

16 to 8 bit Serial Comparator

Advanced
Information

Description

CXB1135Q is an Ultra high speed bipolar monolithic serial comparator IC, which operates in 8 to 16 bit length mode.

This IC compares serial data inputs of shift register with preset parallel data and indicates whether one data equal or not to the other.

Features

- Ultra high speed operation by high-speed bipolar process. $f_{max}=1.3\text{GHz}$ (Typ.)
- Variable bit length : 8 to 16 bit
- I/O levels and supply voltage are ECL 100K compatible.
- Open input pins are pulled down to Low level.
- Output pins are open emitter type.

Function

- 8 to 16 bit length serial comparator

Structure

Bipolar silicon monolithic IC

Applications

- High speed digital signal processing.

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

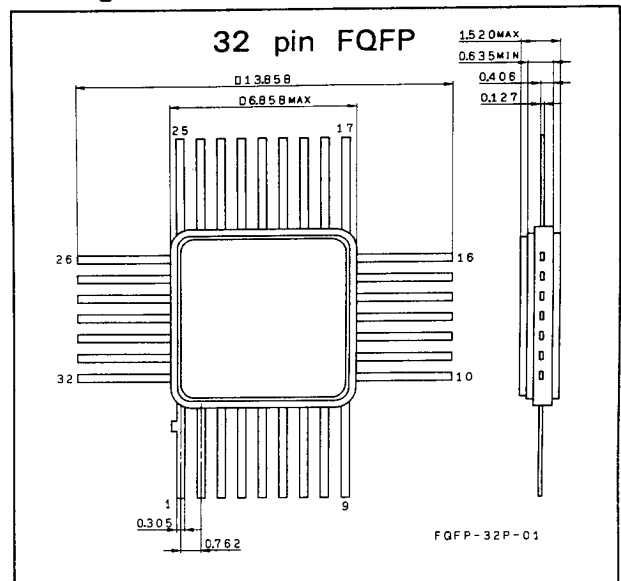
• Supply voltage	V_{EE}	-7.0 to +0.5	V
• Input voltage	V_{IN}	V_{EE} to +0.5	V
• Output current	I_o	-50 to 0	mA
• Junction temperature	T_j	150	$^\circ\text{C}$
• Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Recommended Operating Conditions

• Supply voltage	V_{EE}	-4.5 ± 0.3	V
• Operating temperature	T_{opr}	-20 to +75	$^\circ\text{C}$

Package Outline

Unit : mm



Electrical Characteristics**Transfer characteristics** $V_{EE} = -4.5V$, $V_{TT} = -2.0V$, $T_a = 25^\circ C$

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Input voltage	V_{IH}		-1165		-880	mV
	V_{IL}		-1810		-1475	mV
Output voltage	V_{OH}	$R_L = 50\ \Omega$ to V_{TT}	-1035			mV
	V_{OL}				-1610	mV
Input current	I_{IH}	$V_{IN} = V_{IH}(\text{Max.})$			110	μA

DC characteristics $V_{EE} = -4.5V$, $V_{TT} = -2.0V$, $T_a = 25^\circ C$

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Power supply current	I_{EE}			-128		mA
Reference voltage	V_{BB}			-1.32		V

AC characteristics $V_{EE} = -4.5V$, $V_{TT} = -2.0V$, $T_a = 25^\circ C$

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Max. operating frequency	f_{max}	$R_L = 50\ \Omega$ to V_{TT}		1.3		GHz

