

**FEATURES**

- Differential PECL data and clock inputs
- 48mA sink, 15mA source TTL outputs
- Single +5V power supply
- Multiple power and ground pins to minimize noise
- Specified within-device skew
- VBB output for single-ended use
- Fully compatible with MC10H/100H607
- Available in 28-pin PLCC package

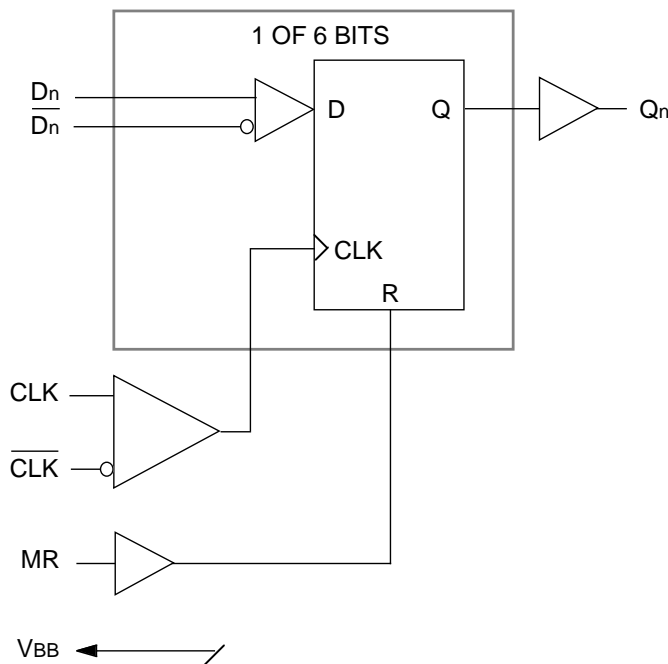
**DESCRIPTION**

The SY10/100H607 are 6-bit, registered, dual supply PECL-to-TTL translators. The devices feature differential PECL inputs for both data and clock. The TTL outputs feature 48mA sink, 15mA source drive capability for driving high fanout loads. The asynchronous master reset control is a PECL level input.

With its differential PECL inputs and TTL outputs, the H607 device is ideally suited for the receive function of a HPPI bus-type board-to-board interface application. The on-chip registers simplify the task of synchronizing the data between the two boards.

The device is available in either ECL standard: the 10H device is compatible with 10K logic levels, while the 100H device is compatible with 100K logic levels.

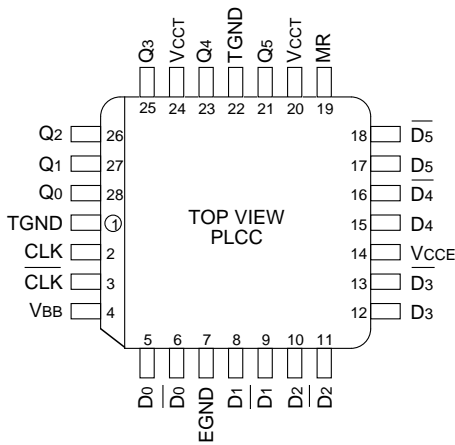
**BLOCK DIAGRAM**



**PIN NAMES**

Pin	Function
D <sub>0</sub> – D <sub>5</sub>	True PECL Data Inputs
$\overline{D}_0$ – $\overline{D}_5$	Inverted PECL Data Inputs
CLK, $\overline{CLK}$	Differential PECL Clock Input
MR	PECL Master Reset Input
Q <sub>0</sub> – Q <sub>5</sub>	TTL Outputs
V <sub>CCE</sub>	PECL Vcc (5.0V)
V <sub>CCT</sub>	TTL Vcc (5.0V)
TGND	TTL Ground
EGND	PECL Ground
V <sub>BB</sub>	VBB Reference Output (PECL)

**PACKAGE/ORDERING INFORMATION**



**28-Pin PLCC (J28-1)**

**Ordering Information<sup>(1)</sup>**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10H607JC	J28-1	Commercial	SY10H607JC	Sn-Pb
SY10H607JCTR <sup>(2)</sup>	J28-1	Commercial	SY10H607JC	Sn-Pb
SY100H607JC	J28-1	Commercial	SY100H607JC	Sn-Pb
SY100H607JCTR <sup>(2)</sup>	J28-1	Commercial	SY100H607JC	Sn-Pb
SY10H607JZ <sup>(3)</sup>	J28-1	Commercial	SY10H607JZ with Pb-Free bar-line indicator	Matte-Sn
SY10H607JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY10H607JZ with Pb-Free bar-line indicator	Matte-Sn
SY100H607JZ <sup>(3)</sup>	J28-1	Commercial	SY100H607JZ with Pb-Free bar-line indicator	Matte-Sn
SY100H607JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY100H607JZ 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.

