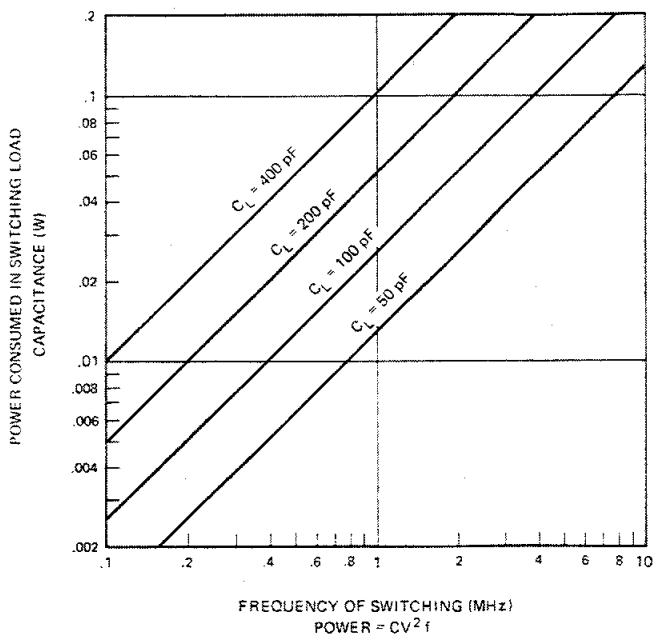
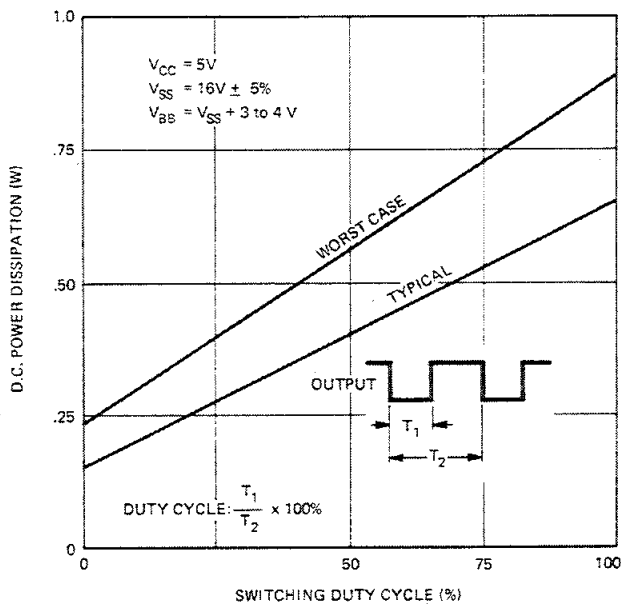


Power and Switching Characteristics

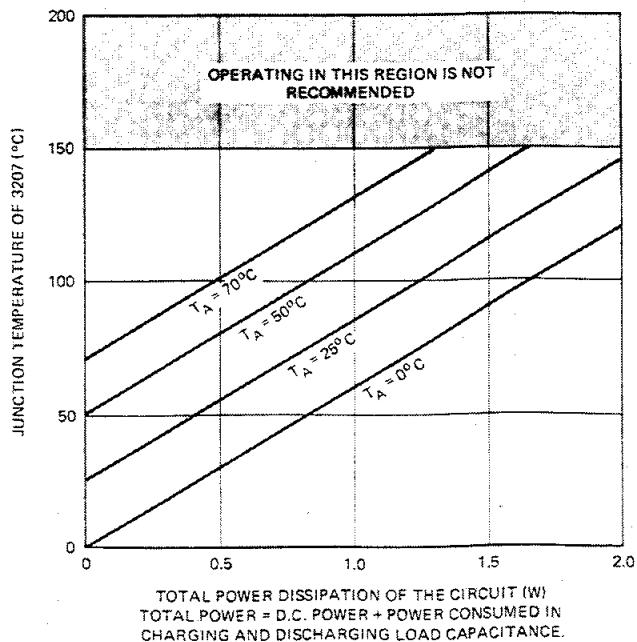
POWER CONSUMED IN CHARGING AND DISCHARGING LOAD CAPACITANCE OVER 0V TO 16V INTERVAL



