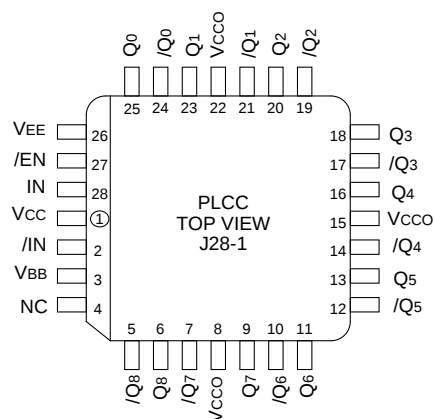


PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information⁽¹⁾

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E111JI	J28-1	Industrial	SY10E111JI	Sn-Pb
SY10E111JITR ⁽²⁾	J28-1	Industrial	SY10E111JI	Sn-Pb
SY100E111JI	J28-1	Industrial	SY100E111JI	Sn-Pb
SY100E111JITR ⁽²⁾	J28-1	Industrial	SY100E111JI	Sn-Pb
SY10E111JC	J28-1	Commercial	SY10E111JC	Sn-Pb
SY10E111JCTR ⁽²⁾	J28-1	Commercial	SY10E111JC	Sn-Pb
SY100E111JC	J28-1	Commercial	SY100E111JC	Sn-Pb
SY100E111JCTR ⁽²⁾	J28-1	Commercial	SY100E111JC	Sn-Pb
SY10E111JY ⁽³⁾	J28-1	Industrial	SY10E111JY with Pb-Free bar-line indicator	Matte-Sn
SY10E111JYTR ^(2, 3)	J28-1	Industrial	SY10E111JY with Pb-Free bar-line indicator	Matte-Sn
SY100E111JY ⁽³⁾	J28-1	Industrial	SY100E111JY with Pb-Free bar-line indicator	Matte-Sn
SY100E111JYTR ^(2, 3)	J28-1	Industrial	SY100E111JY with Pb-Free bar-line indicator	Matte-Sn

Notes:

1. Contact factory for die availability. Dice are guaranteed at $T_A = 25^\circ\text{C}$, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

TIMING DIAGRAMS

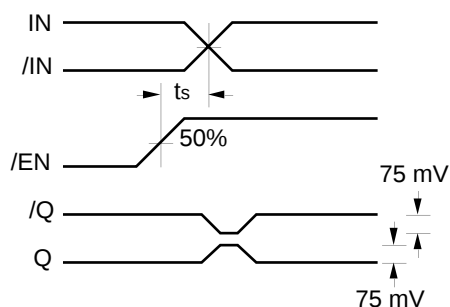


Figure 1. Set-up Time

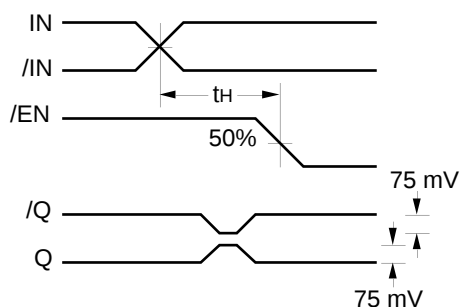


Figure 2. Hold Time

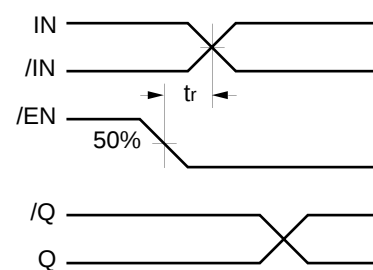


Figure 3. Release Time

DC ELECTRICAL CHARACTERISTICS $V_{EE} = V_{EE} \text{ (Min.) to } V_{EE} \text{ (Max.)}; V_{CC} = V_{CCO} = \text{GND}$

