

LM75123 dual line driver

general description

The LM75123 is a monolithic dual line driver designed specifically to meet the I/O interface specifications for IBM System 360. It is compatible with standard TTL logic and supply voltage levels.

The low-impedance emitter-follower outputs of the LM75123 enable driving terminated low impedance lines. In addition the outputs are uncommited allowing two or more drivers to drive the same line.

Output short-circuit protection is incorporated to turn off the output when the output voltage drops below approximately 1.5V.

features

- Meet IBM System 360 I/O interface specifications for digital data transmission over 50Ω to 500Ω coaxial cable, strip line, or terminated pair transmission lines
- TTL compatible with single 5.0V supply

Line Drivers/Receivers

- 3.11V output at I_{OH} = -59.3 mA
- Open emitter-follower output structure for party-line operation
- Short circuit protection
- AND-OR logic configuration
- Plug-in replacement for the SN75123 and the 8T23

connection diagram



Order Number LM75123J See Package 17

Order Number LM75123N See Package 23

typical performance characteristics



truth table

INPUTS					OUTPUT	
Α	В	С	D	E	F	Ŷ
н	н	н	н	х	х	н
х	х	х	х	н	н	н
All Other Input Combinations				L		

H = high level, L = low level, X = irrelevant

ac test circuit and switching time waveforms





absolute maximum ratings (Notes 1 and 2)

Supply Voltage, VCC	7.0V
Input Voltage	5.5V
Output Voltage	7.0V
Continuous Total Power Dissipation at (or	
below) 25°C Free-Air Temperature (Note 5)	800 mW
Operating Free-Air Temperature Range 0°C	c to +75°C
Storage Temperature Range -65°C	to +150°C
Lead Temperature (Soldering, 10 seconds)	300°C

operating conditions

	MIN	MAX	UNITS
Supply Voltage, V _{CC}	4.75	5.25	V
IOH		-100	mA
Temperature, T _A	0	+75	°C

electrical characteristics (Note 3)

PARAMETER	CONDITIONS	MIN	түр	MAX	UNITS
High Level Input Voltage (V _{IH})		2.0			v
Low Level Input Voltage (VIL)				0.8	v
Input Clamp Voltage (V1)	$V_{CC} = 5.0V, I_1 = -12 \text{ mA}$			-1.5	v
Input Breakdown Voltage (V _(BR)))	V _{CC} = 5.0V, I ₁ = 10 mA	5.5			ν v
High Level Output Voltage (V _{OH})	V _{CC} = 5.0V, V _{IH} = 2.0V, I _{OH} = -59.3 mA, (Note 4) T _A = 25°C	3.11			v
	$T_A = 0^{\circ}C \text{ to } +75^{\circ}C$	2.9		,	v
High Level Output Current (I _{OH})	V _{CC} = 5.0V, V _{IH} = 4.5V, T _A = 25 ^o C, (Note 4) V _{OH} = 2.0V	-100		-250	mA
Low Level Output Voltage (V _{OL})	$V_{1L} = 0.8V, I_{OL} = -240\mu A$, (Note 4)			0.15	v
Off State Output Current (IO OFF)	$V_{CC} = 0, V_{O} = 3.0V$			40	μA
High Level Input Current (I _{IH})	V ₁ = 4.5V			40	μA
Low Level Input Current (IIL)	V ₁ = 0.4V	-01		-1.6	mA
Short Circuit Output Current (I _{OS})	$V_{CC} = 5.0V, T_{A} = 25^{\circ}C$			-30	mA
Supply Current, Outputs High (I _{CCH})	V_{CC} = 5.25V, All Inputs at 2.0V, Outputs Open			28	mA
Supply Current, Outputs Low (I _{CCL})	V _{CC} = 5.25V, All Inputs at 0.8V, Outputs Open			60	mA

switching characteristics V_{cc} = 5.0V, T_A = 25°C

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PARAMETER	CONDITIONS	MIN	түр	МАХ	UNITS	
Propagation Delay Time, Low to High Level Output (t _{PLH})	$R_L = 50\Omega$, $C_L = 15 pF$ (See AC Test Circuit and Switching Time Waveforms)	'	12	20	ns	
Propagation Delay Time, High to Low Level Output (t _{PHL})			12	20	ns	
Propagation Delay Time, Low to High	$R_L = 50\Omega_r C_L = 100 \text{ pF}$ (See AC Test Circut and Switching Time Waveforms)		20	35	ns	
Propagation Delay Time, High to Low · Level Output (t _{PHL})			15	25	ns	

Note 1: "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. Except for "Operating Temperature Range" they are not meant to imply that the devices should be operated at these limits. The table of "Electrical Characteristics" provides conditions for actual device operation.

Note 2: All currents into device pins are shown as positive, currents out of device pins shown as negative, all voltage values are referenced with respect to network ground terminal, unless otherwise noted. All values shown as max or min on absolute value basis.

Note 3: Min/max limits apply across the guaranteed operating temperature range of 0°C to +75°C for LM75123, unless otherwise specified. Typicals are for V_{CC} = 5.0V, T_A = 25°C. Positive current is defined as current into the referenced pin. Note 4: The output voltage and current limits are guaranteed for any appropriate combination of high and low inputs specified by the truth table for the desired output.

Note 5: For operating at elevated temperatures, the cavity DIP package (J) has a maximum junction temperature of +150°C and must be derated based on a thermal resistance of +85°C/W, junction to ambient. The molded DIP package (N) has a maximum junction temperature of +150°C and must be derated based on a thermal resistance of +150°C/W, junction to ambient.