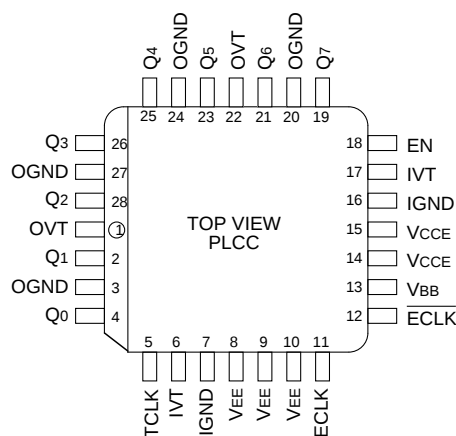


PACKAGE/ORDERING INFORMATION**28-Pin PLCC (J28-1)****Ordering Information⁽¹⁾**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10H646LJC	J28-1	Commercial	SY10H646LJC	Sn-Pb
SY10H646LJCTR ⁽²⁾	J28-1	Commercial	SY10H646LJC	Sn-Pb
SY100H646LJC	J28-1	Commercial	SY100H646LJC	Sn-Pb
SY100H646LJCTR ⁽²⁾	J28-1	Commercial	SY100H646LJC	Sn-Pb
SY10H646LJZ ⁽³⁾	J28-1	Commercial	SY10H646LJZ with Pb-Free bar-line indicator	Matte-Sn
SY10H646LJZTR ^(2, 3)	J28-1	Commercial	SY10H646LJZ with Pb-Free bar-line indicator	Matte-Sn
SY100H646LJZ ⁽³⁾	J28-1	Commercial	SY100H646LJZ with Pb-Free bar-line indicator	Matte-Sn
SY100H646LJZTR ^(2, 3)	J28-1	Commercial	SY100H646LJZ 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.

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Symbol	Rating	Value	Unit
V _E (ECL) V _T (TTL)	Power Supply Voltage	−0.5 to +7.0 −0.5 to +7.0	V
V _I (ECL) V _I (TTL)	Input Voltage	0.0 to V _{EE} −0.5 to V _{CC}	V
V _{OUT} (TTL)	Disabled 3-State Output	0.0 to V _{CCT}	V
I _{OUT} (ECL)	Output Current - Continuous - Surge	50 100	mA
T _{LEAD}	Lead Temperature Range (soldering, 20sec)	+260	°C
T _{store}	Storage Temperature	−65 to +150	°C
T _A	Operating Temperature	0 to +85	°C

Note:

- Do not exceed.

TRUTH TABLE

TCLK	ECLK	$\overline{\text{ECLK}}$	EN	Q
GND	L	H	H	L
GND	H	L	H	H
H	GND	GND	H	H
L	GND	GND	H	L
X	X	X	L	Z

Note:

X = Don't Care

L = Low Voltage Level

H = High Voltage Level

Z = Three-State

DC ELECTRICAL CHARACTERISTICSOVT = IVT = V_{CC}E = 3.0V to 3.6V

Symbol	Parameter	T _A = 0°C		T _A = +25°C		T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
I _{CC} L	Power Supply Current	—	120	—	120	—	120	mA	Total all OVT, IVT, and V _{CC} E pins
I _{CC} H		—	120	—	120	—	120		

TTL DC ELECTRICAL CHARACTERISTICSOVT = IVT = V_{CC}E = 3.0V to 3.6V

Symbol	Parameter	T _A = 0°C		T _A = +25°C		T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
V _I H	Input HIGH Voltage	2.0	—	2.0	—	2.0	—	V	
V _I L	Input LOW Voltage	—	0.8	—	0.8	—	0.8	V	
I _I H	Input HIGH Current	—	20 100	—	20 100	—	20 100	μA	V _I N = 2.7 V V _I N = V _{CC}
I _I L	Input LOW Current	—	−0.4	—	−0.4	—	−0.4	mA	V _I N = 0.5 V
V _O H	Output HIGH Voltage	2.0	—	2.0	—	2.0	—	V	I _O H = −3.0 mA
V _O L	Output LOW Voltage	—	0.5	—	0.5	—	0.5	V	I _O L = 24 mA
V _I K	Input Clamp Voltage	—	−1.2	—	−1.2	—	−1.2	V	I _I N = −18mA
I _O S	Output Short Circuit Current	−100	—	−100	—	−100	—	mA	V _O H = 0V

10H ECL DC ELECTRICAL CHARACTERISTICSOVT = IVT = V_{CCE} = 3.0V to 3.6V

Symbol	Parameter	T _A = 0°C		T _A = +25°C		T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
I _{IH}	Input HIGH Current	—	225	—	175	—	175	μA	—
I _{IL}	Input LOW Current	0.5	—	0.5	—	0.5	—	μA	—
V _{IH}	Input HIGH Voltage ⁽¹⁾	2.130	2.460	2.170	2.490	2.240	2.580	V	V _E = 3.3V
V _{IL}	Input LOW Voltage ⁽¹⁾	1.350	1.820	1.350	1.820	1.350	1.855	V	V _E = 3.3V
V _{BB}	Output Reference Voltage ⁽¹⁾	1.920	2.030	1.950	2.050	1.990	2.110	V	V _E = 3.3V

