FAIRCHILD
A Schlumberger Company

μA9643
Dual TTL To MOS/CCD Driver

Linear Division Interface Products

Description

The μA9643 is a dual positive logic "AND" TTL-to-MOS driver. The μA9643 is a functional replacement for the SN75322 with one important exception: the two external PNP transistors are no longer needed for operation. The μA9643 is also a functional replacement for the 75363 with the important exception that the V_{CC3} supply is not needed. The lead connections normally used for the external PNP transistors are purposely not internally connected to the μA9643.

- **Satisfies CCD Memory And Delay Line Requirements**
- **Dual Positive Logic TTL To MOS Driver**
- **Operates From Standard Bipolar And MOS Supply Voltages**
- **High Speed Switching**
- **TTL And DTL Compatible Inputs**
- **Separate Drivers Address Inputs With Common Strobe**
- **V_{OH} And V_{OL} Compatible With Popular MOS RAMs**
- **Does Not Require External PNP Transistors Or V_{CC3}**
- **V_{OH} Minimum Is $V_{CC2} - 0.5$ V**

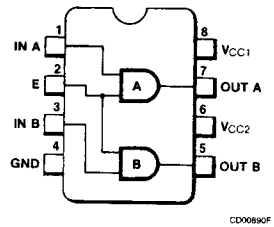
Absolute Maximum Ratings

Storage Temperature Range	−65°C to +150°C
Operating Temperature Range	0°C to +70°C
Lead Temperature	
Molded DIP (soldering, 10 s)	265°C
Internal Power Dissipation[1, 2]	0.93 W
Supply Voltage Range of V_{CC1} [3]	−0.5 V to +7.0 V
Supply Voltage Range of V_{CC2}	−0.5 V to +15 V
Input Voltage	5.5 V
Inter-Input Voltage[4]	5.5 V

Notes

1. $T_{J\ Max}$ = 150°C
2. Ratings apply to ambient temperature at 25°C. Above this temperature, derate at 7.5 mW/°C.
3. Voltage values are with respect to network ground terminals unless otherwise noted.
4. This rating applies between any two inputs of any one of the gates.

Connection Diagram
8-Lead DIP
(Top View)



CD00890F

Order Information

Device Code	Package Code	Package Description
μA9643TC	9T	Molded DIP

Truth Table

INPUT	ENABLE	OUTPUT
L	L	L
L	H	L
H	L	L
H	H	H

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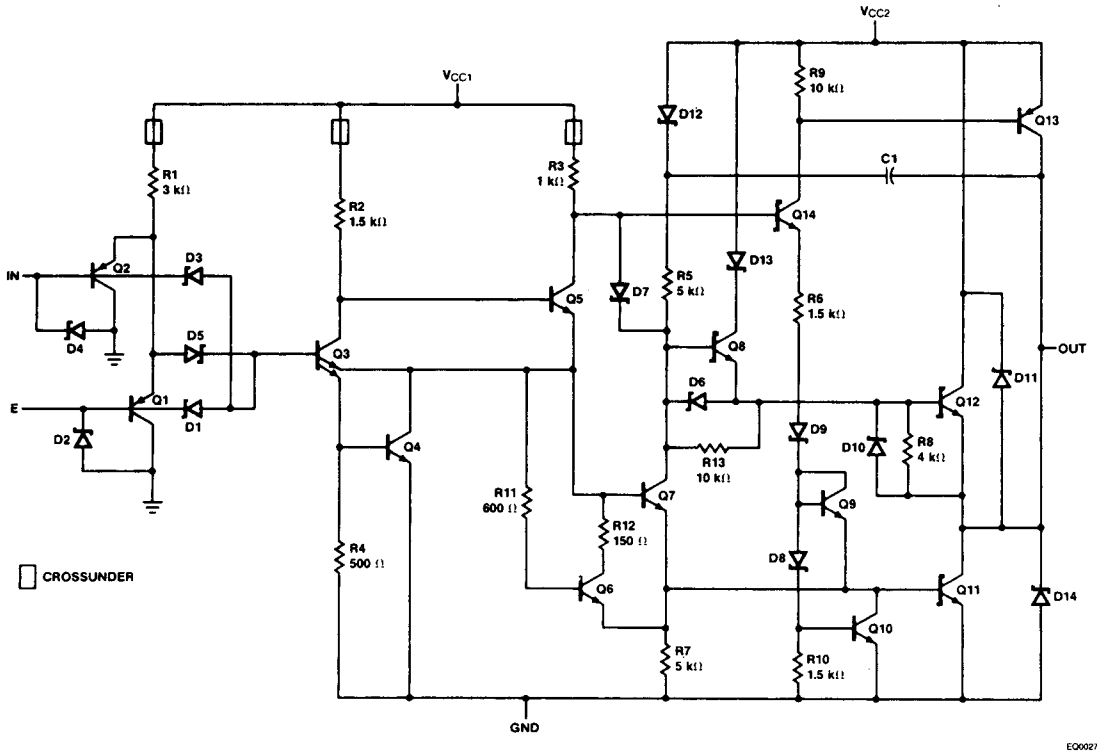
Equivalent Circuit (1/2 of Circuit)



