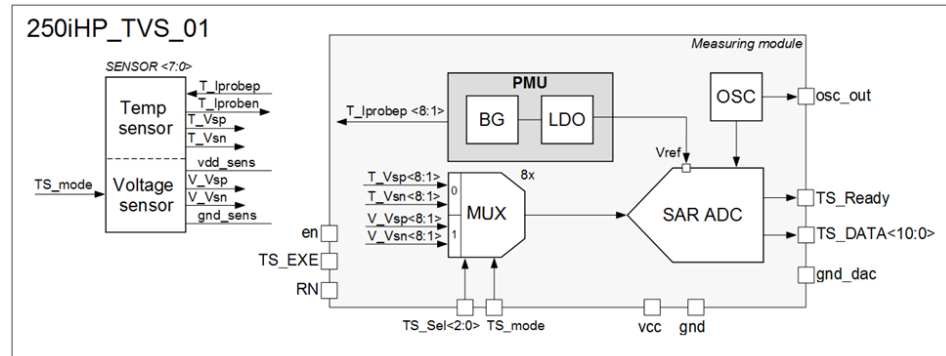


Temperature & Voltage Sensor

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: silicon proven.

Total area: measuring module – 0.294mm²; sensor unit – 0.002mm².

ELECTRICAL CHARACTERISTICS

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