Note:1. V_{IH}, V_{IL} and V_{BB} are referenced to V_{CC} and will vary 1:1 with the power supply. The levels shown are for V_{CC} = +3.3V.**100H ECL DC ELECTRICAL CHARACTERISTICS**OVT = IVT = V_{CCE} = 3.0V to 3.6V

Symbol	Parameter	T _A = 0°C		T _A = +25°C		T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
I _{IH}	Input HIGH Current	—	225	—	175	—	175	μA	—
I _{IL}	Input LOW Current	0.5	—	0.5	—	0.5	—	μA	—
V _{IH}	Input HIGH Voltage ⁽¹⁾	2.135	2.420	2.135	2.420	2.135	2.420	V	V _E = 3.3V
V _{IL}	Input LOW Voltage ⁽¹⁾	1.490	1.825	1.490	1.825	1.490	1.825	V	V _E = 3.3V
V _{BB}	Output Reference Voltage ⁽¹⁾	1.920	2.040	1.920	2.040	1.920	2.040	V	V _E = 3.3V

Note:1. V_{IH}, V_{IL} and V_{BB} are referenced to V_{CC} and will vary 1:1 with the power supply. The levels shown are for V_{CC} = +3.3V.

AC ELECTRICAL CHARACTERISTICS

IVT = OVT = VCCE = 3.0V to 3.6V

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
tPLH	Propagation Delay ECLK to Q	2.3	—	3.3	2.25	—	3.25	2.2	—	3.2	ns	CL = 20pF
tPHL	TCLK to Q	2.3	—	3.3	2.25	—	3.25	2.2	—	3.2		
tskpp	Part-to-Part Skew ^(1,4)	—	—	0.5	—	—	0.5	—	—	0.5	ns	CL = 20pF
tskew++	Within-Device Skew ^(2,4)	—	—	0.3	—	—	0.3	—	—	0.3	ns	CL = 20pF
tskew--	Within-Device Skew ^(3,4)	—	—	0.3	—	—	0.3	—	—	0.3	ns	CL = 20pF
tr	Rise 0.8V to 2.0V	0.3	—	1.5	0.3	—	1.5	0.3	—	1.5	ns	CL = 20pF
tf	Fall Time 0.8V to 2.0V	0.3	—	1.5	0.3	—	1.5	0.3	—	1.5	ns	CL = 20pF
tpw	Output Pulse Width										ns	CL = 20pF
	66MHz @ 2.0V	5.5	—	—	5.5	—	—	5.5	—	—		
	66MHz @ 0.8V	5.5	—	—	5.5	—	—	5.5	—	—		
	60MHz @ 2.0V	6.0	—	—	6.0	—	—	6.0	—	—		
	60MHz @ 0.8V	6.0	—	—	6.0	—	—	6.0	—	—		
tStability	Clock Stability ⁽⁷⁾	—	—	±75	—	—	±75	—	—	±75	ps	CL = 20pF
fMAX	Maximum Input Frequency ^(5,6)	160	—	—	160	—	—	160	—	—	MHz	CL = 20pF

Notes:

1. Device-to-Device Skew considering HIGH-to-HIGH or LOW-to-LOW transitions at common Vcc level.
2. Within-Device Skew considering HIGH-to-HIGH transitions at common Vcc level.
3. Within-Device Skew considering LOW-to-LOW transitions at common Vcc level.
4. All skew parameters are guaranteed but not tested.
5. Frequency at which output levels will meet a 0.8V to 2.0V minimum swing.
6. The fMAX value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.
7. Clock stability is the period variation between two successive rising edges.

