5486/DM5486/DM7486 Quad 2-Input Exclusive-OR Gates

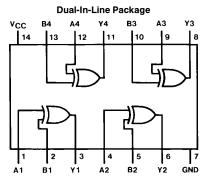
General Description

Features

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

Alternate Military/Aerospace device (5486) is available. Contact a National Semiconductor Sales Office/Distributor for specifications.

Connection Diagram



TL/F/6531-1

Order Number 5486DMQB, 5486FMQB, DM5486J, DM5486W or DM7486N See NS Package Number J14A, N14A or W14B

Function Table

 $Y = A \oplus B$

Inputs		Output		
Α	В	Y		
L	L	L		
L	Н	Н		
Н	L	Н		
Н	Н	L		

 $H \,=\, High\; Logic\; Level$

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		DM5486			DM7486		Units
	i diameter	Min	Nom	Max	Min	Nom	Max	- Cinto
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
Іон	High Level Output Current			-0.8			-0.8	mA
loL	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	
VI	Input Clamp Voltage	V _{CC} = Min, I _I =	- 12 mA			-1.5	V	
V _{OH}	High Level Output Voltage	$V_{CC} = Min, I_{OH} = Max$ $V_{IL} = Max, V_{IH} = Min$		2.4	3.4		V	
V_{OL}	Low Level Output Voltage	$V_{CC} = Min, I_{OL} = Max$ $V_{IH} = Min, V_{IL} = Max$			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	μΑ	
I _{IL}	Low Level Input Current	$V_{CC} = Max, V_I = 0.4V$				-1.6	mA	
los		V _{CC} = Max	DM54	-20		-55	mA	
Output Current	(Note 2)	DM74	-18		-55			
Icch	Supply Current with	V _{CC} = Max	DM54		30	43	mA	
	Outputs High	(Note 3)	DM74		30	50	1 111/4	
I _{CCL}	Supply Current with Outputs Low	V _{CC} = Max (Note 4)			36	57	mA	

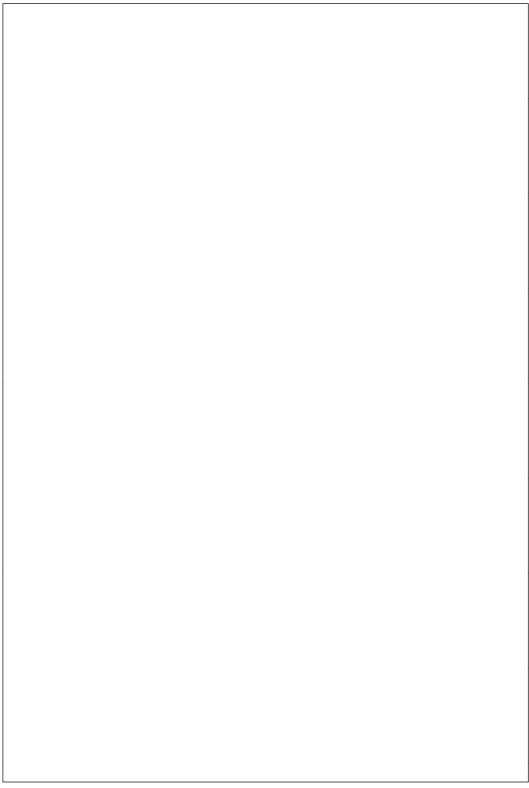
Note 1: All typicals are at $V_{CC} = 5V$, $T_A = 25^{\circ}C$.

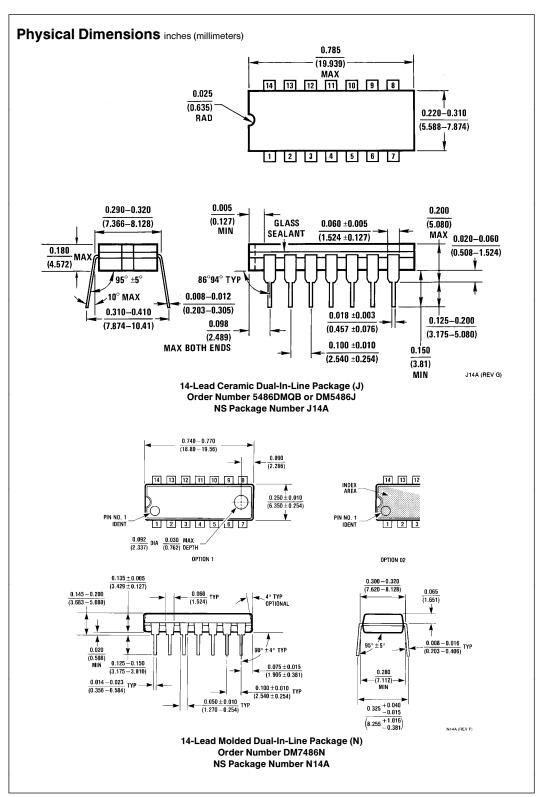
Note 2: Not more than one output should be shorted at a time.

Note 3: I_{CCH} is measured with all outputs open, one input of each gate at 4.5V, and the other inputs grounded.

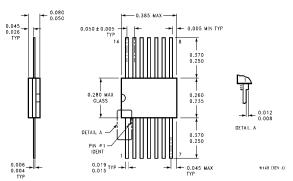
Note 4: $I_{\mbox{\footnotesize{CCL}}}$ is measured with all outputs open, and all inputs at ground.

Symbol	Parameter	Conditions	$C_L = 15 pF$ $R_L = 400 \Omega$		Units
			Min	Max	
t _{PLH}	Propagation Delay Time Low to High Level Output	— Other Input Low		23	ns
t _{PHL}	Propagation Delay Time High to Low Level Output			17	ns
t _{PLH}	Propagation Delay Time Low to High Level Output	Other Input High		30	ns
t _{PHL}	Propagation Delay Time High to Low Level Output	- Carea input riigir		22	ns





Physical Dimensions inches (millimeters) (Continued)



14-Lead Ceramic Flat Package (W)
Order Number 5486FMQB or DM5486W
NS Package Number W14B

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