



REGISTERED HEX
TTL-TO-PECL

SY10H606
SY100H606

FEATURES

- Differential 50Ω ECL outputs
- Choice between differential PECL or TTL clock input
- Single +5V power supply
- VBB output for single-ended use
- Multiple power and ground pins to minimize noise
- Specified within-device skew
- Fully compatible with MC10H/100H606
- Available in 28-pin PLCC package

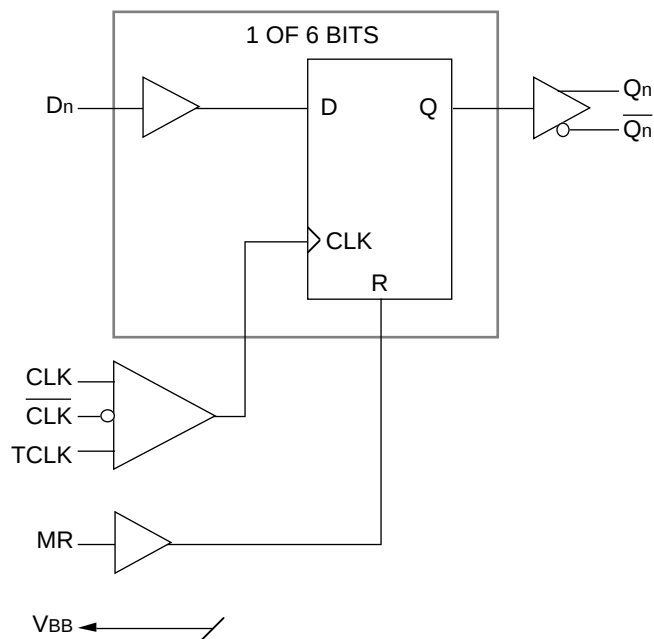
DESCRIPTION

The SY10/100H606 are 6-bit, registered, single supply TTL-to-PECL translators. The devices feature differential PECL outputs as well as a choice between either a differential PECL clock input or a TTL clock input. The asynchronous master reset control is a PECL level input.

With its differential ECL outputs and TTL inputs, the H606 device is ideally suited for the transmit 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.

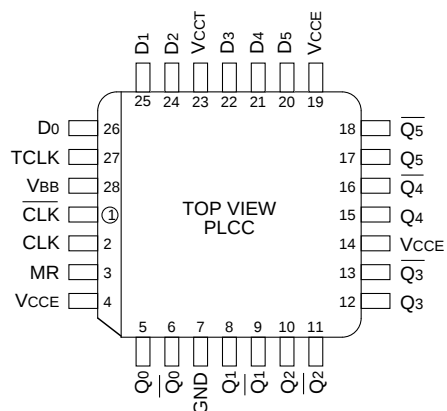
The device is available in either ECL standard: the 10H device is compatible with 10K logic levels, while the 100H device is compatible with 100K logic levels.

BLOCK DIAGRAM



PIN NAMES

Pin	Function
D ₀ – D ₅	TTL Data Inputs
CLK, $\overline{\text{CLK}}$	Differential PECL Clock Inputs
TCLK	TTL Clock Input
MR	PECL Master Reset Input
Q ₀ – Q ₅	True PECL Outputs
$\overline{\text{Q}}_0$ – $\overline{\text{Q}}_5$	Inverted PECL Outputs
V _{CCE}	PECL V _{cc} (5.0V)
V _{CTT}	TTL V _{cc} (5.0V)
GND	TTL/PECL Ground
V _{BB}	V _{BB} Reference Output (PECL)

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

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10H606JC	J28-1	Commercial	SY10H606JC	Sn-Pb
SY10H606JCTR ⁽²⁾	J28-1	Commercial	SY10H606JC	Sn-Pb
SY100H606JC	J28-1	Commercial	SY100H606JC	Sn-Pb
SY100H606JCTR ⁽²⁾	J28-1	Commercial	SY100H606JC	Sn-Pb
SY10H606JZ ⁽³⁾	J28-1	Commercial	SY10H606JZ with Pb-Free bar-line indicator	Matte-Sn
SY10H606JZTR ^(2, 3)	J28-1	Commercial	SY10H606JZ with Pb-Free bar-line indicator	Matte-Sn
SY100H606JZ ⁽³⁾	J28-1	Commercial	SY100H606JZ with Pb-Free bar-line indicator	Matte-Sn
SY100H606JZTR ^(2, 3)	J28-1	Commercial	SY100H606JZ 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 CHARACTERISTICSVCCT = VCCE = 5.0V $\pm 5\%$

