MOTOROLA

MC54F/74F125
MC54F/74F126

Advance Information

QUAD BUFFERS, 3-STATE

FAST™ SCHOTTKY TTL

GUARANTEED OPERATING RANGES

SYMBOL	PARAMETER		MIN	TYP	MAX	UNIT
V_{CC}	Supply Voltage	54,74	4.5	5.0	5.5	V
T_A	Operating Ambient Temperature Range	54 74	−55 0	25 25	125 70	°C
I_{OH}	Output Current — High	54 74			−12 −15	mA
I_{OL}	Output Current — Low	54 74			48 64	mA

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

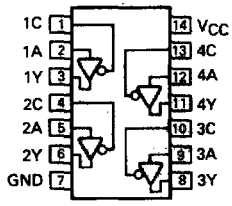
SYMBOL	PARAMETER		LIMITS MIN	LIMITS TYP	LIMITS MAX	UNITS	TEST CONDITIONS	
V_{IH}	Input HIGH Voltage		2.0			V	Guaranteed Input HIGH Voltage	
V_{IL}	Input LOW Voltage				0.8	V	Guaranteed Input LOW Voltage	
V_{IK}	Input Clamp Diode Voltage				−1.2	V	I_{IN} = −18 mA	V_{CC} = MIN
V_{OH}	Output HIGH Voltage	54,74	2.4	3.4		V	I_{OH} = −3.0 mA	V_{CC} = 4.5 V
		74	2.7	3.4		V	I_{OH} = −3.0 mA	V_{CC} = 4.75 V
		54	2.0			V	I_{OH} = −12 mA	V_{CC} = 4.5 V
		74	2.0			V	I_{OH} = −15 mA	
V_{OL}	Output LOW Voltage	54			0.55	V	I_{OL} = 48 mA	V_{CC} = MAX
		74			0.55	V	I_{OL} = 64 mA	
I_{OZH}	Output Off Current HIGH				50	μA	V_{OUT} = 2.7 V	V_{CC} = MAX
I_{OZL}	Output Off Current LOW				−50	μA	V_{OUT} = 0.5 V	V_{CC} = MAX
I_{IH}	Input HIGH Current				20	μA	V_{IN} = 2.7 V	V_{CC} = MAX
					100		V_{IN} = 7.0 V	V_{CC} = 0 V
I_{IL}	Input LOW Current				−20	μA	V_{IN} = 0.5 V	V_{CC} = MAX
I_{OS}	Output Drive Current Note 2		−100		−225	mA	V_{OUT} = GND	V_{CC} = MAX
I_{CC}	F125	I_{CCH}			24	mA	V_{CC} = MAX	
		I_{CCL}			40			
		I_{CCZ}			35			
	F126	I_{CCH}			30			
		I_{CCL}			48			
		I_{CCZ}			39			

NOTES:
1. For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
2. Not more than one output should be shorted at a time, nor for more than 1 second.

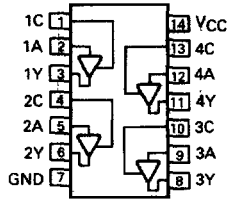
This document contains information on a new product. Specifications and information herein are subject to change without notice.

CONNECTION DIAGRAMS

F125



F126



J Suffix — Case 632-08 (Ceramic)
N Suffix — Case 646-06 (Plastic)
D Suffix — Case 751A-02 (SOIC)

TRUTH TABLES

F125

INPUTS		OUTPUT
$\overline{C}$	A	Y
L	L	L
L	H	H
H	X	(Z)

F126

INPUTS		OUTPUT
C	A	Y
H	L	L
H	H	H
L	X	(Z)

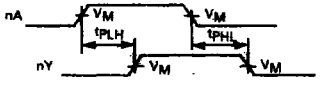
L = LOW Voltage Level
H = HIGH Voltage Level
X = Don't Care
(Z) = High Impedance (off)

AC ELECTRICAL CHARACTERISTICS

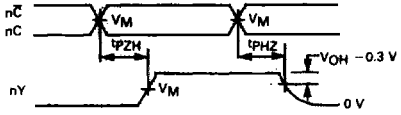
PARAMETER			TEST CONDITIONS	54/74F T_A = +25°C, V_{CC} = +5.0 V, C_L = 50 pF, R_L = 500 Ω			54F T_A = 0 to 70°C, V_{CC} = 5.0 V ± 10%, C_L = 50 pF, R_L = 500 Ω		74F T_A = 0°C to +70°C, V_{CC} = +5.0 V ±10%, C_L = 50 pF, R_L = 500 Ω		UNIT
				Min	Typ	Max	Min	Max	Min	Max	
t_{PLH} t_{PHL}	Propagation delay nA to nY	F125	Waveform 1	1.5 3.0	4.0 5.5	6.0 7.5	1.5 3.0	7.5 9.0	1.5 3.0	6.5 8.0	ns
t_{PZH} t_{PZL}	Output enable time to HIGH and LOW level	F125	Waveform 2 Waveform 3	3.0 3.0	5.5 6.0	7.5 8.0	3.0 3.0	9.5 10	3.0 3.0	8.5 9.0	ns
t_{PHZ} t_{PLZ}	Output disable time from HIGH and LOW level	F125	Waveform 2 Waveform 3	1.5 1.5	3.5 3.5	5.0 5.5	1.5 1.5	7.0 7.0	1.5 1.5	6.0 6.0	ns
t_{PLH} t_{PHL}	Propagation delay nA to nY	F126	Waveform 1	1.5 3.0	4.0 5.5	6.5 8.0	1.5 3.0	8.0 9.5	1.5 3.0	7.0 8.5	ns
t_{PZH} t_{PZL}	Output enable time to HIGH and LOW level	F126	Waveform 2 Waveform 3	3.0 3.0	6.0 6.0	7.5 8.0	3.0 3.0	9.5 9.5	3.0 3.0	8.5 8.5	ns
t_{PHZ} t_{PLZ}	Output disable time from HIGH and LOW level	F126	Waveform 2 Waveform 3	2.0 3.0	4.5 5.5	6.5 7.5	2.0 3.0	8.5 9.0	2.0 3.0	7.5 8.0	ns

NOTE: Subtract 0.2 ns from minimum values for SO package.

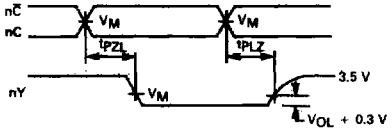
AC WAVEFORMS



Waveform 1. Propagation Delay For Input To Output



Waveform 2. 3-State Output Enable Time To HIGH Level And Output Disable Time From HIGH Level



Waveform 3. 3-State Output Enable Time To LOW Level And Output Disable Time From LOW Level

NOTE: For all waveforms, V_M = 1.5 V