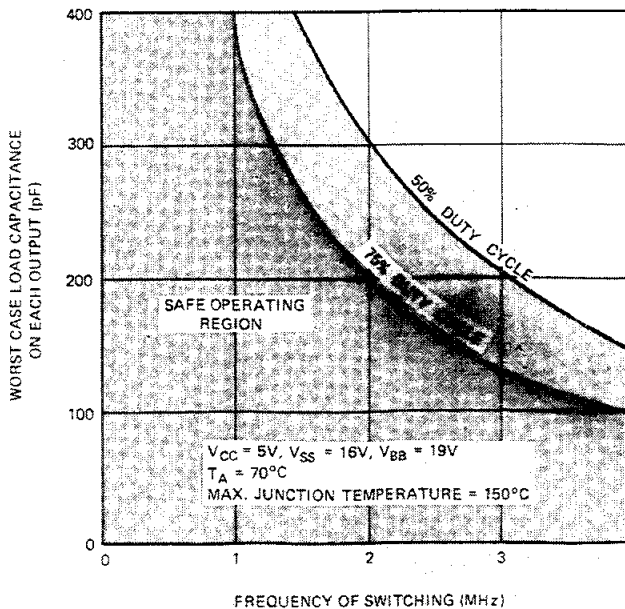
NO LOAD D.C. POWER DISSIPATION VS. OPERATING DUTY CYCLE



JUNCTION TEMPERATURE VS. TOTAL POWER DISSIPATION OF THE CIRCUIT



WORST CASE LOAD CAPACITANCE ON EACH OUTPUT VS. FREQUENCY OF SWITCHING



MEMORY PERIPHERALS

Switching Characteristics

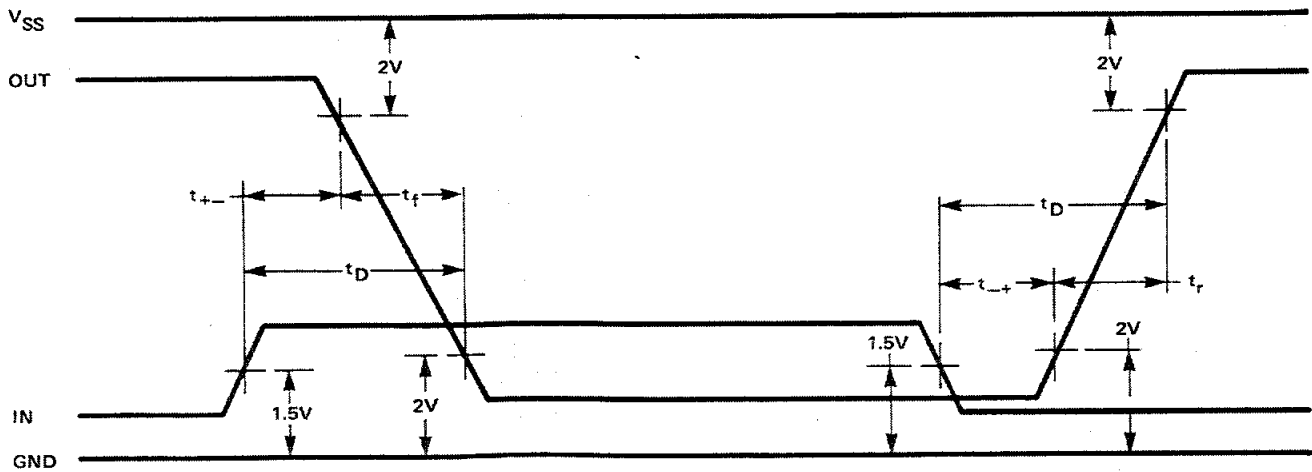
A.C. Characteristics

$T_A = 0^\circ\text{C}$ to 70°C , $V_{CC} = 5\text{V} \pm 5\%$, $V_{SS} = 16\text{V} \pm 5\%$, $V_{BB} = V_{SS} + 3$ to 4V , $f = 2\text{ MHz}$, 50% Duty Cycle

SYMBOL	TEST	LIMITS (ns)				
		$C_L = 100\text{ pF}$		$C_L = 200\text{ pF}$		DELAY DIFFERENTIAL ⁽¹⁾ $C_L = 200\text{ pF}$ MAX.
		MIN.	MAX.	MIN.	MAX.	
t_{+}	INPUT TO OUTPUT DELAY	5	15	5	15	5
t_{-}	INPUT TO OUTPUT DELAY	5	25	5	25	10
t_r	OUTPUT RISE TIME	5	20	5	30	10
t_f	OUTPUT FALL TIME	5	20	10	30	10
t_D	DELAY + RISE OR FALL TIME	10	35	20	45	10

