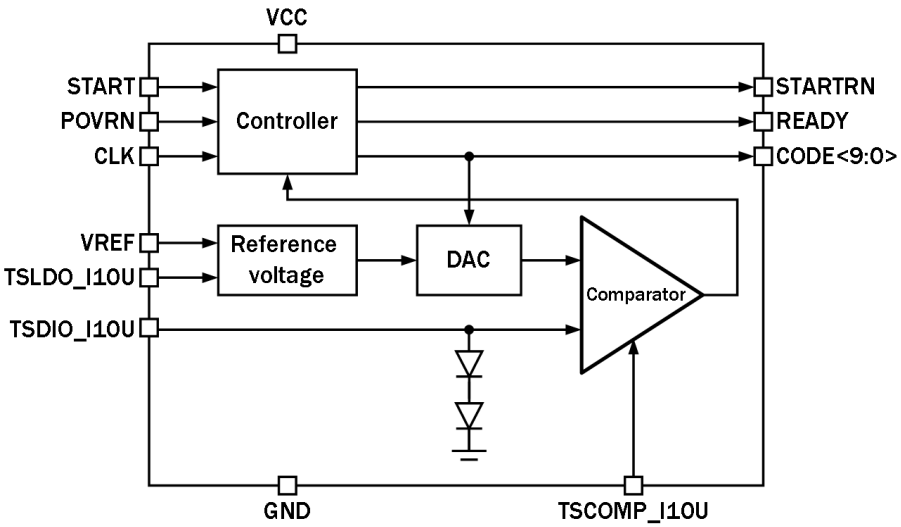
-40 … +125°C Temperature sensor

OVERVIEW

065TSMC_TS_02 is a temperature sensor, which consists of built-in 10-bit R-2R DAC, diode and own reference voltage former. When requested, controller performs conversion of diode voltage level, which depends on temperature linearly. After conversion is done it sets "ready" flag to "1" and outputs 10-bit code. The block can operate in two modes: single measurement and continuous measurement. With small size, usability and low current consumption, this device is ideal for use in controlling of the die temperature.



IP technology: TSMC CMOS 65 nm.
IP status: silicon proven.
Area: 0.0708mm^2.

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
Supply voltage	V_{CC}	-	2.4	2.5	2.6	V
Temperature range	T	-	-40	+85	+125	°C
Clock frequency	F_{CLK}	-	1	50	50	kHz
DAC resolution	K	-	-	10	-	bit
Accuracy step	N	-	-	0.5	-	±°C
Absolute accuracy	δ	-	-	4.9	-	±°C
Current consumption	I_{CC}	-	-	95	105	uA
Stand-by current	I_{STB}	-	-	-	0.1	nA
Input logic-high level	V_{IH}	For digital inputs	0.7V_{CC}	-	V_{CC}+0.25	V
Input logic-low level	V_{IL}		-0.25	-	0.3	