**TRUTH TABLE**

Dn	MR	TCLK/CLK	Qn + 1
L	L	Z	L
H	L	Z	H
X	H	X	L

Z = Low to High Transition.

**DC ELECTRICAL CHARACTERISTICS**V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V ±5%

Symbol	Parameter	TA= 0°C			TA= +25°C			TA= + 85°C			Unit	Condition	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
I <sub>EE</sub>	PECL Power Supply Current										mA		
		10H	—	70	85	—	70	85	—	70			85
		100H	—	65	80	—	70	85	—	75			95
I <sub>CCL</sub>	TTL Supply Current	—	100	120	—	100	120	—	100	120	mA		
I <sub>CCH</sub>	TTL Supply Current	—	100	120	—	100	120	—	100	120	mA		
I <sub>OS</sub>	Output Short Circuit Current	-100	—	-225	-100	—	-225	-100	—	-225	mA		

**10H PECL DC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>**V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V ±5%

Symbol	Parameter	TA= 0°C		TA= +25°C		TA= + 85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
I <sub>IH</sub>	Input HIGH Current	—	225	—	145	—	145	μA	
I <sub>IL</sub>	Input LOW Current	0.5	—	0.5	—	0.5	—	μA	
V <sub>IH</sub>	Input HIGH Voltage	3830	4160	3870	4190	3930	4280	mV	V <sub>CCT</sub> = 5.0V
V <sub>IL</sub>	Input LOW Voltage	3050	3520	3050	3520	3050	3555	mV	V <sub>CCT</sub> = 5.0V
V <sub>BB</sub>	Output Bias Voltage	3620	3730	3650	3750	3690	3810	mV	V <sub>CCT</sub> = 5.0V

**Note:**1. PECL V<sub>IL</sub>, V<sub>IH</sub>, V<sub>OL</sub>, V<sub>OH</sub>, V<sub>BB</sub> are given for V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V and will vary 1:1 with power supply.**100H PECL DC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>**V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V ±5%

Symbol	Parameter	TA= 0°C		TA= +25°C		TA= + 85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
I <sub>IH</sub>	Input HIGH Current	—	225	—	145	—	145	μA	
I <sub>IL</sub>	Input LOW Current	0.5	—	0.5	—	0.5	—	μA	
V <sub>IH</sub>	Input HIGH Voltage	3835	4120	3835	4120	3835	4120	mV	V <sub>CCT</sub> = 5.0V
V <sub>IL</sub>	Input LOW Voltage	3190	3525	3190	3525	3190	3525	mV	V <sub>CCT</sub> = 5.0V
V <sub>BB</sub>	Output Bias Voltage	3620	3740	3620	3740	3620	3740	mV	V <sub>CCT</sub> = 5.0V

**Note:**1. PECL V<sub>IL</sub>, V<sub>IH</sub>, V<sub>OL</sub>, V<sub>OH</sub>, V<sub>BB</sub> are given for V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V and will vary 1:1 with power supply.

**10H/100H TTL DC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>**V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V ±5%

Symbol	Parameter	T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
V <sub>OH</sub>	Output HIGH Voltage	2.5 2.0	— —	2.5 2.0	— —	2.5 2.0	— —	V	I <sub>OH</sub> = -15mA I <sub>OH</sub> = -24mA
V <sub>OL</sub>	Output LOW Voltage	—	0.55	—	0.55	—	0.55	V	I <sub>OL</sub> = 48mA

