

Dual Saturation Detector

1. Features

Power Supply: 1.8 V
 Input range (differential swing) : 200 mV to 500 mV
 Input common mode voltage : 1.045 V to 1.239 V
 Detection Time: 244.4 ns
 Release Time : 243 ns
 Accuracy: 16.47 mV
 Bandwidth : DC to 2.5 GHz
 Area : 367 um x 58 um
 Process : 22FDX
 Metal Option : 19

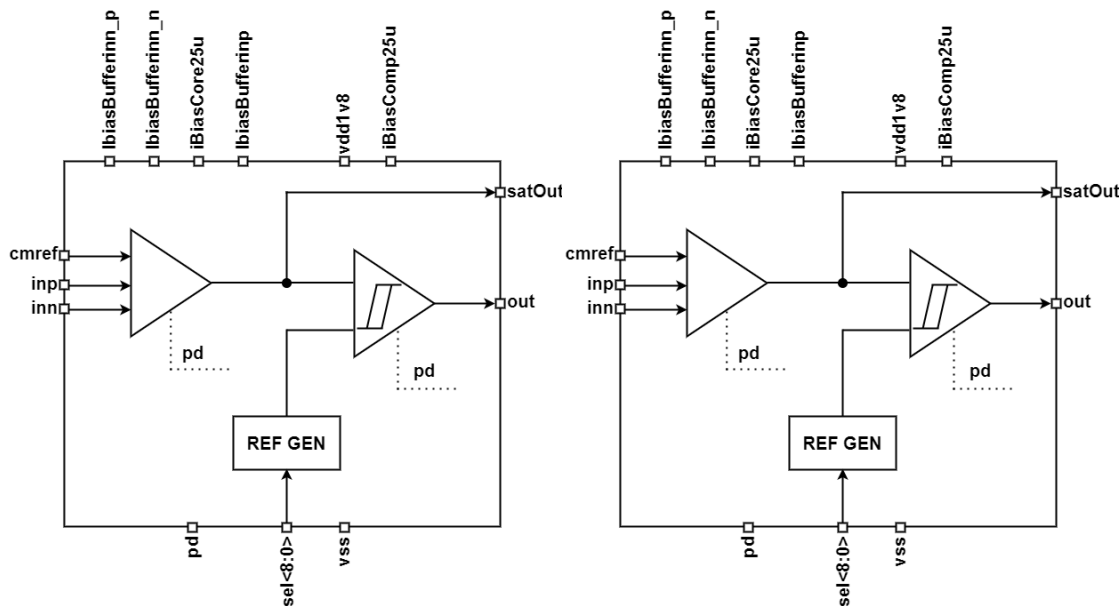
2. Applications

DC - 2.5 GHz signal overvoltage detection.

3. Description

The WEASD18NI18RO41M22G is a baseband saturation detector that outputs a logic signal when the input voltage swing surpasses a programmable threshold, which can be digitally programmed. The circuit is able of detecting 9 different reference values. The absolute accuracy is 16.47 mV. The system is capable of detecting signals from DC to 2.5 GHz. The analog pin cmref should be connected to the common mode voltage of the input signal.

Simplified Schematic



4. Pin Out Description

Pinout	Purpose	Description
vdd1v8	PS	1.8 V Input Supply Voltage
vss	GND	Power Ground
lbiasBufferinp	AIO	300 μ A Bias Supply
lbiasBufferinn_p	AIO	300 μ A Bias Supply
lbiasBufferinn_n	AIO	300 μ A Bias Supply
iBiasCore25u	AIO	25 μ A Bias Supply
iBiasComp25u	AIO	25 μ A Bias Supply
pd	DI	Power Down pin. Drive pd to vss to turn on the detector. Drive pd to vdd18 to put the detector into power down mode.
cmref	I	1.158V Common Mode Voltage
inp	I	Positive Input
inn	I	Negative Input
out	O	Comparator Output
satOut	O	Power Detector Output

(1) I=Input, O=Output, IO=Input,Output ,PS=Power Supply, DI= Digital Input, AIO=Analog Input Output

5. Reference Voltage Programming

Sel<8:0>	Reference Voltage (mV)
000000000	240.0
000000001	295.8
000000100	361.3
000001000	437.7
000010000	526.3
000100000	628.3
001000000	745.5
010000000	879.4
100000000	1006.0

5. Availability

GF 22FDX, Metal Option 19

6. Deliverables

GDSII, Database, SystemVerilog Models

About weasic

weasic Microelectronics S.A. designs, develops, and markets high quality complex analog and RF IP for the wired and the wireless communications industries, helping semiconductor and system companies to shrink the product design cycle. Weasic, silicon verified, IP is designed in the state-of-the-art CMOS and SiGe processes and can be easily ported and customized to serve the development of transceivers for 5G communications, Mobile Backhaul, RADAR sensors and 802.11.* applications.

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