ADDITIONAL INFORMATION

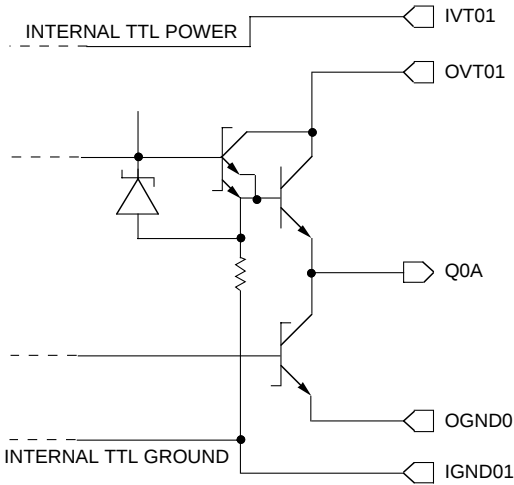


Figure 1. Output Structure

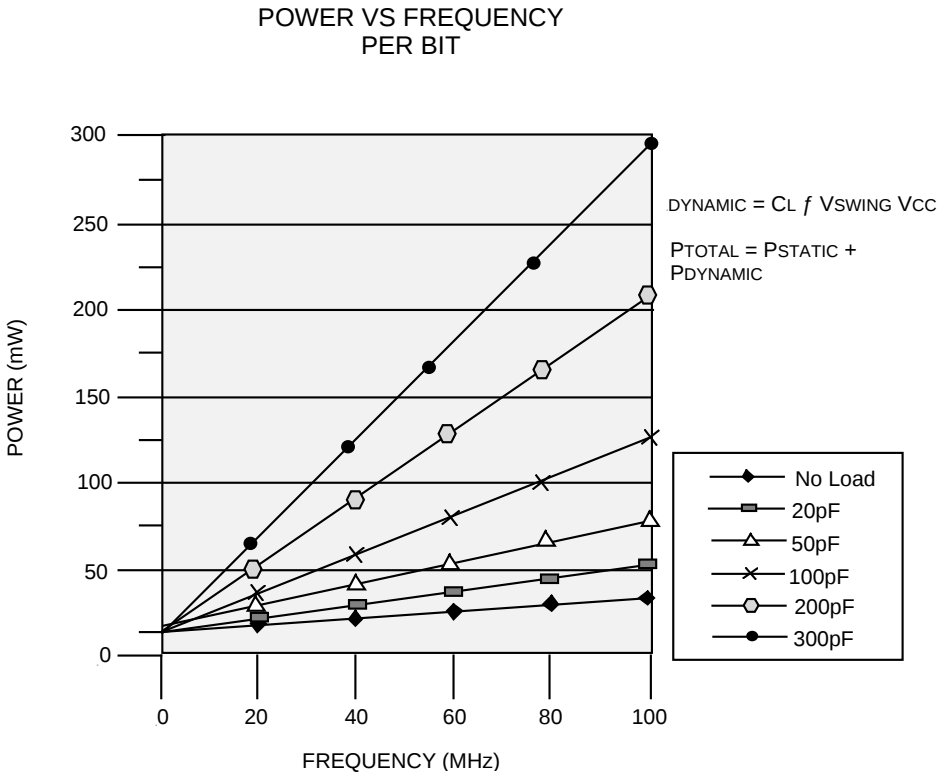
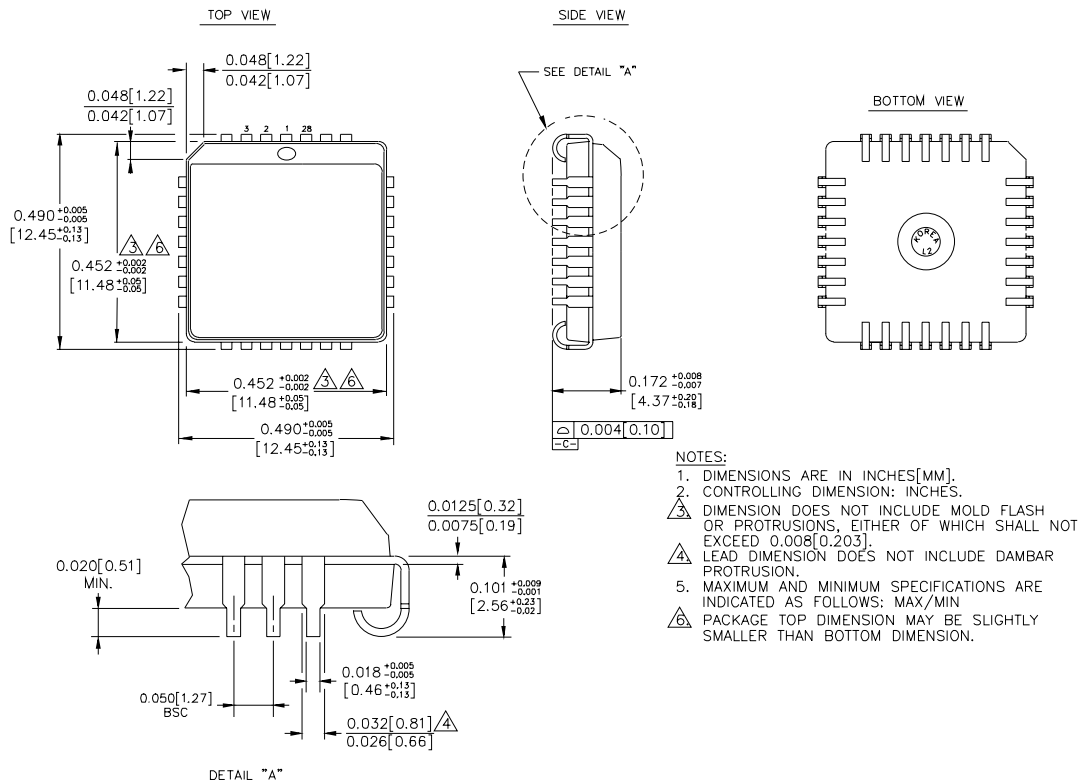


Figure 2. Power Versus Frequency (Typical)

28-PIN PLCC (J28-1)

Rev. 03

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