

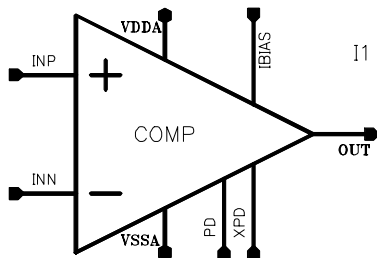
## Process

C35 (0.35 $\mu$ m)

## Key Features

- Small Area 0.0058 mm<sup>2</sup>
- Size x = 30.5  $\mu$ m, y = 190  $\mu$ m
- Supply Voltage 3.0 to 3.6V
- Temperature Range -40 to 125°C
- Power Down Mode
- Hysteresis typ. 17mV

## Symbol



## Description

The COMP cell is a fast comparator cell with typ. 17mV hysteresis and is intended for clock recovery purposes.

The cell provides a power down mode.

An external bias current of 7 $\mu$ A to 19 $\mu$ A must be supplied externally (cell BBIAS may be used).

## Pinlist

Pin	Description	Type
INP	Pos. Input Voltage	Analog
INN	Neg. Input Voltage	Analog
OUT	Output Voltage	Digital
XPD	Power Down not	Digital
PD	Power Down	Digital
VDDA	Positive Analog Supply Voltage	Supply
VSSA	Negative Analog Supply Voltage	Supply
IBIAS	Input Current	Analog

**TECHNICAL DATA FOR 3.3V SUPPLY**(T<sub>junction</sub> = -40 to 125°C, VDDA=+3.0V to +3.6V, unless otherwise specified)**GENERAL PARAMETERS**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
T <sub>junction</sub>	Junction Temperature		-40	27	125	°C
X	x – Size of macro cell			30.5		μm
Y	y – Size of macro cell			190		μm

**DC PARAMETERS**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>thP</sub> <sup>1)</sup>	Pos. Threshold Voltage		-7.3	-0.4	6.1	mV
V <sub>thN</sub> <sup>1)</sup>	Neg. Threshold Voltage		-25.3	-17.3	-11.2	mV
V <sub>os</sub> <sup>1)</sup>	Offset Voltage		-16.3	-8.9	-2.6	mV
Hyst <sup>1)</sup>	Hysteresis Voltage		14.6	16.8	19.1	mV
I <sub>BIAS</sub> <sup>2)</sup>	Bias Current		7.3	11.4	19.5	μA

**OUTPUT PARAMETERS**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I <sub>source</sub> <sup>3)</sup>	Output Source Current		6.0	11.0	19.5	mA
I <sub>sink</sub> <sup>3)</sup>	Output Sink Current		5.2	10.4	18.7	mA

**POWER REQUIREMENTS**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
VDDA	Pos. Analog Supply Voltage		3.0	3.3	3.6	V
VSSA	Neg. Analog Supply Voltage		0	0	0	V
IDDA	Supply Current Analog		162	256	444	μA
P <sub>diss_tot</sub>	Total Power Consumption		0.48	0.86	1.60	mW
P <sub>diss_pd</sub>	Power Consumption in PD				490	nW

**TRANSIENT PARAMETERS**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
T <sub>resp_r</sub> <sup>4)</sup>	Response Time Rise		7	16	31	ns
T <sub>resp_f</sub> <sup>4)</sup>	Response Time Fall		4	9	18	ns
T <sub>wakeup</sub>	Wakeup Time		18	34	55	ns

- 1) The negative input INN was set to VDDA/2. Threshold voltages V<sub>thP</sub> and V<sub>thN</sub> are the input voltage needed to change the output state in each direction. The offset voltage is defined as the average of V<sub>thP</sub> and V<sub>thN</sub>, while the hysteresis voltage is the difference of these two voltages.
- 2) The bias current was produced with the cell BBIAS
- 3) The power consumption will vary with the output current
- 4) Input signal with 100mV step and 10mV overdrive

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