

B,W PACKAGES 0°C to +75°C

DIGITAL 8000 SERIES TTL MSI

DESCRIPTION

The 8T23 is a Dual Line Driver designed to meet all of the requirements of the IBM System/360, System/370 I/O interface specifications (IBM Specification GA 22-6974-0).

The low impedance emitter follower output will drive terminated lines such as coaxial cable or twisted pair. The output is protected against accidental shorting by an internal clamping network which turns on once the output voltage drops below approximately 1.5 volts. The uncommitted emitter output structure allows Dot-OR logic to be performed as in "Party-Line" operations.

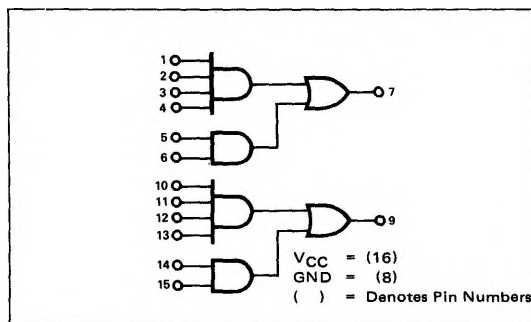
Multiple emitter inputs allow the 8T23 to interface with standard TTL or DTL systems and the circuit operates from a single +5 volt power supply.

Additional logic incorporated in the 8T23 Dual Line Driver can be used during the power-up and power-down sequence to ensure that no spurious noise is generated on the line.

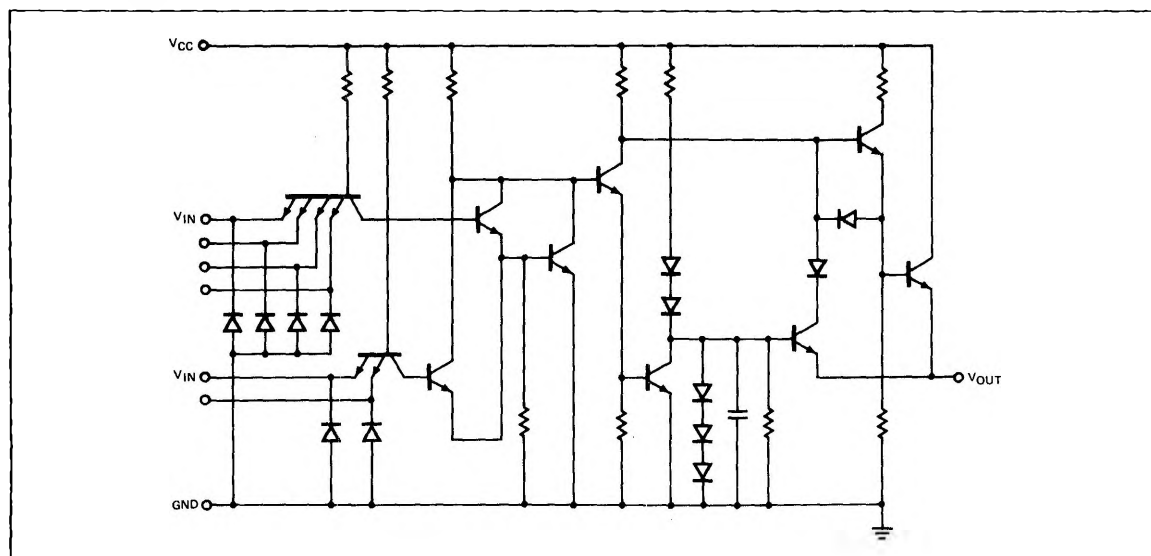
FEATURES

- $I_{OUT} = 59.3\text{mA}$ AT 3.11 VOLTS
- UNCOMMITTED EMITTER OUTPUT STRUCTURE FOR PARTY-LINE OPERATION
- SHORT-CIRCUIT PROTECTION
- SINGLE 5 VOLT POWER SUPPLY
- AND-OR LOGIC CONFIGURATION

