

# Analog IP Cell

## Rail-to-Rail Comparator

### CMPRR XC06

#### General Description

The CMPRR XC06 analogue standard cell is a fast, universal Rail-to-Rail Comparator suitable for many on-Chip protection and monitoring purposes. Its typical response time is below 50ns allowing CMPRR to be used in timing critical applications (for example over current detection). The comparator's input stage comprises of a cross coupled pair of 4 MOS transistors, a P-Channel and a N-Channel pair respectively. Hence the cell is able to operate on common mode levels which are close to the supply rails.

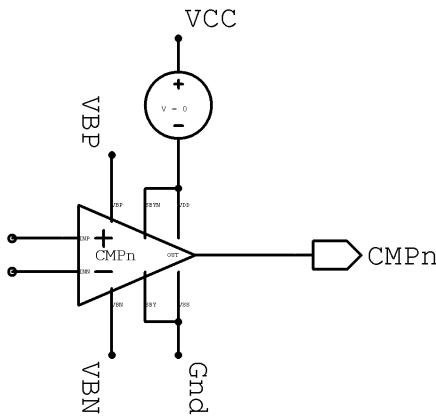
#### Ratings, Parameters and Conditions

Parameter / Condition	Symbol	Min	Typ.	Max	Unit	Comment
<b>Electrical Parameters:</b>						
Supply Voltage	V <sub>dd</sub>	4.75	5	5.25	V	
Active Supply Current	I <sub>dd</sub>		8		µA	depending on bias conditions
Input Offset Voltage	V <sub>off</sub>			2	mV	
Response Time	T <sub>LH</sub>		50	200	nS	depending on bias conditions and input overdrive
Input Common Mode Range	V <sub>COM</sub>	V <sub>ss</sub> +100		V <sub>dd</sub> -100	mV	
<b>Absolute Maximum Ratings:</b>						
Operating Temperature	T <sub>range</sub>	-40		140	°C	
Supply Voltage	V <sub>dd</sub>	-0.3		6	V	
Input Voltage	V <sub>in</sub>	-0.3		V <sub>dd</sub> +0.7		
Output Voltage	V <sub>out</sub>	-0.3		V <sub>dd</sub> +0.7		
<b>Operating Conditions:</b>						
Ambient Temperature	T <sub>amb</sub>	-20	27	80	°C	

#### IO-Description

Interface	I/O	Function	Comment
VSS	input	Supply	
VDD	Input	Supply	
SBY/SBYN	input	StandBy	
VBN	Input	Bias	
VBP	Input	Bias	
INP	Input	Positive In	
INN	Input	Negative In	
Out	Output	Comparator Output	

#### Block schematic, ext. component diagram



Dieses Projekt wird im Rahmen der Technologieförderung mit Mitteln des Europäischen Fonds für regionale Entwicklung (EFRE) und mit Mitteln des Freistaates Sachsen gefördert.