

μ A8T13 • 55121 • 75121

DUAL SINGLE-ENDED LINE DRIVERS

FAIRCHILD LINEAR INTEGRATED CIRCUITS

GENERAL DESCRIPTION — The μ A8T13/55121/75121 Dual Line Drivers are designed for driving 50 Ω to 500 Ω coaxial cable, strip line, or twisted pair transmission lines. All inputs are TTL or DTL compatible and the emitter-follower outputs enable two or more drivers to operate on the same line in parity line applications.

For a dual line driver to meet the IBM System/360 I/O Interface Specification, see 75123 or 8T23 data sheets.

- HIGH OUTPUT DRIVE CAPABILITY
- HIGH SPEED
- INPUT CLAMP DIODES
- SINGLE 5 V SUPPLY OPERATION
- SHORT CIRCUIT PROTECTED

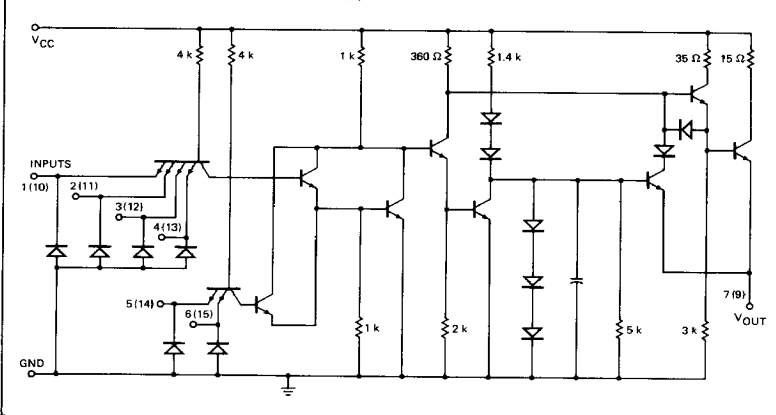
ABSOLUTE MAXIMUM RATINGS

Input Voltage (Note 1)	+6.0 V
Output Voltage (Note 1)	+6.0 V
Supply Voltage (Note 1)	+6.0 V
Storage Temperature Range	-55°C to +125°C
Operating Temperature Range	
Military (55121, μ A8T13DM)	-55°C to +125°C
Commercial (75121)	0°C to +70°C
Pin Temperatures	
Hermetic DIP (Soldering, 60 s)	300°C
Molded DIP (Soldering, 10 s)	260°C
Internal Power Dissipation (Note 2)	800 mW

NOTES:

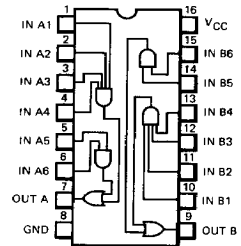
1. Voltages are with respect to the ground pin (pin 8)
2. For Hermetic DIP and Molded DIP rating applies to ambient temperatures up to 60°C, above 60°C derate linearly at 8.3 mW/°C.

EQUIVALENT CIRCUIT (For Each Driver)



CONNECTION DIAGRAM 16-PIN (TOP VIEW)

PACKAGE OUTLINES 6B 9B
PACKAGE CODES D P



ORDER INFORMATION

TYPE	PART NO.
μ A8T13 or 55121	μ A8T13/55121DM
μ A8T13 or 75121	μ A8T13/75121DC
μ A8T13 or 75121	μ A8T13/75121PC

55/75121 FUNCTION TABLE

INPUTS						OUTPUT
1	2	3	4	5	6	
H	H	H	H	X	X	H
X	X	X	X	H	H	H
All Other Inputs Combinations						L

55121, 75121 RECOMMENDED OPERATING CONDITIONS

		MIN	TYP	MAX	UNITS
Supply Voltage, V_{CC}		4.75	5	5.25	V
Output HIGH Current, I_{OH}				-75	mA
Operating Ambient Temperature, T_A	55121/ μ A8T13	-55		125	°C
	75121/ μ A8T13	0		70	°C

ELECTRICAL CHARACTERISTICS: $V_{CC+} = 4.75$ V to 5.25 V, Ratings apply over recommended temperature range unless noted.

