FEATURES

- **Differential 50Ω ECL outputs**
- **Choice between differential PECL or TTL clock input**
- **Single +5V power supply**
- **V_{BB} output for single-ended use**
- **Multiple power and ground pins to minimize noise**
- **Specified within-device skew**
- **ESD protection of 2000V**
- **Fully compatible with Motorola MC10H/100H606**
- **Available in 28-pin PLCC package**

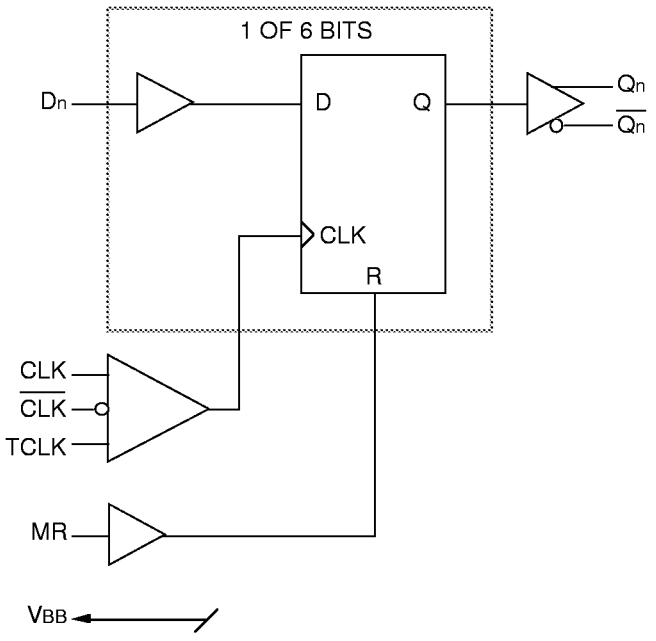
DESCRIPTION

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.

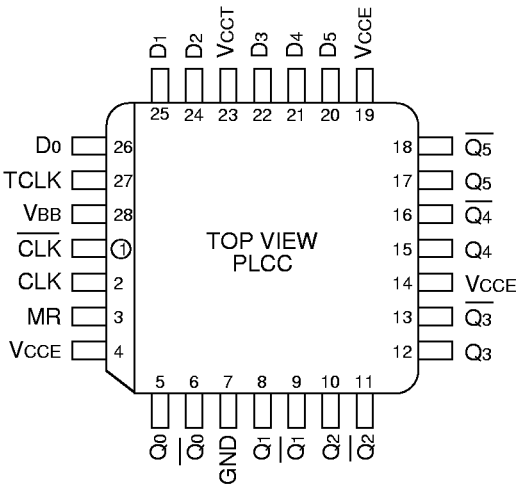
With its differential ECL outputs and TTL inputs, the H606 device is ideally suited for the transmit function of a HPPI bus-type board-to-board interface application. The on-chip registers simplify the task of synchronizing the data between the two boards.

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 CONFIGURATION



PIN NAMES

Pin	Function
$D_0 - D_5$	TTL Data Inputs
CLK, $\overline{CLK}$	Differential PECL Clock Inputs
TCLK	TTL Clock Input
MR	PECL Master Reset Input
$Q_0 - Q_5$	True PECL Outputs
$\overline{Q_0} - \overline{Q_5}$	Inverted PECL Outputs
V_{CCE}	PECL V_{CC} (5.0V)
V_{CCT}	TTL V_{CC} (5.0V)
GND	TTL/PECL Ground
V_{BB}	V_{BB} Reference Output (PECL)

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Issue Date: March, 1998

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

$V_{CCT} = V_{CCE} = 5.0V \pm 5\%$

Symbol	Parameter	T_A= 0°C			T_A= +25°C			T_A= + 85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
I_{CCTL}	Supply Current	—	18	30	—	18	30	—	18	30	mA	Outputs LOW
I_{CCTH}	Supply Current	—	13	25	—	13	25	—	13	25	mA	Outputs HIGH
I_{GND}	Supply Current	—	75	90	—	75	90	—	75	95	mA	

TTL DC ELECTRICAL CHARACTERISTICS

$V_{CCT} = V_{CCE} = 5.0V \pm 5\%$

Symbol	Parameter	T_A= 0°C		T_A= +25°C		T_A= + 85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
V_{IH}	Input HIGH Voltage	2.0	—	2.0	—	2.0	—	V	
V_{IL}	Input LOW Voltage	—	0.8	—	0.8	—	0.8	V	
V_{IK}	Input Clamp Voltage	—	–1.2	—	–1.2	—	–1.2	V	I_{IN} = –18mA
I_{IH}	Input HIGH Current	— —	20 100	— —	20 100	— —	20 100	µA	V_{IN} = 2.7V V_{IN} = 7.0V
I_{IL}	Input LOW Current	—	–0.6	—	–0.6	—	–0.6	mA	V_{IN} = 0.5V

10H PECL DC ELECTRICAL CHARACTERISTICS[1]

$V_{CCT} = V_{CCE} = 5.0V \pm 5\%$

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	—	145	—	145	µA	
I_{IL}	Input LOW Current	0.5	—	0.5	—	0.5	—	µA	
V_{IH}	Input HIGH Voltage	3830	4160	3870	4190	3930	4280	mV	V_{CCT} = 5.0V
V_{IL}	Input LOW Voltage	3050	3520	3050	3520	3050	3555	mV	V_{CCT} = 5.0V
V_{OH}	Output HIGH Voltage	3980	4160	4020	4190	4080	4270	mV	V_{CCT} = 5.0V
V_{OL}	Output LOW Voltage	3050	3370	3050	3370	3050	3400	mV	V_{CCT} = 5.0V
V_{BB}	Output Bias Voltage	3620	3730	3650	3750	3690	3810	mV	V_{CCT} = 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]

$V_{CCT} = V_{EEC} = 5.0V \pm 5\%$

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	—	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 $V_{CCT} = V_{CCE} = 5.0V$ and will vary 1:1 with power supply.

AC ELECTRICAL CHARACTERISTICS

$V_{CCT} = V_{CCE} = 5.0V \pm 5\%$

Symbol	Parameter	T_A= 0°C			T_A= +25°C			T_A= + 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	

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY10H606JC	J28-1	Commercial
SY10H606JCTR	J28-1	Commercial
SY100H606JC	J28-1	Commercial
SY100H606JCTR	J28-1	Commercial

28 LEAD PLASTIC LEADED CHIP CARRIER (J28-1)