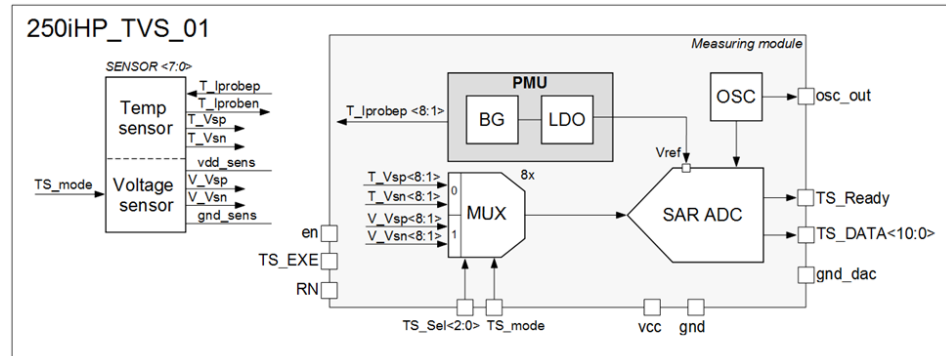


## Temperature & Voltage Sensor

### OVERVIEW

T&V Sensor is a unique solution intended to continuously monitor IC status at several on-die locations. It is able to perform core voltage and die temperature measurement. T&V Sensor consists of measuring module, core voltage/temperature sensor units. Measuring module is a calculation center which performs temperature-to-digital or voltage-to-digital conversion and is able to maintain up to 8 sensor units of any (voltage/temperature) type. TS\_mode carries out selection of measured parameter (voltage or temperature).



IP technology: iHP SG25H4 SiGe BiCMOS 0.25 um.

IP status: pre-silicon verification.

Total area: measuring module – 0.294mm<sup>2</sup>; sensor unit – 0.002mm<sup>2</sup>.

### ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			min	typ.	max	
Junction temperature	T <sub>J</sub>	-	0	+50	+100	°C
Supply voltage	V <sub>CC</sub>	-	2.38	2.50	2.62	V
T&V module current consumption	I <sub>CC</sub>	-	-	180	210	uA
T&V module current consumption in standby mode	I <sub>STBY</sub>	-	-	0.01	0.25	uA
Core voltage measurement range	V <sub>MR_core</sub>	-	2.0	-	3.0	V
Temperature measurement range	T <sub>MR</sub>	-	-40	-	+125	°C
Temperature measurement accuracy	A <sub>T</sub>	1σ Monte Carlo deviation	-	-	3	°C
		2σ Monte Carlo deviation	-	-	6	
		3σ Monte Carlo deviation	-	-	9	
Core voltage measurement accuracy	A <sub>V_core</sub>	-	-	-	±5	%
Output DATA resolution	N	-	-	11	-	bit
Oscillator output frequency	F <sub>CLK</sub>	-	30	-	50	kHz
Digital input-logic high	V <sub>IH</sub>	-	V <sub>CC</sub> -0.3	-	V <sub>CC</sub>	V
Digital input-logic low	V <sub>IL</sub>	-	0	-	0.3	
Digital output-logic high	V <sub>OH</sub>	-	V <sub>CC</sub> -0.3	-	V <sub>CC</sub>	
Digital output-logic low	V <sub>OL</sub>	-	0	-	0.3	