

32.768 kHz crystal oscillator

OVERVIEW

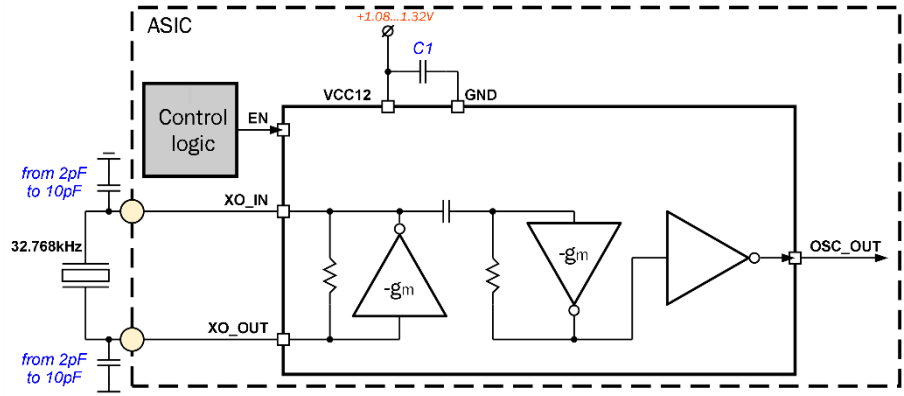
055SMIC_OSC_01 is a reference frequency generator, designed to form a reference signal with the precise frequency 32.768kHz.

The oscillator is a CMOS Pierce-type integrated oscillator with 32.768kHz quartz crystal operating in parallel resonance mode for high accuracy and low power consumption.

IP technology: SMIC 55nm LL.

IP status: pre-silicon verification.

Silicon area: 0.0028mm².



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Value			Unit
			min	typ.	max	
Supply voltage	VCC12	-	1.08	1.2	1.32	V
Oscillator operating temperature range	T _j	-	-40	25	125	°C
Current consumption	I _{CC}	-	0.4	0.5	1	uA
Current consumption in a standby mode	I _{stby}	-	-	0.05	0.2	nA
Output frequency	F _{out}	-	-	32.768	-	kHz
Start time	t _{start}	-	0.3	0.4	1	s
Output signal duty cycle	DC _{out}	-	40	50	60	%
Input logic-level high	V _{IH}	For digital input	0.8*VCC12	-	VCC12	V
Input logic-level low	V _{IL}		0	-	0.2	
Output logic-level high	V _{OH}	For OSC_OUT signal	0.8*VCC12	-	VCC12	V
Output logic-level low	V _{OL}		0	-	0.2	