National Semiconductor

DM54126/DM74126 Quad TRI-STATE® Buffers

General Description

This device contains four independent gates each of which performs a non-inverting buffer function. The outputs have the TRI-STATE feature. When enabled, the outputs exhibit the low impedance characteristics of a standard TTL output with additional drive capability at the high logic level to permit the driving of bus lines without external pull-up resistors. When disabled, both the output transistors are turned off presenting a high-impedance state to the bus line. Thus the output will act neither as a significant load nor as a driver. To minimize the possibility that two outputs will attempt to take a common bus to opposite logic levels, the disable time is shorter than the enable time of the outputs.

Absolute Maximum Ratings (Note 1)

Supply Voltage	7V
Input Voltage	5.5V
Storage Temperature Range	−65°C to 150°C

Note 1: The "Absolute Maximum Ratings" are those values beyond which the safety of the device can not 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.

Connection Diagram

Dual-In-Line Package
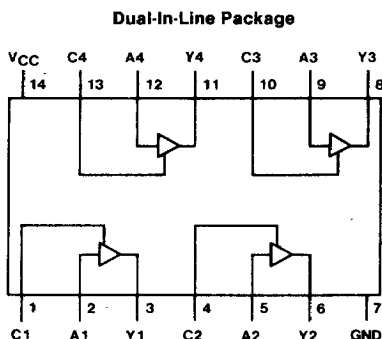
TL/F/6541-1

DM54126 (J)   DM74126 (N)

Function Table

$Y = A$

Input		Output
A	C	Y
L	H	L
H	H	H
X	L	Hi-Z

H = High Logic Level
L = Low Logic Level
X = Either Low or High Logic Level
Hi-Z = TRI-STATE (Outputs are disabled)

Recommended Operating Conditions

Sym	Parameter	DM54126			DM74126			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			−2			−5.2	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 (unless otherwise noted)

Sym	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_{IL} = Max, V_{IH} = Min		2.4	3.3		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	μA
I_{IL}	Low Level Input Current	V_{CC} = Max, V_I = 0.4V				−1.6	mA
I_{IZL}	Off-State Input Current with Low Level Input Voltage Applied	V_{CC} = Max V_I = 0.4V				−40	μA
I_{OZH}	Off-State Output Current with High Level Output Voltage Applied	V_{CC} = Max, V_O = 2.4V V_{IH} = Min, V_{IL} = Max				40	μA
I_{OZL}	Off-State Output Current with Low Level Output Voltage Applied	V_{CC} = Max, V_O = 0.4V V_{IH} = Min, V_{IL} = Max				−40	μA
I_{OS}	Short Circuit Output Current	V_{CC} = Max (Note 2)	DM54	−30		−70	mA
			DM74	−28		−70	
I_{CC}	Supply Current	V_{CC} = Max (Note 3)			36	62	mA

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.

Note 3: I_{CC} is measured with both the output control and data inputs grounded, and outputs open.

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