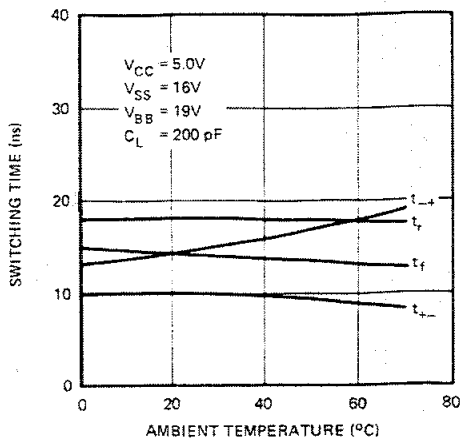
(1) This is defined as the maximum skew between any output in the same package, eg., all the input to output delays for the t_{+} parameter are within a maximum of 10 nsec of each other in the same package.

Waveforms

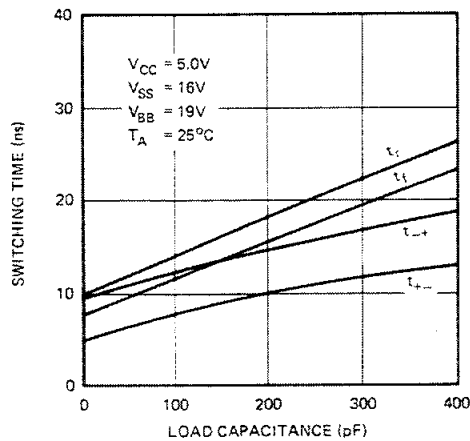


Typical Characteristics

SWITCHING TIME VS. AMBIENT TEMPERATURE



SWITCHING TIME VS. LOAD CAPACITANCE



MEMORY PERIPHERALS

Absolute Maximum Ratings*

Temperature Under Bias 0°C to +70°C
 Storage Temperature..... -65°C to +160°C
 All Input Voltages and V_{SS} -1.0 to +21V
 Supply Voltage V_{CC} -1.0 to +7V
 All Outputs and Supply Voltage
 V_{BB} with respect to GND -1.0 to +25V
 Power Dissipation at 25°C 2 Watts⁽¹⁾

*COMMENT

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or at any other condition above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

(1) Refer to the graph of Junction Temperature versus Total Power Dissipation on page 5-10 for other temperatures.

D. C. Characteristics T_A = 0°C to 70°C, V_{CC} = 5V ± 5%, V_{SS} = 16V ± 5%, V_{BB} - V_{SS} = 3.0V to 4.0V

SYMBOL	TEST	LIMIT		UNIT	CONDITIONS
		MIN.	MAX.		
I _{FD}	DATA INPUT LOAD CURRENT		-0.25	mA	V _D = .45V, V _{CC} = 5.25V, All Other Inputs at 5.25V, V _{SS} = 16V, V _{BB} = 19V
I _{FE}	ENABLE INPUT LOAD CURRENT		-0.50	mA	V _E = .45V, V _{CC} = 5.25V, All Other Inputs at 5.25V, V _{SS} = 16V, V _{BB} = 19V
I _{RD}	DATA INPUT LEAKAGE CURRENT		20	μA	V _D = 19V, V _{CC} = 5.0V, All Other Inputs Grounded, V _{SS} = 16V, V _{BB} = 19V
I _{RE}	ENABLE INPUT LEAKAGE CURRENT		20	μA	V _E = 19V, V _{CC} = 5.0V, All Other Inputs Grounded, V _{SS} = 16V, V _{BB} = 19V
V _{OL}	OUTPUT "LOW" VOLTAGE		.8 .7 .6	V(0°C) V(25°C) V(70°C)	I _{OL} = 500μA, V _{CC} = 4.75V V _{SS} = 16V, V _{BB} = 19V All Inputs at 2.0V
V _{OH} (MIN.)	OUTPUT "HIGH" VOLTAGE	V _{SS} - .7 V _{SS} - .6 V _{SS} - .5		V(0°C) V(25°C) V(70°C)	I _{OH} = -500μA, V _{CC} = 5.0V V _{SS} = 16V, V _{BB} = 19V All Inputs at 0.85V
V _{OH} (MAX.)			V _{SS} + 1.0	V	I _{OH} = 5 mA, V _{CC} = 5.0V V _{SS} = 16V, V _{BB} = 19V
I _{OL}	OUTPUT SINK CURRENT	100		mA	V _O = 4V, V _{CC} = 5.0V, V _{SS} = 16V, V _{BB} = 19V, V _E = V _D = 2.0V
I _{OH}	OUTPUT SOURCE CURRENT	-100		mA	V _O = V _{SS} - 4V, V _{CC} = 5.0V, V _{SS} = 16V V _{BB} = 19V, V _E = V _D = 0.85V
V _{IL}	INPUT "LOW" VOLTAGE		1.0	V	V _{CC} = 5.0V, V _{SS} = 16V, V _{BB} = 19V
V _{IH}	INPUT "HIGH" VOLTAGE	2.0		V	V _{CC} = 5.0V, V _{SS} = 16V, V _{BB} = 19V
C _{IN}	INPUT CAPACITANCE	8(Typical)		pF	V _{BIAS} = 2.0V, V _{CC} = 0V

