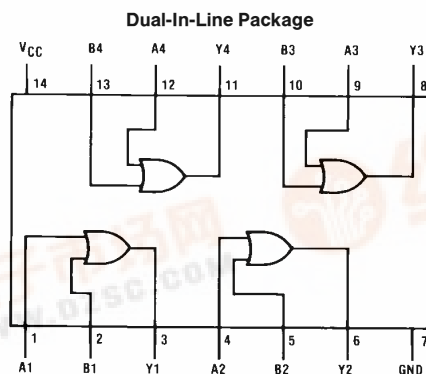
General Description

This device contains four independent gates each of which performs the logic OR function.

Features

- Alternate Military/Aerospace device (5432) is available. Contact a National Semiconductor Sales Office/Distributor for specifications.

Connection Diagram



TL/F/6511-1

Order Number 5432DMQB, 5432FMQB, DM5432J, DM5432W or DM7432N
See NS Package Number J14A, N14A or W14B

Function Table

$$Y = A + B$$

Inputs		Output
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	H

H = High Logic Level

L = Low Logic Level

5432/DM5432/DM7432 Quad 2-Input OR Gates



Absolute Maximum Ratings (Note)

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage	7V
Input Voltage	5.5V
Operating Free Air Temperature Range	
DM54 and 54	−55°C to +125°C
DM74	0°C to +70°C
Storage Temperature Range	−65°C to +150°C

Note: 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.

Recommended Operating Conditions

Symbol	Parameter	DM5432			DM7432			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
I _{OH}	High Level Output Current			−0.8			−0.8	mA
I _{OL}	Low Level Output Current			16			16	mA
T _A	Free Air Operating Temperature	−55		125	0		70	°C

Electrical Characteristics

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

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V _I	Input Clamp Voltage	V _{CC} = Min, I _I = −12 mA			−1.5	V
V _{OH}	High Level Output Voltage	V _{CC} = Min, I _{OH} = Max V _{IH} = Min	2.4	3.4		V
V _{OL}	Low Level Output Voltage	V _{CC} = Min, I _{OL} = Max V _{IL} = Max		0.2	0.4	V
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 _{OS}	Short Circuit Output Current	V _{CC} = Max (Note 2)	DM54 −20 DM74 −18		−55 −55	mA
I _{CCH}	Supply Current with Outputs High	V _{CC} = Max		15	22	mA
I _{CCL}	Supply Current with Outputs Low	V _{CC} = Max		23	38	mA

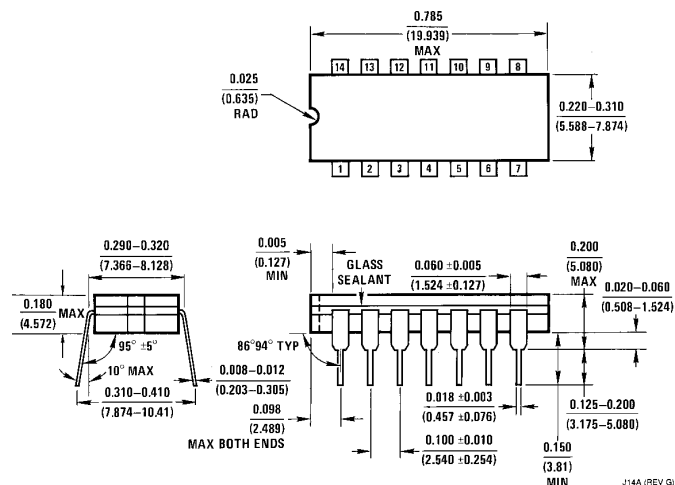
Switching Characteristics at V_{CC} = 5V and T_A = 25°C (See Section 1 for Test Waveforms and Output Load)

Symbol	Parameter	Conditions	Min	Max	Units
t _{PLH}	Propagation Delay Time Low to High Level Output	C _L = 15 pF R _L = 400Ω		15	ns
t _{PHL}	Propagation Delay Time High to Low Level Output			22	ns

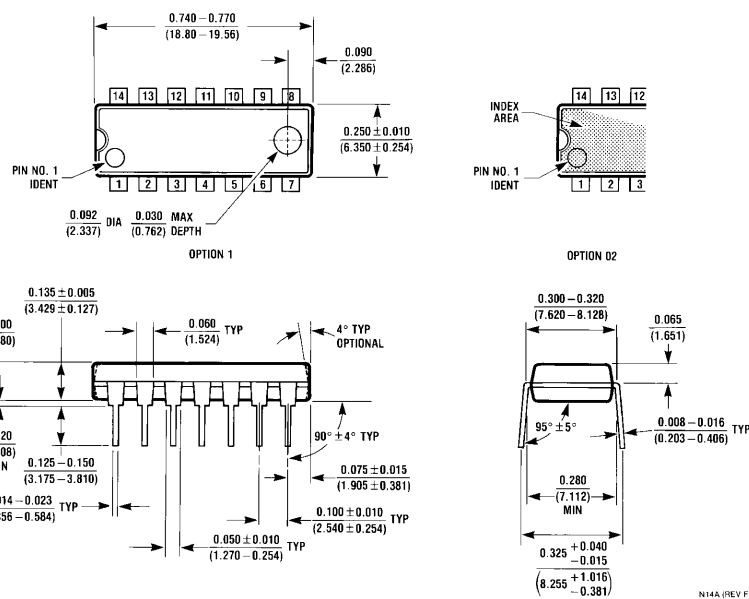
Note 1: All typicals are at V_{CC} = 5V, T_A = 25°C.

Note 2: Not more than one output should be shorted at a time.

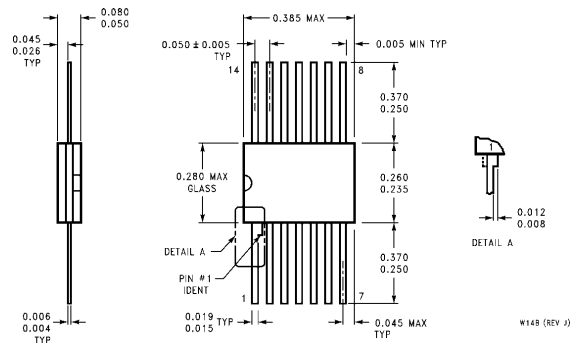
Physical Dimensions inches (millimeters)



14-Lead Ceramic Dual-In-Line Package (J)
Order Number 5432DMQB or DM5432J
NS Package Number J14A



14-Lead Molded Dual-In-Line Package (N)
Order Number DM7432N
NS Package Number N14A

Physical Dimensions inches (millimeters) (Continued)

14-Lead Ceramic Flat Package (W)
Order Number 5432FMB or DM5432W
NS Package Number W148

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