



**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

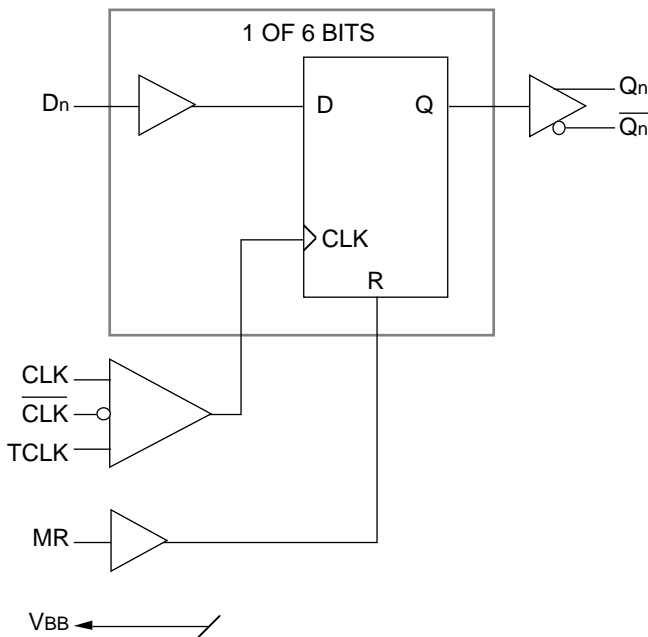
DESCRIPTION

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.

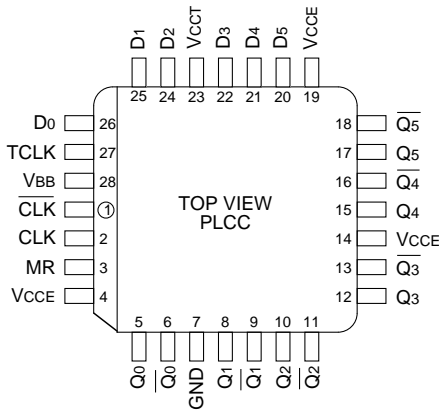
BLOCK DIAGRAM



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 Vcc (5.0V)
V _{CCT}	TTL Vcc (5.0V)
GND	TTL/PECL Ground
V _{BB}	VBB 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°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	—	20	—	20	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.

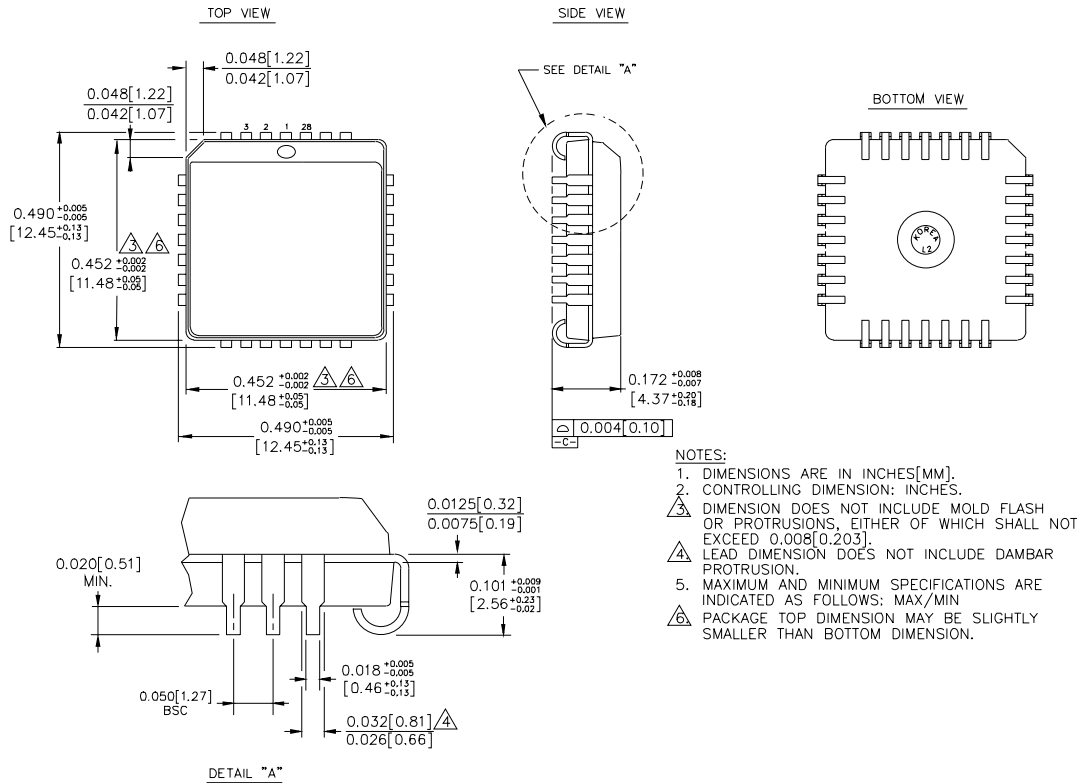
100H PECL DC ELECTRICAL CHARACTERISTICS⁽¹⁾V_{CCT} = V_{EEC} = 5.0V ±5%

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 _{CCT} = 5.0V
V _{IL}	Input LOW Voltage	3190	3525	3190	3525	3190	3525	mV	V _{CCT} = 5.0V
V _{OH}	Output HIGH Voltage	3975	4120	3975	4120	3975	4120	mV	V _{CCT} = 5.0V
V _{OL}	Output LOW Voltage	3190	3380	3190	3380	3190	3380	mV	V _{CCT} = 5.0V
V _{BB}	Output Bias Voltage	3620	3740	3620	3740	3620	3740	mV	V _{CCT} = 5.0V

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

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

The information furnished by Micrel in this data sheet is believed to be accurate and reliable. However, no responsibility is assumed by Micrel for its use. Micrel reserves the right to change circuitry and specifications at any time without notification to the customer.

Micrel Products are not designed or authorized for use as components in life support appliances, devices or systems where malfunction of a product can reasonably be expected to result in personal injury. Life support devices or systems are devices or systems that (a) are intended for surgical implant into the body or (b) support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury to the user. A Purchaser's use or sale of Micrel Products for use in life support appliances, devices or systems is at Purchaser's own risk and Purchaser agrees to fully indemnify Micrel for any damages resulting from such use or sale.

© 2006 Micrel, Incorporated.