

T-43-15-00

810



DM74AS810 Quad 2-Input Exclusive-NOR Gate

General Description

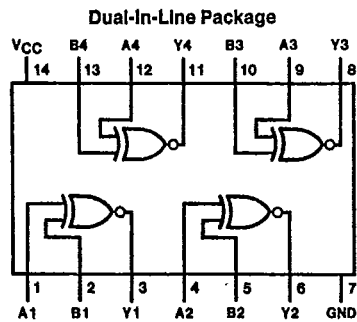
This device contains four independent gates each of which performs the logic exclusive-NOR function.

Features

- Switching specifications at 50 pF
- Switching specifications guaranteed over full temperature and V_{CC} range

- Advanced oxide-isolated, ion-implanted Schottky TTL process
- Functionally and pin for pin compatible with advanced low power Schottky TTL counterpart
- Improved AC performance over advanced low power Schottky counterparts
- PNP input design reduces input loading

Connection Diagram



TL/F/6724-1

Order Number DM74AS810M or DM74AS810N
See NS Package Number M14A or N14A

Function Table

$$\bar{Y} = A \oplus B$$

Inputs		Output
A	B	\bar{Y}
L	L	H
L	H	L
H	L	L
H	H	H

H = High Logic Level, L = Low Logic Level



T-43-15

Absolute Maximum Ratings

Supply Voltage	7V
Input Voltage	7V
Operating Free Air Temperature Range	0°C to +70°C
Storage Temperature Range	-65°C to +150°C
Typical θ_{JA}	
N Package	74.5°C/W
M Package	105.0°C/W

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	Min	Nom	Max	Units
V _{CC}	Supply Voltage	4.5	5	5.5	V
V _{IH}	High Level Input Voltage	2			V
V _{IL}	Low Level Input Voltage			0.8	V
I _{OH}	High Level Output Current			-2	mA
I _{OL}	Low Level Output Current			20	mA
T _A	Free Air Operating Temperature	0		70	°C

Electrical Characteristics over recommended operating free air temperature (unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ (Note 1)	Max	Units
V _I	Input Clamp Voltage	V _{CC} = Min, I _I = -18 mA			-1.2	V
V _{OH}	High Level Output Voltage	V _{CC} = 4.5V to 5.5V I _{OH} = Max	V _{CC} - 2V	3.4		V
V _{OL}	Low Level Output Voltage	V _{CC} = Min, I _{OL} = Max V _{IH} = Min, V _{IL} = Max		0.35	0.5	V
I _I	Input Current @ Max Input Voltage	V _{CC} = Max, V _I = 5.5V			0.1	mA
I _{IH}	High Level Input Current	V _{CC} = Max, V _I = 2.7V			20	μA
I _{IL}	Low Level Input Current	V _{CC} = Max, V _I = 0.5V			-0.5	mA
I _O (Note 4)	Output Drive Current	V _{CC} = Max, V _O = 2.25V	-30		-112	mA
I _{CCH}	Supply Current with Outputs High	V _{CC} = Max (Note 3)		18	26	mA
I _{CCL}	Supply Current with Outputs Low	V _{CC} = Max (Note 2)		25	36	mA

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

Note 2: I_{CCL} is measured with all outputs open, one input of each gate at 4.5V, and the other inputs grounded.

Note 3: I_{CCH} is measured with all outputs open and all inputs at 4.5V.

Note 4: The output conditions have been chosen to produce a current that closely approximates one half of the true short-circuit output current, I_{OS}.

T-43-15

810

Switching Characteristics over recommended operating free air temperature range (Note 1)

Symbol	Parameter	Conditions	Min	Max	Units
t _{PLH}	Propagation Delay Time Low to High Level Output	Other Input Low V _{CC} = 4.5V to 5.5V R _L = 500Ω C _L = 50 pF	1	6.5	ns
t _{PHL}	Propagation Delay Time High to Low Level Output		1	6.5	ns
t _{PLH}	Propagation Delay Time Low to High Level Output	Other Input High V _{CC} = 4.5V to 5.5V R _L = 500Ω C _L = 50 pF	2	7	ns
t _{PHL}	Propagation Delay Time High to Low Level Output		2	7	ns

Note 1: See Section 1 for test waveforms and output load.

