

Absolute Maximum Ratings (Note 1)

PECL Supply Voltage (V_{CC}) $V_{EE} = 0V$	0.0V to +8.0V
NECL Supply Voltage (V_{EE}) $V_{CC} = 0V$	0.0V to -8.0V
PECL DC Input Voltage (V_i) $V_{EE} = 0V$	0.0V to +6.0V
NECL DC Input Voltage (V_i) $V_{CC} = 0V$	0.0V to -6.0V
DC Output Current (I_{OUT})	
Continuous	50 mA
Surge	100 mA
V_{BB} Sink/Source Current (I_{BB})	± 0.5 mA
Storage Temperature (T_{STG})	-65°C to +150°C

Recommended Operating Conditions

PECL Power Supply	$V_{CC} = 3.0V$ to 3.8V
($V_{EE} = 0V$)	
NECL Power Supply	$V_{EE} = -3.8V$ to -3.0V
($V_{CC} = 0V$)	
Free Air Operating Temperature (T_A)	-40°C to +85°C

Note 1: The "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated at these limits. The parametric values defined in the Electrical Characteristics tables are not guaranteed at the absolute maximum rating. The "Recommended Operating Conditions" table will define the conditions for actual device operation.

LVPECL DC Electrical Characteristics $V_{CC} = 3.3V$; $V_{EE} = 0.0V$ (Note 2)

Symbol	Parameter	-40°C			25°C			85°C			Units
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I_{EE}	Power Supply Current		17	23		17	23		18	24	mA
V_{OH}	Output HIGH Voltage (Note 3)	2215	2295	2420	2275	2345	2420	2275	2345	2420	mV
V_{OL}	Output LOW Voltage (Note 3)	1470	1605	1745	1490	1595	1680	1490	1595	1680	mV
V_{IH}	Input HIGH Voltage (Single Ended)	2135		2420	2135		2420	2135		2420	mV
V_{iL}	Input LOW Voltage (Single Ended)	1490		1825	1490		1825	1490		1825	mV
V_{BB}	Output Voltage Reference	1.92		2.04	1.92		2.04	1.92		2.04	V
V_{IHCMR}	Input HIGH Voltage Common Mode Range (Differential) (Note 4)										
	$V_{PP} < 500mV$	1.2		2.9	1.1		2.9	1.1		2.9	V
	$V_{PP} \geq 500mV$	1.5		2.9	1.4		2.9	1.4		2.9	V
I_{IH}	Input HIGH Current (Note 5)			150			150			150	μA
I_{iL}	Input LOW Current (Note 5)		D -600			0.5 -600			0.5 -600		μA

Note 2: Input and output parameters vary 1 to 1 with V_{CC} . V_{EE} can vary $\pm 0.3V$.

Note 3: Outputs are terminated through a 50 Ω Resistor to $V_{CC} - 2.0V$.

Note 4: V_{IHCMR} minimum varies 1 to 1 with V_{EE} . V_{IHCMR} maximum varies 1 to 1 with V_{CC} . The V_{IHCMR} range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between V_{PPMIN} and 1V.

Note 5: Absolute value of the input HIGH and LOW current should not exceed the absolute value of the stated Min or Max specification.

Note: Devices are designed to meet the DC specifications after thermal equilibrium has been established. Circuit is tested with air flow greater than 500LFPM maintained.