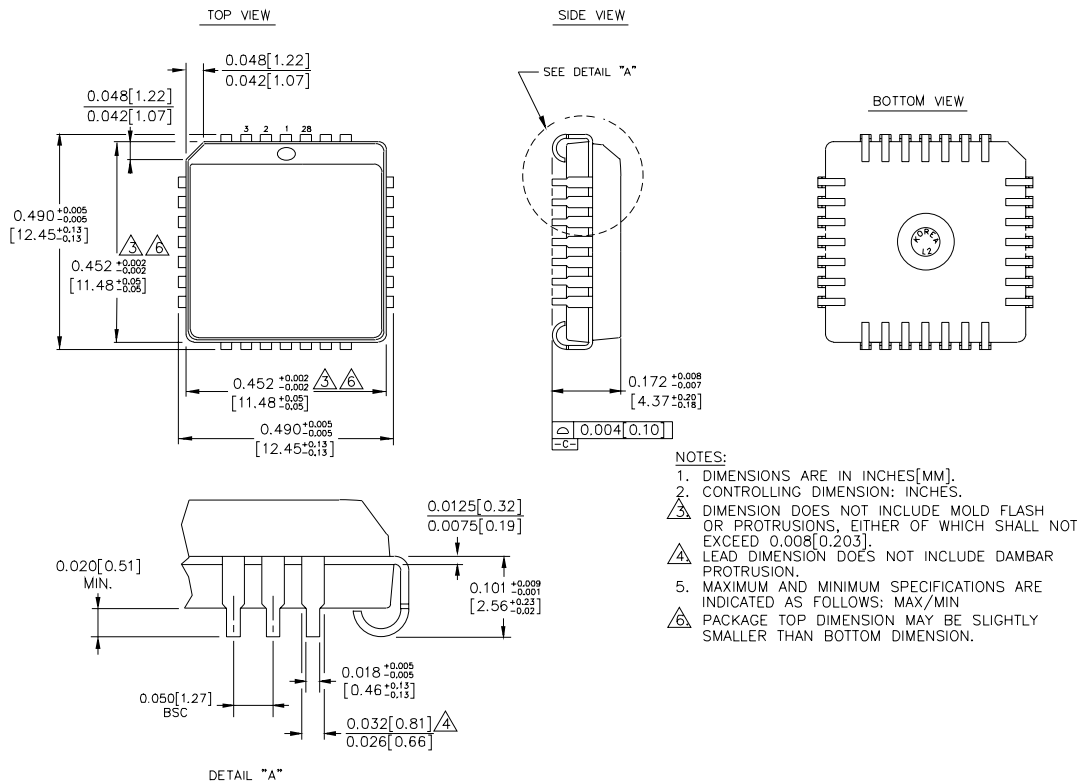
**Note:**  
1. DC levels such as V<sub>OH</sub>, V<sub>OL</sub>, etc., are standard for PECL and FAST devices, with the exceptions of: I<sub>OL</sub> = 48mA at 0.5 V<sub>OL</sub>; and I<sub>OH</sub> = 24mA at 2.0 V<sub>OH</sub>.

**AC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>**V<sub>CCT</sub> = V<sub>CCE</sub> = 5.0V ±5%

Symbol	Parameter	T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t <sub>PD</sub>	Propagation Delay to Output CLK to Q MR to Q	—	—	6.0	—	—	6.0	—	—	6.0	ns	C <sub>L</sub> = 50 pF
		—	—	6.0	—	—	6.0	—	—	6.0		
t <sub>skpp</sub>	Part-to-Part Skew <sup>(1,4)</sup>	—	—	0.5	—	—	0.5	—	—	0.5	ns	C <sub>L</sub> = 50pF
t <sub>skew++</sub>	Within-Device Skew <sup>(2,4)</sup>	—	—	0.3	—	—	0.3	—	—	0.3	ns	C <sub>L</sub> = 50pF
t <sub>skew--</sub>	Within-Device Skew <sup>(3,4)</sup>	—	—	0.3	—	—	0.3	—	—	0.3	ns	C <sub>L</sub> = 50pF
t <sub>S</sub>	Set-up Time	0.200	—	—	0.200	—	—	0.200	—	—	ns	
t <sub>H</sub>	Hold Time	0.500	—	—	0.500	—	—	0.500	—	—	ns	
t <sub>PW</sub>	Minimum Pulse Width CLK, MR	1.0	—	—	1.0	—	—	1.0	—	—	ns	
V <sub>PP</sub>	Minimum Input Swing	200	150	—	200	150	—	200	150	—	mV	
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Time 1.0V to 2.0V	—	—	1.5	—	—	1.5	—	—	1.5	ns	C <sub>L</sub> = 50pF
f <sub>MAX</sub>	Max. Input Frequency <sup>(5,6)</sup>	160	—	—	160	—	—	160	—	—	MHz	

**Notes:**  
1. Device-to-Device Skew considering HIGH-to-HIGH transitions at common V<sub>CC</sub> level.  
2. Within-Device Skew considering HIGH-to-HIGH transitions at common V<sub>CC</sub> level.  
3. Within-Device Skew considering LOW-to-LOW transitions at common V<sub>CC</sub> 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 f<sub>MAX</sub> value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.

**28-PIN PLCC (J28-1)**



Rev. 03

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