

9643 • 9644

DUAL TTL TO MOS/CCD DRIVER

FAIRCHILD LINEAR INTEGRATED CIRCUITS

GENERAL DESCRIPTION - The 9643 and 9644 are Dual Positive-Logic "AND" and "NAND" TTL-to-MOS Drivers respectively. The 9643 DC/PC is a functional replacement of the SN75322 with one important exception: the two external PNP transistors are no longer needed for operation. The 9643 DC/PC is also a functional replacement for the 75363 with the important exception that the V_{CC3} supply is not needed. The 9644 is a logical inversion of the 9643 and is a functional replacement for the 75361. The pin connections normally used for the external PNP transistors are purposely not internally connected to the 9643 DC/PC.

Both devices have separate driver address inputs with common strobe. Both devices accept standard TTL and DTL input signals and provide high-current and high-voltage output levels suitable for driving MOS/CCD memories. The 9643 may be used to drive the chip-enable clock of the TMS4030 MOS RAM. The 9644 is suitable for driving both clock and address inputs for the TMS4062 and 1103 RAM. The 9643 and 9644 operate from the TTL 5 V supply and the MOS supply.

The 9643 and 9644 are available in 8-pin DIPs for increased board efficiency.

- SATISFIES CCD MEMORY AND DELAY LINE REQUIREMENTS
- DUAL POSITIVE-LOGIC TTL-TO-MOS DRIVERS
- OPERATES FROM STANDARD BIPOLAR AND MOS SUPPLY VOLTAGES
- HIGH SPEED SWITCHING
- TTL AND DTL COMPATIBLE INPUTS
- SEPARATE DRIVER 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: Over operating ambient temperature range (unless otherwise noted)

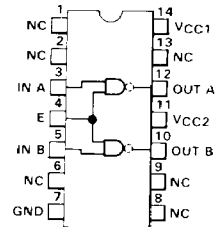
Supply voltage range of V_{CC1} (see Note 1)	-0.5 V to 7 V
Supply voltage range of V_{CC2}	-0.5 V to 15 V
Input voltage	5.5 V
Inter-input voltage (see Note 2)	5.5 V
Continuous total dissipation at (or below) 25°C ambient temperature	1000 mW
Operating free-air temperature range	-55°C to 125°C
Storage temperature range	-65°C to 150°C
Pin Temperature	
Molded dip (Soldering, 10 s)	260°C
Hermetic dip (Soldering, 30 s)	300°C

NOTES:

1. Voltage values are with respect to network ground terminal unless otherwise noted.
2. This rating applies between any two inputs of any one of the gates.

CONNECTION DIAGRAM
14-PIN DIP
(TOP VIEW)

PACKAGE OUTLINES 6A 9A
PACKAGE CODES D P

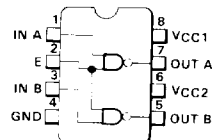


ORDER INFORMATION

TYPE	PART NO.
9643	9643DC
9643	9643PC

CONNECTION DIAGRAM
8-PIN DIP
(TOP VIEW)

PACKAGE OUTLINES 9T 6T
PACKAGE CODES T R



ORDER INFORMATION

TYPE	PART NO.
9643	9643RC
9643	9643TC
9644	9644RC
9644	9644TC

RECOMMENDED OPERATING CONDITIONS

	MIN	TYP	MAX	UNITS
Supply Voltage, V _{CC1}	4.75	5.0	5.25	V
Supply Voltage, V _{CC2}	4.75	12	15	V
Operating Temperature, T _A	0		70	°C

ELECTRICAL CHARACTERISTICS: Over recommended ranges of V_{CC1}, V_{CC2} and operating ambient temperature unless otherwise noted.