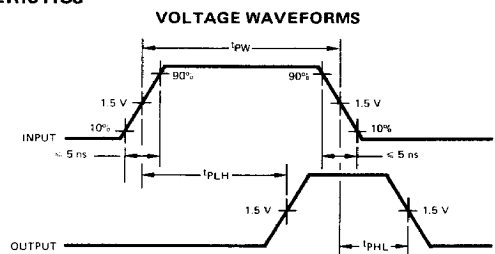
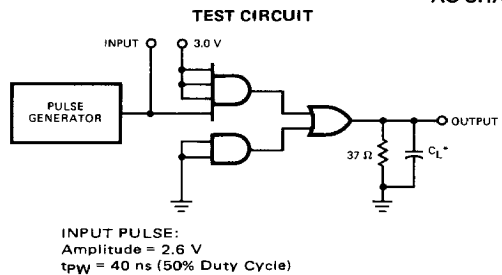
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{IH}	Input HIGH Voltage		2.0			V
V_{IL}	Input LOW Voltage				0.8	V
V_{IN}	Input Clamp Voltage	$V_{CC} = 5.0$ V, $I_{IN} = -12$ mA			-1.5	V
$V_{(BR)I}$	Input Breakdown Voltage	$V_{CC} = 5.0$ V, $I_{IN} = 10$ mA	5.5			V
V_{OH}	Output HIGH Voltage	$V_{IH} = 2.0$ V, $I_{OH} = -75$ mA (Note 3)	2.4			V
I_{OH}	Output HIGH Current	$V_{CC} = 5.0$ V, $V_{IH} = 4.5$ V $V_{OH} = 2.0$ V, $T_A = 25^\circ$ C (Note 3)	-100		-250	mA
I_{OL}	Output LOW Current	$V_{IL} = 0.8$ V, $V_{OL} = 0.4$ V (Note 3)			-800	μ A
$I_{OUT(off)}$	Off-State Output Current	$V_{CC} = 0$, $V_{OUT} = 3.0$ V			500	μ A
I_{IH}	Input HIGH Current	$V_{IN} = 4.5$ V			40	μ A
I_{IL}	Input LOW Current	$V_{IN} = 0.4$ V	-0.1		-1.6	mA
I_{OS}	Short-Circuit Output Current	$V_{CC} = 5.0$ V, $T_A = 25^\circ$ C			-30	mA
I_{CCH}	Supply Current, Outputs HIGH	$V_{CC} = 5.25$ V, All inputs at 2.0 V Outputs open			28	mA
I_{CCL}	Supply Current, Outputs LOW	$V_{CC} = 5.25$ V, All inputs at 0.8 V Outputs open			60	mA

AC CHARACTERISTICS: $V_{CC} = 5.0$ V, $T_A = 25^\circ$ C.

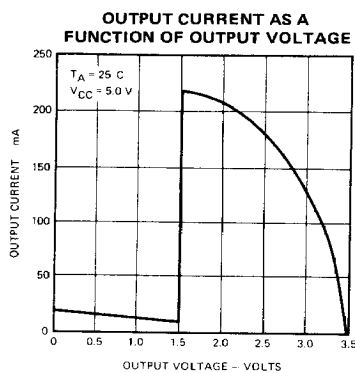
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
t_{PLH}	Propagation Delay Time LOW-to-HIGH Output	$R_L = 37 \Omega$, $C_L = 15$ pF See Test Circuit		11	20	ns
t_{PHL}	Propagation Delay Time HIGH-to-LOW Output			8.0	20	
t_{PLH}	Propagation Delay Time LOW-to-HIGH Output	$R_L = 37 \Omega$, $C_L = 1000$ pF See Test Circuit		22	50	ns
t_{PHL}	Propagation Delay Time HIGH-to-LOW Output			20	50	

NOTE:

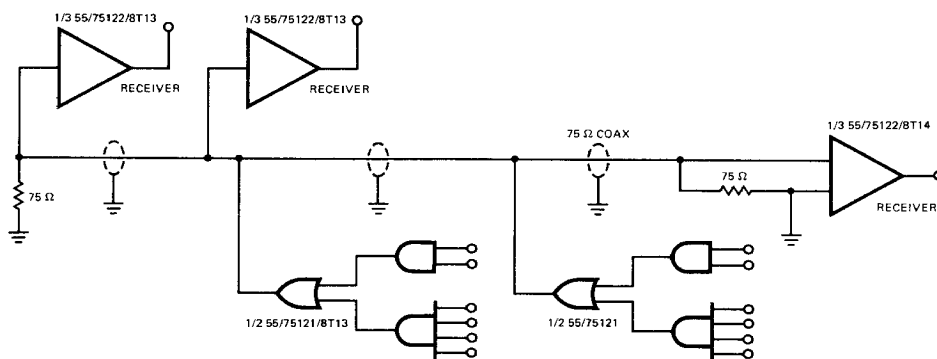
4. The output voltage and current limits are guaranteed for any appropriate combination of high and low inputs specified by the function table for the desired output.

AC CHARACTERISTICS

*Includes probe and jig capacitance.

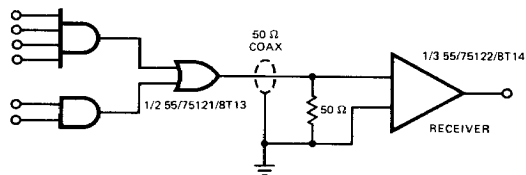
TYPICAL PERFORMANCE CURVE FOR 55121/75121/ μ A8T13

TYPICAL APPLICATIONS

75 Ω PARTY LINE (2 DRIVERS, 3 RECEIVERS)

NOTE: For party line operation, termination of each physical end of the line is recommended.

SIMPLEX OPERATION (1 DRIVER)



NOTE: For simplex operation, the line should be terminated only at the distant receiver site.