LOGIC DIAGRAM WITH PIN LAYOUT



CIRCUIT SCHEMATIC



ELECTRICAL CHARACTERISTICS ($V_{CC} = 5.0V \pm 5\%$, $T_A = 0^\circ C$ TO $+75^\circ C$)

CHARACTERISTICS	LIMITS				TEST CONDITIONS				NOTES
	MIN	TYP	MAX	UNITS	AND GATE # 1		INPUTS OF # 2 AND GATE	OUTPUT	
					INPUT UNDER TEST	OTHER INPUT			
"0" Output Voltage			+0.15	V	0.8V	4.5V	0V	-240 μ A	7
"1" Output Leakage Current			40	μ A	0V	0V	0V	3.0V	1, 13
"0" Input Current	-0.1		-1.6	mA	0.4V	4.5V			
"1" Input Current			40	μ A	4.5V	0V			

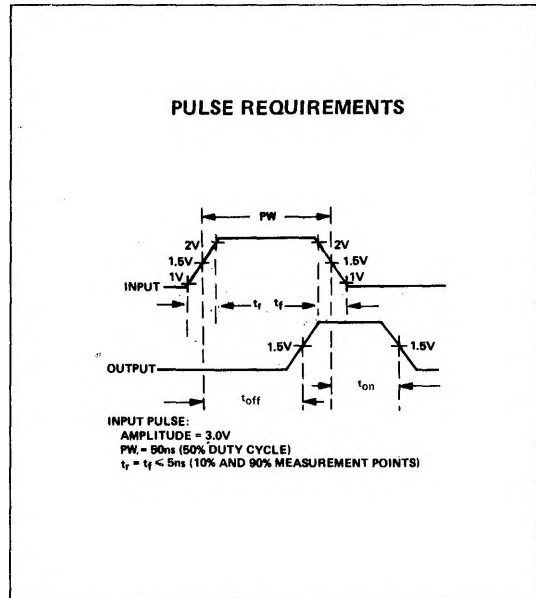
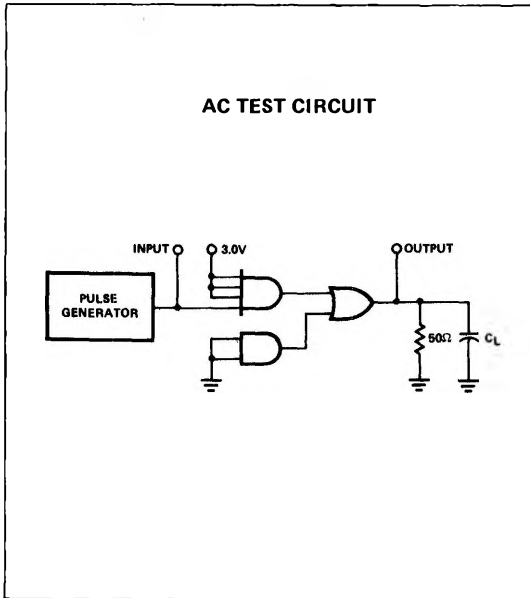
ELECTRICAL CHARACTERISTICS ($V_{CC} = 5.0V$, $T_A = 25^\circ C$)

CHARACTERISTICS	LIMITS				TEST CONDITIONS				NOTES
	MIN	TYP	MAX	UNITS	AND GATE # 1		INPUTS OF # 2 AND GATE	OUTPUT	
					INPUT UNDER TEST	OTHER INPUT			
"1" Output Voltage	3.11			V	2.0V	2.0V	0.8V	-59.3mA	
Turn-On Delay, t_{on}		12 15	20 25	nS nS					8, 11 9, 11
Turn-Off Delay, t_{off}		12 20	20 35	nS nS					8, 11 9, 11
Power/Current Consumption									
Output at "0"			315/ 60	mW/ mA	0.8V	0.8V	0.8V		10, 14
Output at "1"			150/ 28	mW/ mA	2.0V	2.0V	2.0V		10, 14
Input Voltage Rating	5.5			V	10mA	0V	0V		
"1" Output Current	-100		-250	mA	4.5V	4.5V	0V	2.0V	12, 14
Input Clamp Voltage			-1.5	V	-12mA				

