QUINT DIFFERENTIAL LINE RECEIVER

FEATURES

- **Differential D and Q**
- **Extended 100E VEE range of –4.2V to –5.5V**
- **VBB output for single-ended use**
- **600ps max. propagation delay**
- **High frequency outputs**
- **2 stages of gain**
- **Internal 75KΩ input pull-down resistors**
- **Fully compatible with Motorola 10E/100E416**
- **Available in 28-pin PLCC package**

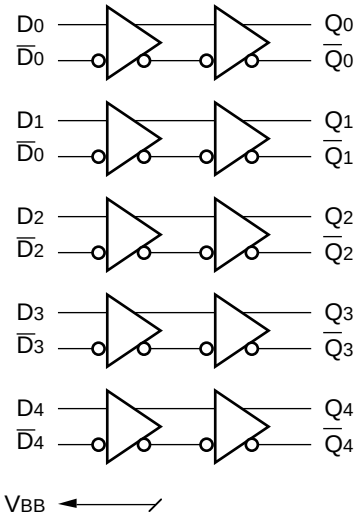
DESCRIPTION

The SY10/100E416 are 5-bit differential line receiving devices. The 2.0GHz of bandwidth provided by the high frequency outputs make the devices ideal for buffering of very high speed oscillators.

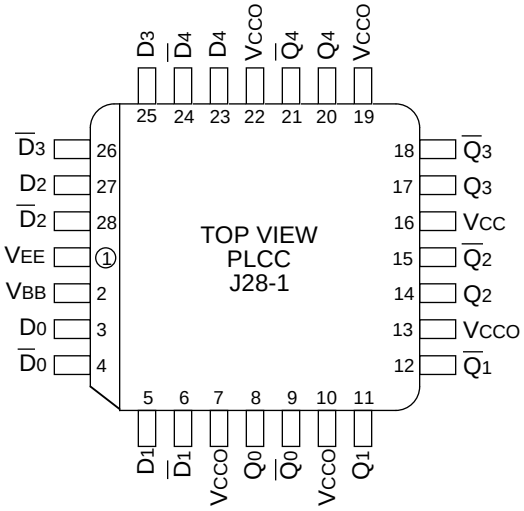
A VBB pin is available to AC couple an input signal to the devices.

The design incorporates two stages of gain internal to the devices, making them an excellent choice for use in high bandwidth amplifier applications.

BLOCK DIAGRAM



PIN CONFIGURATION



PIN NAMES

Pin	Function
D[0:4], D̄[0:4]	Differential Data Inputs
Q[0:4], Q̄[0:4]	Differential Data Outputs
VCCO	VCC to Output

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DC ELECTRICAL CHARACTERISTICS

V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

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.		
V_{BB}	Output Reference Voltage										V	—
	10E	–1.38	—	–1.27	–1.35	—	–1.25	–1.31	—	–1.19		
	100E	–1.38	—	–1.26	–1.38	—	–1.26	–1.38	—	–1.26		
I_{IH}	Input HIGH Current	—	—	150	—	—	150	—	—	150	µA	—
I_{EE}	Power Supply Current										mA	—
	10E	—	135	162	—	135	162	—	135	162		
	100E	—	135	162	—	135	162	—	155	186		
$V_{PP\ (DC)}$	Input Sensitivity	50	—	—	50	—	—	50	—	—	mV	1
V_{CMR}	Common Mode Range	–1.5	—	0	–1.5	—	0	–1.5	—	0	V	2

NOTES:

1. Differential input voltage required to obtain a full ECL swing on the outputs.
2. V_{CMR} is referenced to the most positive side of the differential input signal. Normal operation is obtained when the input signals are within the V_{CMR} range and the input swing is greater than V_{PP} (min.) and <1V.

