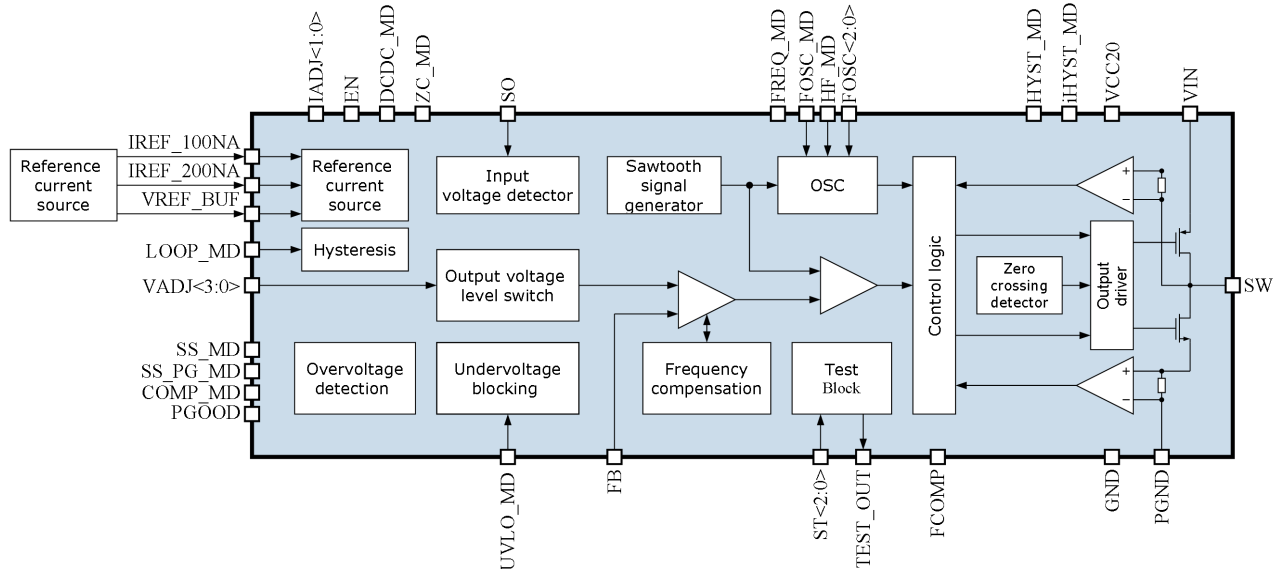


**2.25-3.60V to 1.0-1.4V step down DC/DC converter**
**OVERVIEW**


055TSMC\_DCDC\_03 is a DC/DC voltage converter designed to operate in the mode of a step-down synchronous pulse voltage regulator with load capacity from 0 to 250mA. IP block converts the input voltage in the range from 2.25V to 3.6V into a switchable output voltage 1.1V/ 1.2V/ 1.3V/ 1.4V. The DC/DC IP can operate in the LDO mode.

IP technology: TSMC CMOS 55nm technology.

IP status: silicon proven.

Silicon area: 0.84mm<sup>2</sup>.

**ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
Input supply voltage	V <sub>IN</sub>	-	2.25	2.5	3.6	V
Operating temperature range	T <sub>j</sub>	-	-40	+27	+85	°C
Current consumption	I <sub>CC</sub>	shutdown mode	-	30	-	nA
		no switch mode	-	200	-	µA
		pump mode	-	700	-	
		LDO mode	-	450	-	
Load current	I <sub>LOAD</sub>	-	-	-	250	mA
Upper switch current limit	I <sub>LIMIT</sub>	-	300	-	500	mA
Output voltage (switchable)	V <sub>OUT</sub>	V <sub>adj</sub> <3:0> = "0101"	-	1.09	-	V
		V <sub>adj</sub> <3:0> = "0000"		1.19		
		V <sub>adj</sub> <3:0> = "1100"		1.29		
		V <sub>adj</sub> <3:0> = "1111"		1.36		
Efficiency	EF	I <sub>LOAD</sub> = 100mA, C <sub>ESR</sub> = 30mOhm, R <sub>L</sub> = 560mOhm	-	91	-	%
Ripple	V <sub>ripple</sub>	I <sub>LOAD</sub> = 100mA, C <sub>ESR</sub> = 30mOhm, R <sub>L</sub> = 560mOhm	-	20	-	mV
Oscillator operating frequency	F <sub>OSC</sub>	FOSC<2:0> = "000"	-	0.5	-	MHz
		FOSC<2:0> = "111"	-	1.6	-	