SYMBOL	CHARACTERISTICS	CONDITIONS	MIN	TYP (Note 1)	MAX	UNITS	
V _{IH}	Input HIGH Voltage		2.0			V	
V _{IL}	Input LOW Voltage				0.8	V	
V _{OH}	Output HIGH Voltage	I _{OH} = -400 μA	V _{CC2} - 0.5	V _{CC2} - 0.2		V	
V _{OL}	Output LOW Voltage	I _{OL} = 10 mA		0.4	0.5	V	
		I _{OL} = 1.0 mA		0.2	0.3	V	
I _{IN}	Input Current at Maximum Input Voltage	V _{CC1} = 5.25 V, V _{CC2} = 11.4 V V _{IN} = 5.25 V			0.1	mA	
I _{IH}	Input HIGH Current	V _{IN} = 2.4 V	A Inputs			40	μA
			E Inputs			80	
I _{IL}	Input LOW Current	V _{IN} = 0.4 V	A Inputs	9643		0.5	mA
				9644		0.8	
			E Inputs	9643		-1.0	
				9644		-1.6	
I _{CC1(L)}	Supply Current from V _{CC1} All Outputs LOW	V _{CC1} = 5.25 V V _{CC2} = 12.6 V	No Load	9643	15	19	mA
				9644	14	17	
I _{CC2(L)}	Supply Current from V _{CC2} All Outputs LOW	V _{CC2} = 12.6 V	V _{CC1} = 5.25 V	9643 9644	5.5	9.5	mA
I _{CC1(H)}	Supply Current from V _{CC1} All Outputs HIGH	V _{CC1} = 5.5 V V _{CC2} = 13.2 V	No Load	9643	9.0	13	mA
				9644	4.0	6.0	
I _{CC2(H)}	Supply Current from V _{CC2} All Outputs HIGH	V _{CC2} = 12.6 V	V _{CC1} = 5.25 V	9643 9644	5.5	9.5	mA

NOTE 1: All typical values are at V_{CC1} = 5.0 V, V_{CC2} = 12 V, and T_A = 25°C unless otherwise noted.

AC CHARACTERISTICS: V_{CC1} = 5.0 V, V_{CC2} = 12 V, T_A = 25°C

SYMBOL	CHARACTERISTICS	CONDITIONS (See Figure 1)	MIN	TYP	MAX	UNITS	
t _{DLH}	Delay Time	C _L = 300 pF	9643	5.0	9.0	17	ns
			9644	3.0	6.0	15	ns
t _{DHL}	Delay Time	C _L = 300 pF	9643	5.0	9.0	17	ns
			9644	3.0	6.0	15	ns
t _{TLH}	Rise Time	R _{SERIES} = 0	6.0	11	17	ns	
t _{THL}	Fall Time	C _L = 300 pF	6.0	11	17	ns	
t _{TLH}	Rise Time		R _{SERIES} = 10Ω	9.0	14	20	ns
t _{THL}	Fall Time		9.0	14	20	ns	
t _{PLHA} - t _{PLHB}	Skew between outputs A and B			0.5		ns	
t _{PHLA} - t _{PHLB}							

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AC TEST CIRCUIT AND VOLTAGE WAVEFORMS



AC TEST NOTES:

1. The pulse generator has the following characteristics:
PRR = 1 MHz, Z_{OUT} = 50 Ω
2. C_L includes probe and jig capacitance.

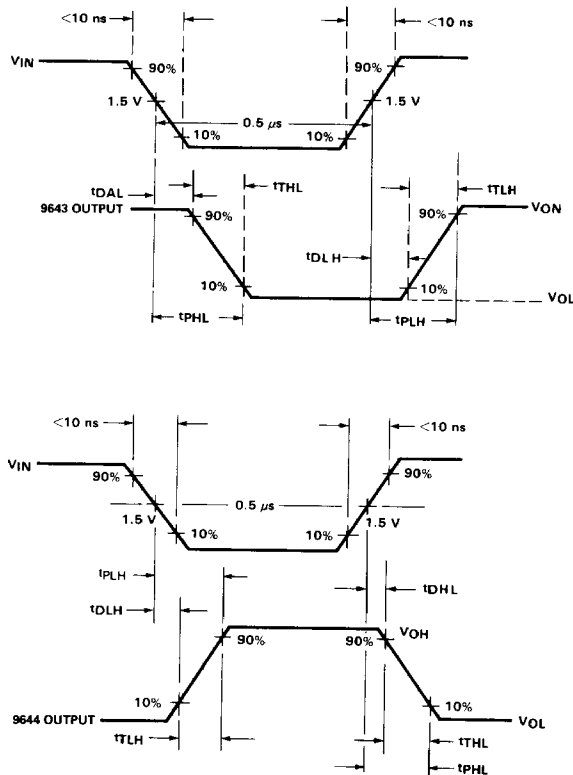


Fig. 1