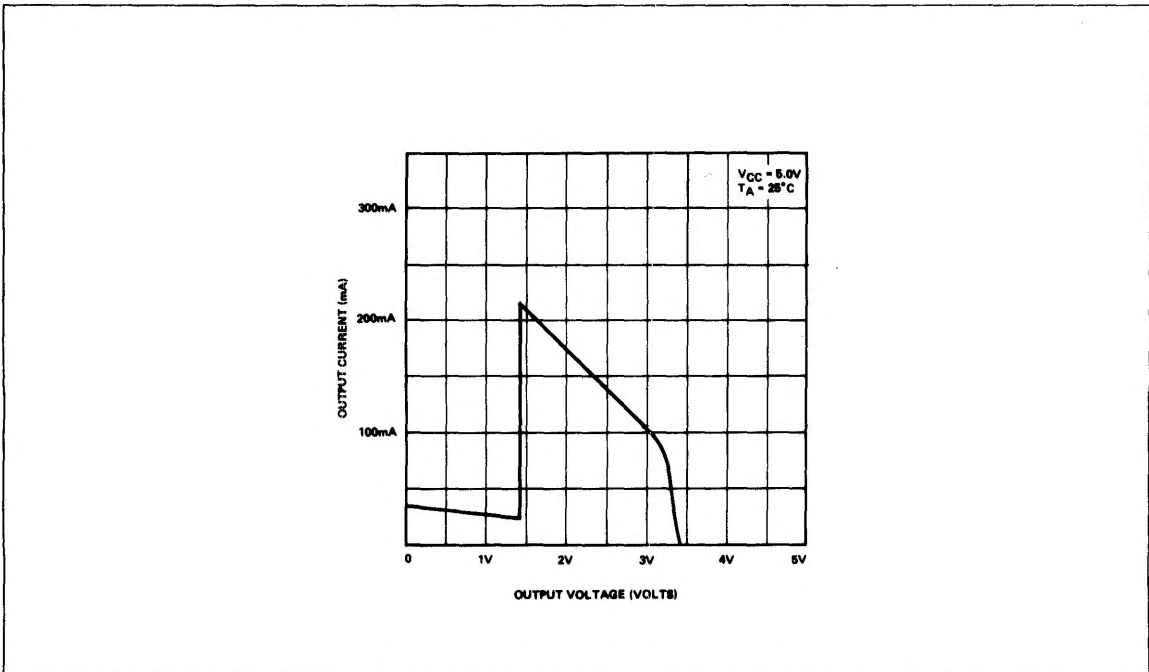
NOTES:

- All voltage measurements are referenced to the ground terminal. Terminals not specifically referenced are left electrically open.
- All measurements are taken with ground pin tied to zero volts.
- Positive current is defined as into the terminal referenced.
- Positive logic definition: "UP" Level = "1", "DOWN" Level = "0".
- Precautionary measures should be taken to ensure current limiting in accordance with Absolute Maximum Ratings should the isolation diodes become forward biased.
- Output source current is supplied through a resistor to ground.
- With forced output current of 240 μ A the output voltage must not exceed 0.15V.
- $R_L = 50\Omega$ to ground.
- Load is 50 Ω in parallel with 100pF.
- I_{CC} is dependent upon loading. I_{CC} limit specified is for no-load test condition for both drivers.
- Reference AC Test Circuit and Pulse Requirements.
- Reference "Typical Output Current vs. Output Voltage Curve".
- $V_{CC} = 0.00V$.
- $V_{CC} = 5.25V$.

AC TEST FIGURE AND WAVEFORMS



TYPICAL OUTPUT CHARACTERISTICS



TYPICAL APPLICATIONS