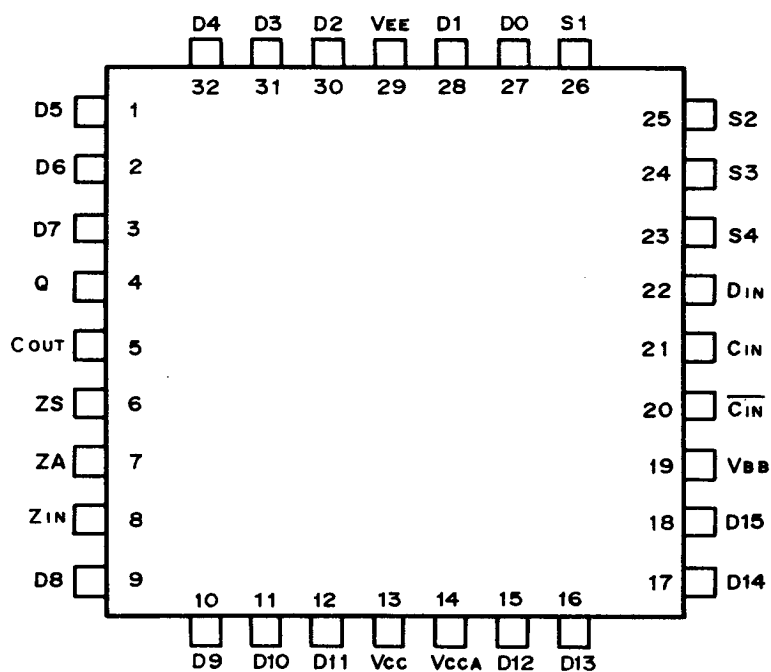
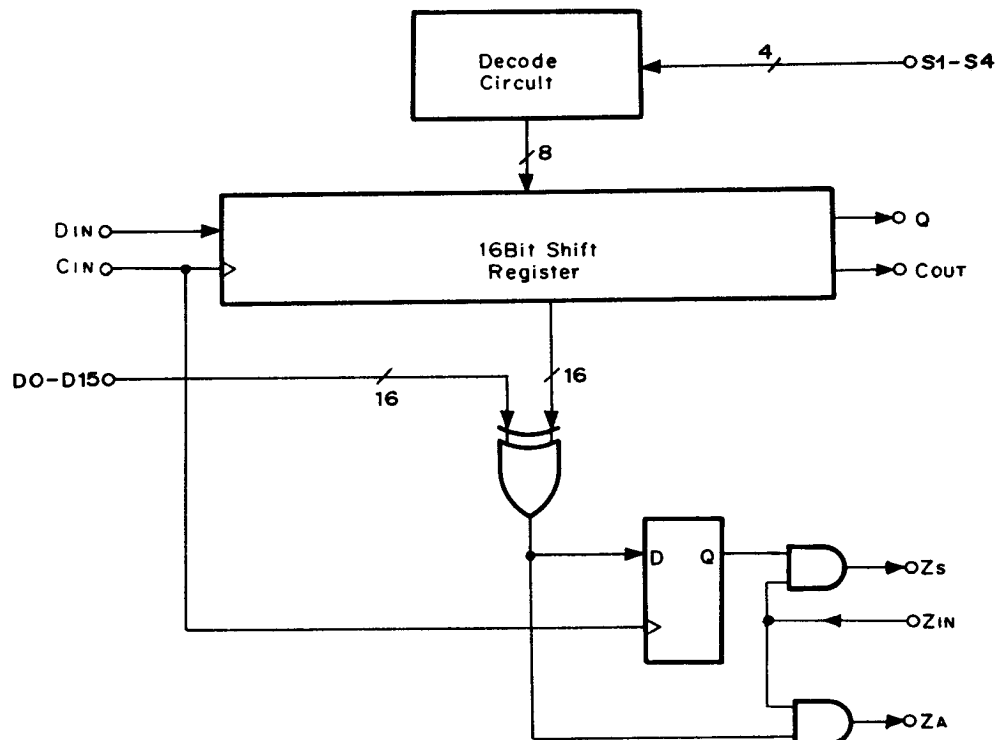
Pin Description

No.	Symbol	I/O	Description
1	D5	I	Parallel data input
2	D6	I	Parallel data input
3	D7	I	Parallel data input
4	Q	O	Serial data output
5	COUT	O	Clock output
6	Zs	O	Synchronous data output
7	ZA	O	Asynchronous data output
8	ZIN	I	Input for bit length extension (Usually : H)
9	D8	I	Parallel data input
10	D9	I	Parallel data input
11	D10	I	Parallel data input
12	D11	I	Parallel data input
13	VCC	—	Positive power supply (GND)
14	VCCA	—	Output devices positive power supply (GND)
15	D12	I	Parallel data input
16	D13	I	Parallel data input
17	D14	I	Parallel data input
18	D15	I	Parallel data input
19	VBB	O	Reference bias supply voltage (−1.32V)
20	$\overline{C}_{IN}$	I	Inverting clock input
21	CIN	I	Clock input
22	DIN	I	Serial data input
23	S4	I	Bit length select input
24	S3	I	Bit length select input
25	S2	I	Bit length select input
26	S1	I	Bit length select input
27	D0	I	Parallel data input
28	D1	I	Parallel data input
29	VEE	—	Negative power supply (−4.5V)
30	D2	I	Parallel data input
31	D3	I	Parallel data input
32	D4	I	Parallel data input

Bit Length Select

S1	S2	S3	S4	Operation	Parallel inputs
L	L	L	L	8 bit	D ₀ to D ₇
L	L	L	H	9 bit	D ₀ to D ₈
L	L	H	L	10 bit	D ₀ to D ₉
L	L	H	H	11 bit	D ₀ to D ₁₀
L	H	L	L	12 bit	D ₀ to D ₁₁
L	H	L	H	13 bit	D ₀ to D ₁₂
L	H	H	L	14 bit	D ₀ to D ₁₃
L	H	H	H	15 bit	D ₀ to D ₁₄
H	L	L	L	16 bit	D ₀ to D ₁₅

Block Diagram and Pin Configuration (Top View)



Block Diagram