LVNECL DC Electrical Characteristics $V_{CC} = 0.0V$; $V_{EE} = -3.3V$ (Note 6)												
Symbol	Parameter	-40°C			25°C			85°C			Units	
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
I_{EE}	Power Supply Current		17	23		17	23		18	24	mA	
V_{OH}	Output HIGH Voltage (Note 7)	-1085	-1005	-880	-1025	-955	-880	-1025	-955	-880	mV	
V_{OL}	Output LOW Voltage (Note 7)	-1830	-1695	-1555	-1810	-1705	-1620	-1810	-1705	-1620	mV	
V_{IH}	Input HIGH Voltage (Single Ended)	-1165		-880	-1165		-880	-1165		-880	mV	
V_{IL}	Input LOW Voltage (Single Ended)	-1810		-1475	-1810		-1475	-1810		-1475	mV	
V_{BB}	Output Voltage Reference	-1.38		-1.26	-1.38		-1.26	-1.38		-1.26	V	
V_{IHCMR}	Input HIGH Voltage Common Mode Range (Differential) (Note 8)										V	
	$V_{PP} < 500mV$	-2.5		-0.4	-2.5		-0.4	-2.5		-0.4		
	$V_{PP} \geq 500mV$	-1.8		-0.4	-1.9		-0.4	-1.9		-0.4		
I_{IH}	Input HIGH Current			150			150			150	μA	
I_{IL}	Input LOW Current	\overline{D}	0.5		0.5			0.5			μA	
		\overline{D}	-600		-600			-600			μA	
<p>Note 6: Input and output parameters vary 1 to 1 with V_{CC}. V_{EE} can vary $\pm 0.3V$.</p> <p>Note 7: Outputs are terminated through a 50Ω Resistor to $V_{CC} - 2.0V$.</p> <p>Note 8: V_{IHCMR} minimum varies 1 to 1 with V_{EE}. V_{IHCMR} maximum varies 1-to-1 with V_{CC}. The V_{IHCMR} range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between V_{PPMIN} and 1V.</p> <p>Note 9: Absolute value of the input HIGH and LOW current should not exceed the absolute value of the stated Min or Max specification.</p> <p>Note: Devices are designed to meet the DC specifications after thermal equilibrium has been established. Circuit is tested with air flow greater than 500LFPM maintained.</p>												
100LEVEL16 AC Electrical Characteristics $V_{CC} = 3.3V$; $V_{EE} = 0.0V$ or $V_{CC} = 0.0V$; $V_{EE} = -3.3V$ (Note 10) (Note 11)												
Symbol	Parameter	-40°C			25°C			85°C			Units	Figure Number
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
f_{MAX}	Maximum Toggle Frequency			TBD			TBD			TBD	GHz	
t_{PLH} , t_{PHL}	Propagation Delay to Output (Diff) (SE)	150	275	400	225	300	375	240	315	390	ps	Figures 1, 3
		100	275	450	175	300	425	190	315	440		
t_{SKEW}	Duty Cycle Skew (Note 12)		5	30		5	20		5	20	ps	
t_{JITTER}	Cycle-to-Cycle Jitter			TBD			TBD			TBD	ps	
V_{PP}	Input Swing	150		1000	150		1000	150		1000	mV	Figure 1
t_r , t_f	Output Rise Times Q (20% to 80%)	120	220	320	120	220	320	120	220	320	ps	Figure 2
<p>Note 10: V_{EE} can vary $\pm 0.3V$.</p> <p>Note 11: Measured using a 750 mV input swing centered at $V_{CC} - 1.32V$; 50% duty cycle clock source; $t_r = t_f = 250$ ps (20% - 80%) at $f_{IN} = 1$ MHz. All loading with 50Ω to $V_{CC} - 2.0V$.</p> <p>Note 12: Duty cycle skew is the difference between a t_{PLH} and t_{PHL} propagation delay through a device under identical conditions.</p>												