AC ELECTRICAL CHARACTERISTICS

V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

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_{PLH}	Propagation Delay to Output										ps	—
t_{PHL}	D (Diff)	250	350	500	250	350	500	250	350	500		
	D (SE)	200	350	550	200	350	550	200	350	550		
t_{skew}	Within-Device Skew	—	50	—	—	50	—	—	50	—	ps	1
t_{skew}	Duty Cycle Skew, t_{PLH}–t_{PHL}		±10			±10			±10		ps	2
$V_{PP\ (AC)}$	Minimum Input Swing	150	—	—	150	—	—	150	—	—	mV	3
t_r	Rise/Fall Time	100	200	350	100	200	350	100	200	350	ps	—
t_f	20–80%											

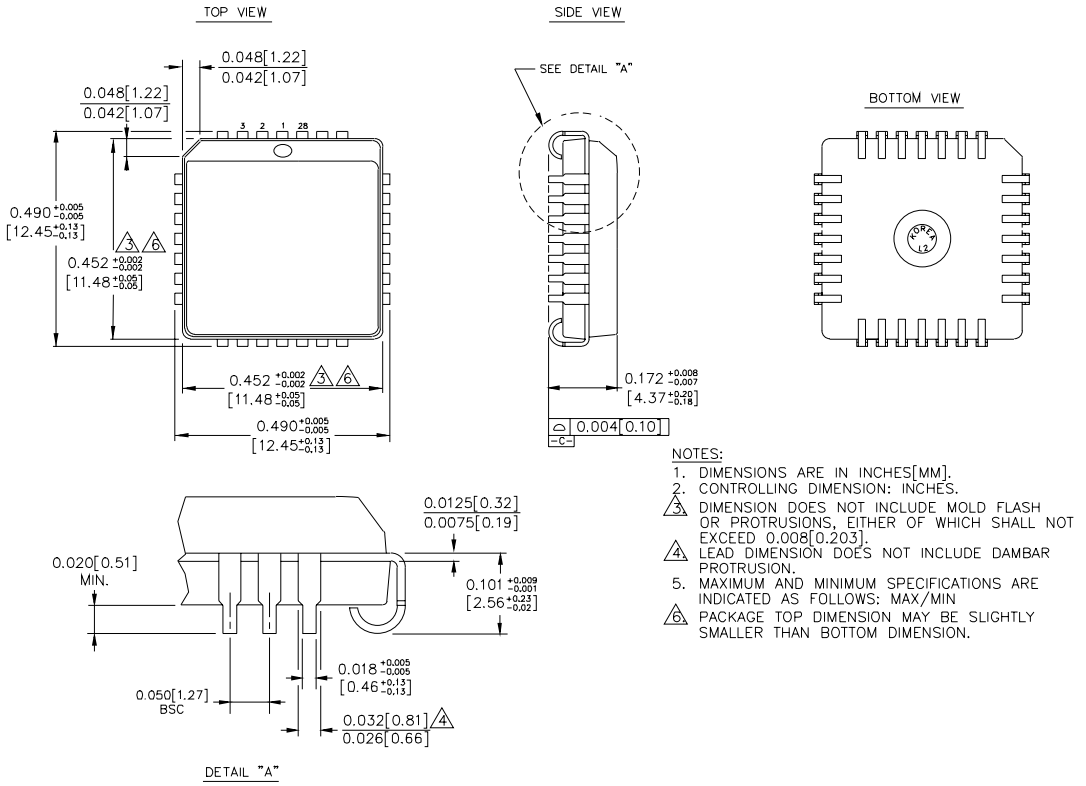
NOTES:

1. Within-device skew is defined as identical transitions on similar paths through a device.
2. Duty cycle skew defined only for differential operation when the delays are measured from the cross point of the inputs to the cross point of the outputs.
3. Minimum input swing for which AC parameters are guaranteed.

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY10E416JC	J28-1	Commercial
SY10E416JCTR	J28-1	Commercial
SY100E416JC	J28-1	Commercial
SY100E416JCTR	J28-1	Commercial

28 LEAD PLCC (J28-1)



NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.008[0.203].
4. LEAD DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION.
5. MAXIMUM AND MINIMUM SPECIFICATIONS ARE INDICATED AS FOLLOWS: MAX/MIN
6. PACKAGE TOP DIMENSION MAY BE SLIGHTLY SMALLER THAN BOTTOM DIMENSION.

Rev. 03

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