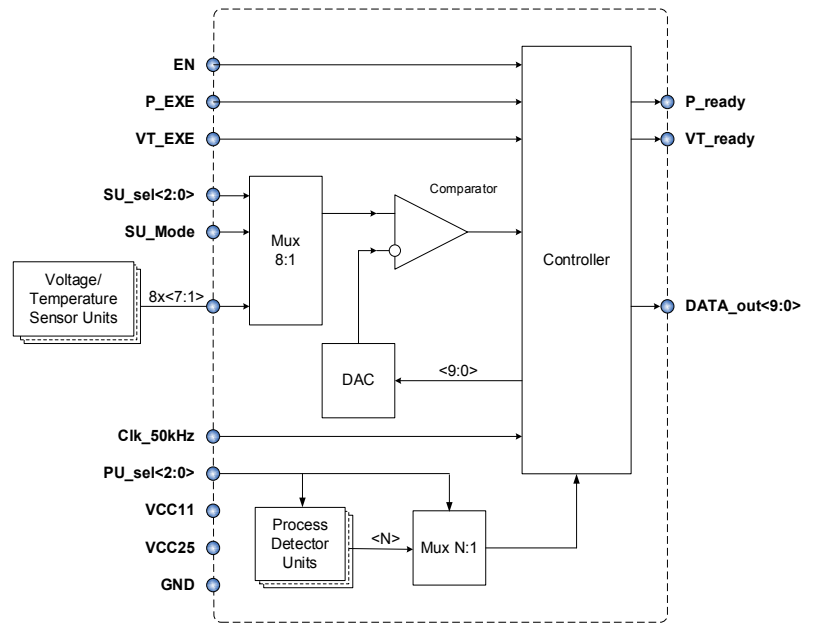


PVT Detector

OVERVIEW

PVT Detector is a unique solution intended to continuously monitor IC status at several on-die locations. It is able to detect manufacturing process deviation, perform voltage and die temperature measurement. PVT Detector consists of PVT module, voltage/temperature sensor units and trimming units. PVT module is a calculation center that contains process detector units and is able to maintain up to 8 voltage/temperature sensor units. IP technology: TSMC CMOS 40nm
 IP status: silicon proven
 Total area: 0.088mm²



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			Min	Typ.	Max	
Core Supply Voltage	V _{CC11}	-	1.0	1.1	1.2	V
IO Supply Voltage	V _{CC25}	-	2.4	2.5	2.6	V
Operating Temperature Range	T _j	-	-40	-	125	°C
Current Consumption	I _{CC11}	--	-	250	400	uA
	I _{CC25}		-	390	500	
Current Consumption in standby mode	I _{STBY11}	@ V _{CC11}	-	2.5	55	uA
	I _{STBY25}	@ V _{CC25}	-	-	2	uA
Digital Input-Logic High	V _{IH}	-	*	-	*	V
Digital Input-Logic Low	V _{IL}	-	*	-	*	
Digital Output-Logic High	V _{OH}	-	*	-	*	
Digital Output-Logic Low	V _{OL}	-	*	-	*	
Voltage Measurement Range	V _{MR}	-	0.8	-	1.35	V
Temperature Measurement Range	T _{MR}	-	-40	-	125	°C
Temperature measurement accuracy	A _T	with trimming	-	-	±2	°C
		w/o trimming	-	-	±5	
Voltage measurement accuracy	A _V	with trimming	-	-	±2	%
		w/o trimming	-	-	±5	
Output DATA resolution	K	-	-	10	-	bit
Clock frequency	f _{CLK}	-	40	50	60	kHz

*Value is defined by TSMC N40LP standard cell library tcbn40lpbwp