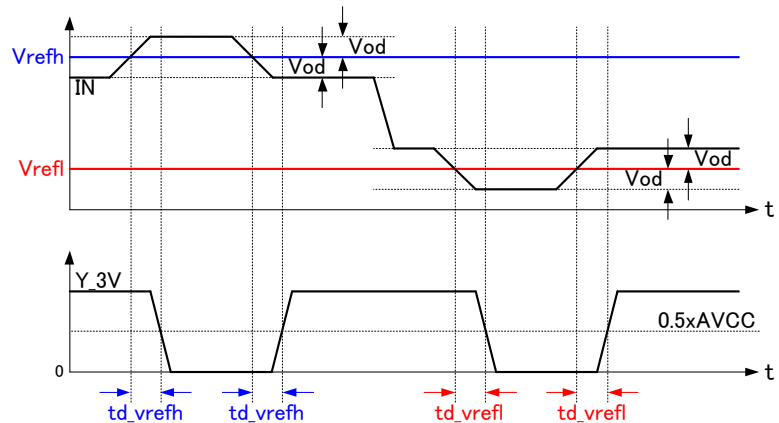
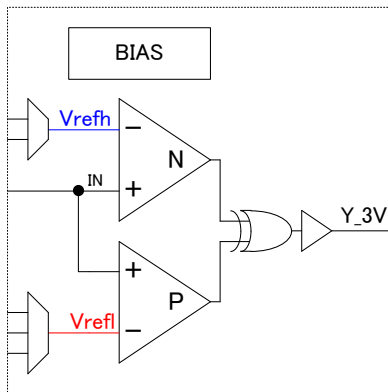


# Comparator Datasheet

## Low Power Comparator

### Overview

This Comparator is low power supply voltage operation and low current consumption on T40ULP ESF3. The IP contains 2 cells of comparator and bias. A bias cell can be connected upto 3 comparators. Comparator has window mode and single mode as comparison mode, and Low power mode and high speed mode as current consumption mode. The single and low power mode can operate on less than 2uA current consumption.



### Key Features

#### General

- Window Comparator 1ch
- Available Comparator Mode / Window Mode
- Available Low Power Mode / High Speed Mode
- Supported high reference switching function (2ch) during window comparator operation
- Supported low reference switching function (3ch) during window comparator operation
- A BIAS can be connected to 3 CMPs.
- Output load =< 0.5 [pF]

#### Electrical characteristics

Item	Unit	Spec			Remark		
		MIN	TYP	MAX			
Power Supply AVCC	V	1.62	-	3.63			
Temperature	°C	-40	25	125			
EM lifetime	-	10 years of continuous at 110°C					
Input range	V	0	-	AVCC			
Vrefh range	V	1.2	-	AVCC	High Vref of WCMP mode		
Vrefl range	V	0	-	AVCC-1.2V	Vref of CMP mode & Low Vref of WCMP mode		
LP mode	Power consumption	CMP mode	uA	-	1.5	2	BIAS+CMPx1ch
		WCMP mode	uA	-	2	3	BIAS+CMPx1ch
LP mode	Conversion time	td_vrefl	us	-	3	5	
		td_vrefh	us	-	3	5	
HS mode	Power consumption	CMP mode	uA	-	3	5	BIAS+CMPx1ch
		WCMP mode	uA	-	5	7	BIAS+CMPx1ch
HS mode	Conversion time	td_vrefl	us	-	2	2.4	
		td_vrefh	us	-	2	2.4	
Sleep Current	nA	-	10	50		BIAS+WCMPx1ch	
Area	COMP	mm <sup>2</sup>	-	-	0.0052		CMPx1ch
	BIAS	mm <sup>2</sup>	-	-	0.011		

*\*This IP is contract design IP. Please contact for detail.*