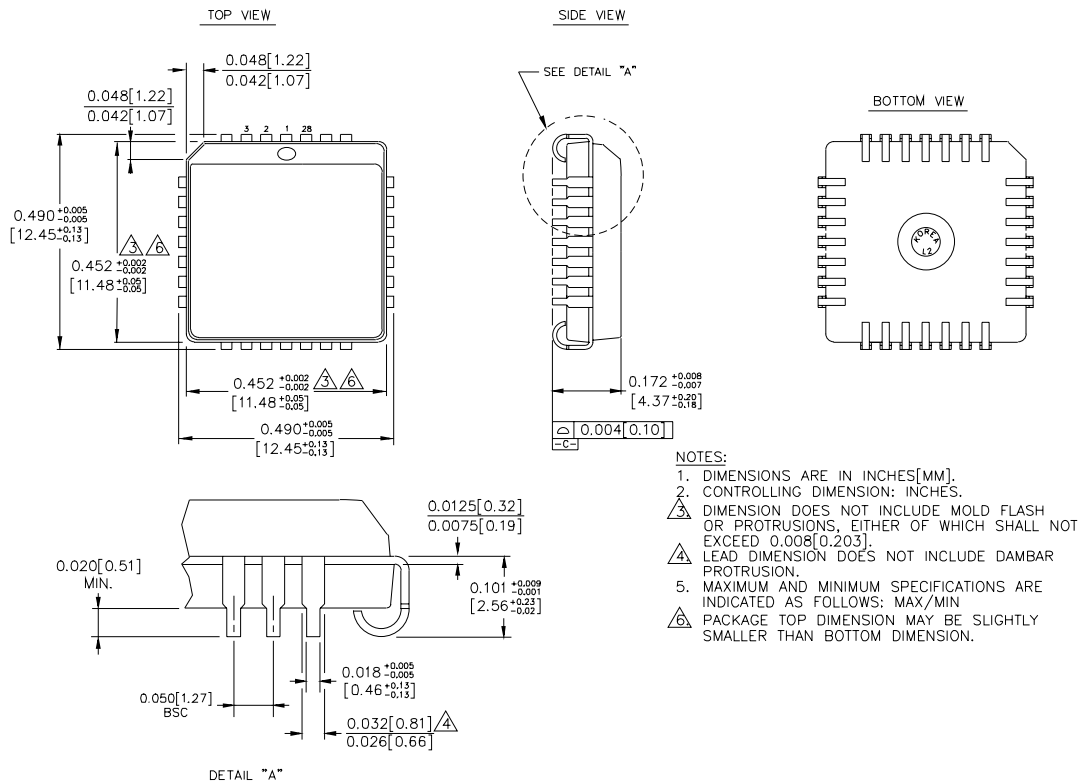
Symbol	Parameter	$T_A = -40^\circ\text{C}$			$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
V_{BB}	Output Reference Voltage 10E 100E				-1.38 -1.38	— —	-1.27 -1.26	-1.35 -1.38	— —	-1.25 -1.26	-1.31 -1.38	— —	-1.19 -1.26	V
I_{IH}	Input HIGH Current				—	—	150	—	—	150	—	—	150	μA
I_{EE}	Power Supply Current 10E 100E				— —	48 48	60 60	— —	48 48	60 60	— —	48 55	60 69	mA

AC ELECTRICAL CHARACTERISTICS $V_{EE} = V_{EE} \text{ (Min.) to } V_{EE} \text{ (Max.)}; V_{CC} = V_{CCO} = \text{GND}$

Symbol	Parameter	$T_A = -40^\circ\text{C}$			$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
t_{PD}	Propagation Delay to Output IN (differential) ⁽¹⁾ IN (single-ended) ⁽²⁾ Enable ⁽³⁾ Disable ⁽³⁾				430 330 450 450	— — — —	630 730 850 850	430 330 450 450	— — — —	630 730 850 850	430 330 450 450	— — — —	630 730 850 850	ps
t_{SKEW}	Within-Device Skew ⁽⁴⁾				—	25	50	—	25	50	—	25	50	ps
t_S	Set-up Time /EN to IN ⁽⁵⁾				200	0	—	200	0	—	200	0	—	ps
t_H	Hold Time IN to /EN ⁽⁶⁾				0	-200	—	0	-200	—	0	-200	—	ps
t_R	Release Time /EN to IN ⁽⁷⁾				300	100	—	300	100	—	300	100	—	ps
V_{PP}	Minimum Input Swing ⁽⁸⁾				250	—	—	250	—	—	250	—	—	mV
V_{CMR}	Common Mode Range ⁽⁹⁾				-1.6	—	-0.4	-1.6	—	-0.4	-1.6	—	-0.4	V
t_r t_f	Rise/Fall Times (20% to 80%)				275	375	600	275	375	600	275	375	600	ps

Notes:

- The differential propagation delay is defined as the delay from the crossing points of the differential input signals to the crossing point of the differential output signals.
- The single-ended propagation delay is defined as the delay from the 50% point of the input signal to the 50% point of the output signal.
- Enable is defined as the propagation delay from the 50% point of a **negative** transition on /EN to the 50% point of a **positive** transition on Q (or a negative transition on /Q). Disable is defined as the propagation delay from the 50% point of a **positive** transition on /EN to the 50% point of a **negative** transition on Q (or a positive transition on /Q).
- The within-device skew is defined as the worst case difference between any two similar delay paths within a single device.
- The set-up time is the minimum time that /EN must be asserted prior to the next transition of /IN/IN to prevent an output response greater than $\pm 75\text{mV}$ to that /IN/IN transition (see Figure 1).
- The hold time is the minimum time that /EN must remain asserted after a negative going IN or a positive going /IN to prevent an output response greater than $\pm 75\text{mV}$ to that IN, /IN transition (see Figure 2).
- The release time is the minimum time that /EN must be de-asserted prior to the next IN, /IN transition to ensure an output response that meets the specified IN to Q propagation delay and output transition times (see Figure 3).
- V_{PP} (min.) is defined as the minimum input differential voltage which will cause no increase in the propagation delay. The V_{PP} (min.) is AC limited for the E111, as a differential input as low as 50mV will still produce full ECL levels at the output.
- V_{CMR} is defined as the range within which the V_{IH} level may vary, with the device still meeting the propagation delay specification. The V_{IL} level must be such that the peak-to-peak voltage is less than 1.0V and greater than or equal to V_{PP} (min.).

28-PIN PLCC (J28-1)

Rev. 03

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