POWER SUPPLY CURRENT DRAIN: All Outputs "Low"

Symbol	Parameter	Min.	Max.	Unit	Conditions
I _{CC}	Current from V _{CC}		83	mA	V _{CC} = 5.25V, V _{SS} = 16.8V, V _{BB} = 20.8V All Inputs Open
I _{SS}	Current from V _{SS}		250	μA	
I _{BB}	Current from V _{BB}		21	mA	
P _{TOTAL}	Total Power Dissipation		900	mW	

All Outputs "High"

I _{CC}	Current from V _{CC}		33	mA	V _{CC} = 5.25V, V _{SS} = 16.8V, V _{BB} = 20.8V All Inputs Grounded
I _{SS}	Current from V _{SS}		250	μA	
I _{BB}	Current from V _{BB}		3	mA	
P _{TOTAL}	Total Power Dissipation		250	mW	

Standby Condition with V_{CC} = 0V, V_{SS} = V_{BB}

I _{CC}	Current from V _{CC}		0	mA	V _{CC} = 0V, V _{SS} = 16.8V, V _{BB} = 16.8V
I _{SS}	Current from V _{SS}		250	μA	
I _{BB}	Current from V _{BB}		250	μA	
P _{TOTAL}	Total Power Dissipation		10	mW	

QUAD BIPOLAR-TO-MOS LEVEL SHIFTER AND DRIVER

- High Speed, 45 nsec Max. -- Delay + Transition Time Over Temperature with 200 pF Load
- TTL & DTL Compatible Inputs
- 1103 and 1103A Memory Compatible at Output
- Simplifies Design -- Replaces Discrete Components
- Easy to Use -- Operates from Standard Bipolar and MOS Supplies
- Minimum Line Reflection -- Input and Output Clamp Diodes
- High Input Breakdown Voltage -- 19 Volts
- CerDIP Package -- 16 Pin DIP

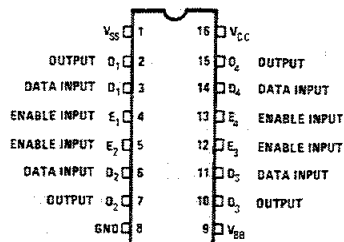
The 3207A is a Quad Bipolar-to-MOS level shifter and driver which accepts TTL and DTL input signals, and provides high output current and voltage suitable for driving MOS circuits. It is particularly suitable for driving the 1103 and 1103A memory chips. The circuit operates from a 5 volt TTL power supply, and V_{SS} and V_{BB} power supplies from the 1103 and 1103A.

The device features two common enable inputs per pair of devices which permits some logic to be done at their inputs, such as enable and precharge decoding for the 1103 and 1103A.

For the TTL inputs a logic "1" is V_{IH} and a logic "0" is V_{IL} . The 3207A outputs correspond to a logic "1" as V_{OL} and a logic "0" as V_{OH} for driving MOS inputs.

The 3207A is packaged in a hermetically sealed 16 pin ceramic dual-in-line package. The device performance is specified over the same temperature range as the 1103 and 1103A, i.e. from 0°C to +70°C.

PIN CONFIGURATION



LOGIC SYMBOL