Symbol	Parameter	TA= 0°C			TA= +25°C			TA= + 85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
ICCTL	Supply Current	—	18	30	—	18	30	—	18	30	mA	Outputs LOW
ICCTH	Supply Current	—	13	25	—	13	25	—	13	25	mA	Outputs HIGH
IGND	Supply Current	—	75	90	—	75	90	—	75	95	mA	

TTL DC ELECTRICAL CHARACTERISTICSVCCT = VCCE = 5.0V $\pm 5\%$

Symbol	Parameter	TA= 0°C		TA= +25°C		TA= + 85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
VIH	Input HIGH Voltage	2.0	—	2.0	—	2.0	—	V	
VIL	Input LOW Voltage	—	0.8	—	0.8	—	0.8	V	
VIK	Input Clamp Voltage	—	–1.2	—	–1.2	—	–1.2	V	IIN = –18mA
IIH	Input HIGH Current	—	20 100	—	20 100	—	20 100	μ A	VIN = 2.7V VIN = 7.0V
IIL	Input LOW Current	—	–0.6	—	–0.6	—	–0.6	mA	VIN = 0.5V

10H PECL DC ELECTRICAL CHARACTERISTICS⁽¹⁾VCCT = VCCE = 5.0V $\pm 5\%$

Symbol	Parameter	TA= 0°C		TA= +25°C		TA= + 85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
IIH	Input HIGH Current	—	225	—	145	—	145	μ A	
IIL	Input LOW Current	0.5	—	0.5	—	0.5	—	μ A	
VIH	Input HIGH Voltage	3830	4160	3870	4190	3930	4280	mV	VCCT = 5.0V
VIL	Input LOW Voltage	3050	3520	3050	3520	3050	3555	mV	VCCT = 5.0V
VOH	Output HIGH Voltage	3980	4160	4020	4190	4080	4270	mV	VCCT = 5.0V
VOL	Output LOW Voltage	3050	3370	3050	3370	3050	3400	mV	VCCT = 5.0V
VBB	Output Bias Voltage	3620	3730	3650	3750	3690	3810	mV	VCCT = 5.0V

Note:

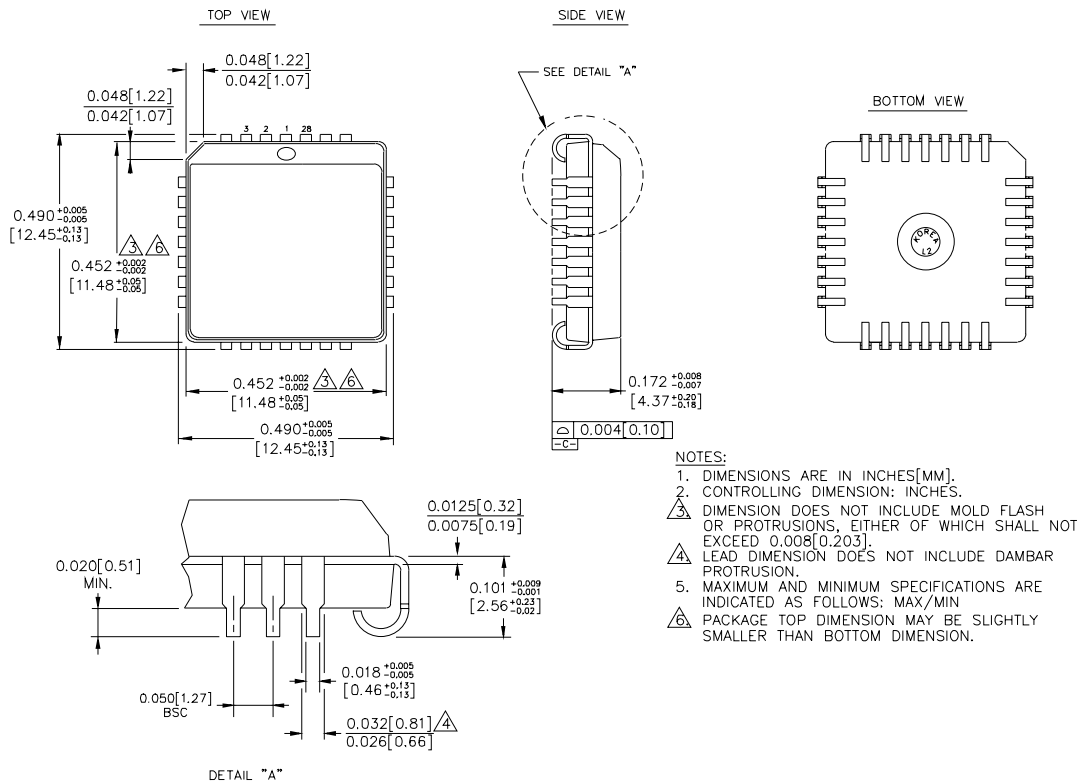
1. PECL VIL, VIH, VOL, VOH, VBB are given for VCCT = VCCE = 5.0V and will vary 1:1 with power supply.