Switching Waveforms

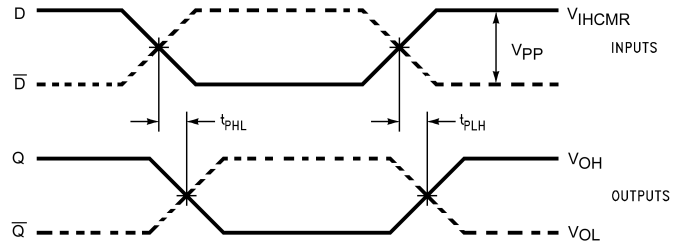


FIGURE 1. Differential to Differential Propagation Delay

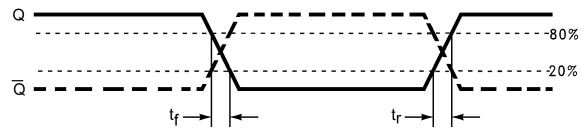


FIGURE 2. Differential Output Edge Rates

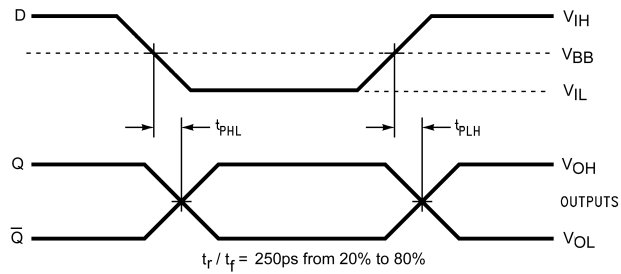
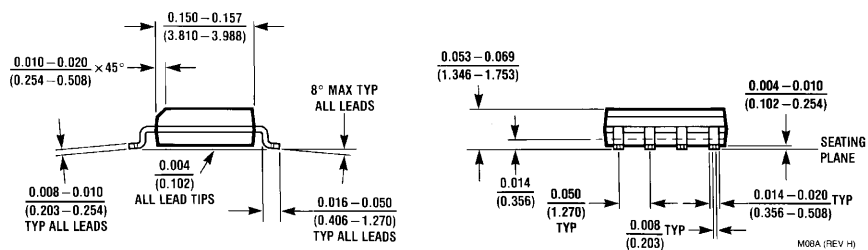
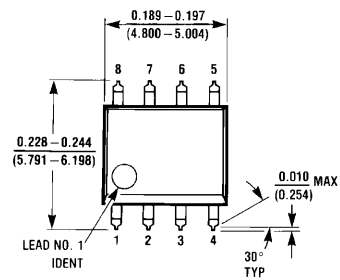


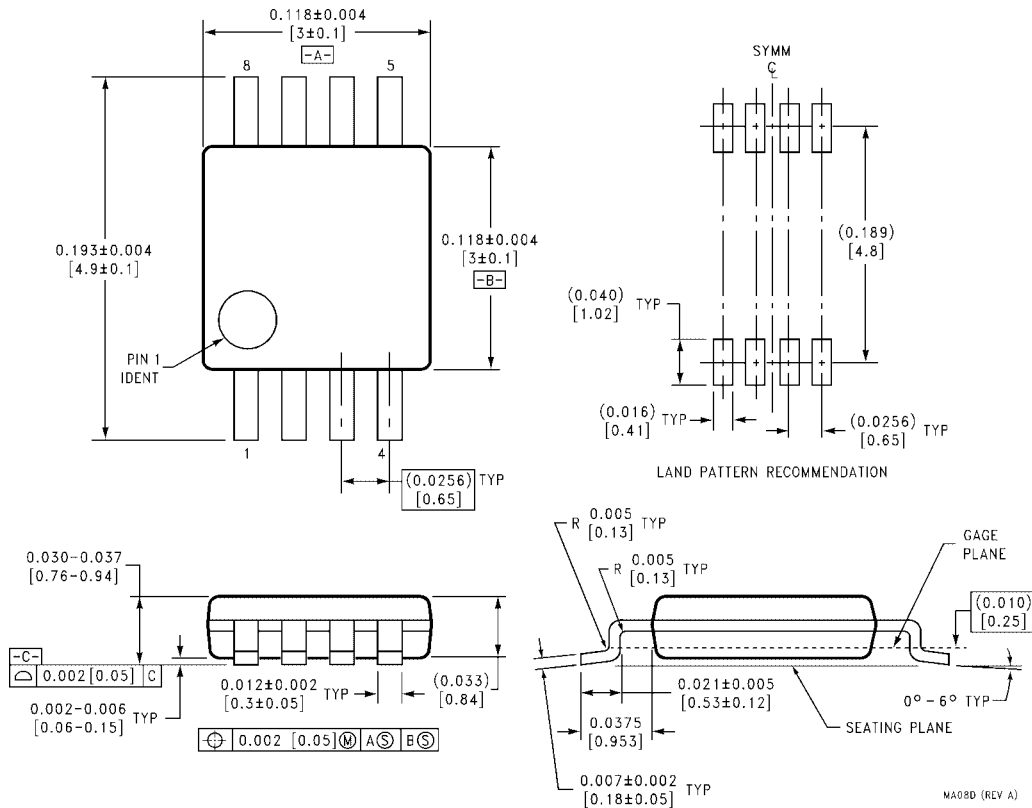
FIGURE 3. Single Ended to Differential Propagation Delay

Physical Dimensions inches (millimeters) unless otherwise noted



**8-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow
Package Number M08A**

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



**8-Lead Molded Small Outline Package (MSOP), JEDEC MO-187, 3.0mm Wide
Package Number MA08D**

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