Recommended Operating Conditions

Symbol	Characteristic	Min	Typ	Max	Unit
V_{CC1}	Supply Voltage	4.75	5.0	5.25	V
V_{CC2}	Supply Voltage	11.4	12	12.6	V
T_A	Operating Temperature	0	25	70	°C

μA9643

Electrical Characteristics Over recommended operating temperature and V_{CC1}, V_{CC2} ranges, unless otherwise specified.

DC Characteristics

Symbol	Characteristic	Condition		Min	Typ[1]	Max	Unit
V_{IH}	Input Voltage HIGH			2.0			V
V_{IL}	Input Voltage LOW					0.8	V
V_{OH}	Output Voltage HIGH	$I_{OH} = -400\ \mu A$		$V_{CC2} - 0.5$	$V_{CC2} - 0.2$		V
V_{OL}	Output Voltage LOW	$I_{OL} = 10$ mA			0.4	0.5	V
		$I_{OL} = 1.0$ mA			0.2	0.3	
I_I	Input Current at Maximum Input Voltage	$V_{CC1} = 5.25$ V, $V_{CC2} = 11.4$ V, $V_I = 5.25$ V				0.1	mA
I_{IH}	Input Current HIGH	$V_I = 2.4$ V	A Inputs			40	μA
			E Inputs			80	
I_{IL}	Input Current LOW	$V_I = 0.4$ V	A Inputs			−0.5	mA
			E Inputs			−1.0	
$I_{CC1(L)}$	Supply Current from V_{CC1} All Outputs LOW	$V_{CC1} = 5.25$ V, $V_{CC2} = 12.6$ V			15	19	mA
$I_{CC2(L)}$	Supply Current from V_{CC2} All Outputs LOW	$V_{CC1} = 5.25$ V, $V_{CC2} = 12.6$ V			5.5	9.5	mA
$I_{CC1(H)}$	Supply Current from V_{CC1} All Outputs HIGH	$V_{CC1} = 5.25$ V, $V_{CC2} = 12.6$ V			9.0	13	mA
$I_{CC2(H)}$	Supply Current from V_{CC2} All Outputs HIGH	$V_{CC1} = 5.25$ V, $V_{CC2} = 12.6$ V			5.5	9.5	mA

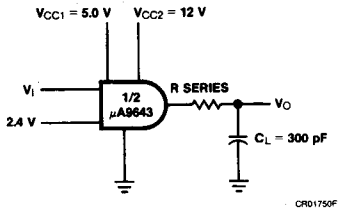
AC Characteristics $V_{CC1} = 5.0$ V, $V_{CC2} = 12$ V, $T_A = 25°C$

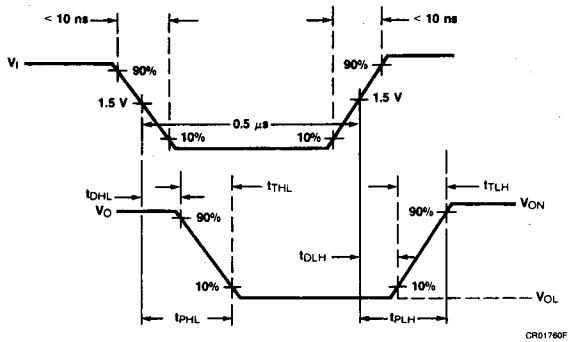
Symbol	Characteristic	Condition		Min	Typ	Max	Unit
t_{DLH}	Delay Time		$C_L = 300$ pF	5.0	9.0	17	ns
t_{DHL}	Delay Time			5.0	9.0	17	ns
t_{TLH}	Rise Time	$R_{SERIES} = 0$	$C_L = 300$ pF	6.0	11	17	ns
t_{THL}	Fall Time			6.0	11	17	ns
t_{TLH}	Rise Time	$R_{SERIES} = 10\ \Omega$	$C_L = 300$ pF	8.0	14	20	ns
t_{THL}	Fall Time			8.0	14	20	ns
t_{PLH_A-} t_{PLH_B} t_{PHL_A-} t_{PHL_B}	Skew between outputs A and B				0.5		ns

Note

1. All typical values are at $V_{CC1} = 5.0$ V, $V_{CC2} = 12.0$ V, and $T_A = 25°C$ unless otherwise noted.

AC Test Circuit and Waveforms





Notes
The pulse generator has the following characteristics:
PRR = 1.0 MHz, Z_0 = 50 Ω
C_L includes probe and jig capacitance.