100H PECL DC ELECTRICAL CHARACTERISTICS⁽¹⁾ $V_{CC} = V_{EE} = 5.0V \pm 5\%$

Symbol	Parameter	TA= 0°C		TA= +25°C		TA= + 85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
I _{IH}	Input HIGH Current	—	225	—	145	—	145	μA	
I _{IL}	Input LOW Current	0.5	—	0.5	—	0.5	—	μA	
V _{IH}	Input HIGH Voltage	3835	4120	3835	4120	3835	4120	mV	V _{CC} = 5.0V
V _{IL}	Input LOW Voltage	3190	3525	3190	3525	3190	3525	mV	V _{CC} = 5.0V
V _{OH}	Output HIGH Voltage	3975	4120	3975	4120	3975	4120	mV	V _{CC} = 5.0V
V _{OL}	Output LOW Voltage	3190	3380	3190	3380	3190	3380	mV	V _{CC} = 5.0V
V _{BB}	Output Bias Voltage	3620	3740	3620	3740	3620	3740	mV	V _{CC} = 5.0V

Note:1. PECL V_{IL}, V_{IH}, V_{OL}, V_{OH}, V_{BB} are given for V_{CC} = V_{CE} = 5.0V and will vary 1:1 with power supply.**AC ELECTRICAL CHARACTERISTICS** $V_{CC} = V_{CE} = 5.0V \pm 5\%$

Symbol	Parameter	TA= 0°C			TA= +25°C			TA= + 85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t _{PD}	Propagation Delay TCLK+ +	0.800	—	2.800	0.800	—	2.800	0.800	—	2.800	ns	
t _{PD}	Propagation Delay TCLK+ –	0.800	—	2.800	0.800	—	2.800	0.800	—	2.800	ns	
t _{PD}	Propagation Delay CLK+ +	0.800	—	2.800	0.800	—	2.800	0.800	—	2.800	ns	
t _{PD}	Propagation Delay CLK+ –	0.800	—	2.800	0.800	—	2.800	0.800	—	2.800	ns	
t _{PD}	Propagation Delay MR+ –	0.800	—	2.800	0.800	—	2.800	0.800	—	2.800	ns	
t _s	Set-up Time	1.5	0.5	—	1.5	0.5	—	1.5	0.5	—	ns	
t _H	Hold Time ^{1.5}	0.5	—	1.5	0.5	—	1.5	0.5	—	ns		
t _{PW}	Minimum Pulse Width CLK	1.5	—	—	1.5	1.0	—	1.5	—	—	ns	
t _{PW}	Minimum Pulse Width MR	1.5	—	—	1.5	—	—	1.5	—	—	ns	
t _r t _f	Rise/Fall Time	—	—	2.0	—	1.0	2.0	—	—	2.0	ns	
t _{RES/REC}	Reset/Recovery Time	2.5	2.0	—	2.5	2.0	—	2.5	2.0	—	ns	

28-PIN PLCC (J28-1)

Rev. 03

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