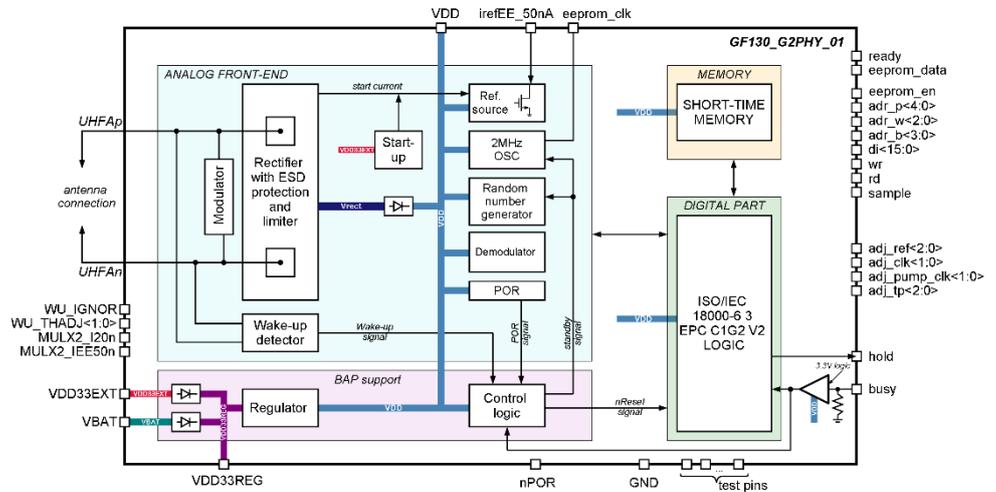


UHF RFID EPC Gen2 physical interface

OVERVIEW

130GF_G2PHY_01 is the IP intended for use in passive UHF transponder applications. IP derives its operating power from an RF electromagnetic field generated by a reader, which is received and rectified. Also the IP can operate in battery assisted mode with improved sensitivity. The IP contains two UHFAP and UHFAn



antenna pads. The IP sends the answer back to the reader using a backscatter modulation technique. 130GF_G2PHY_01 provides a fast and flexible anti-collision protocol based on internal random number generator according to EPC standard. 130GF_G2PHY_01 supports all EPC C1G2 mandatory commands. Short-time memory block provides 4-bit storage with persistence values according to EPC C1G2 standard. The operation of the IP-block must be carried out in conjunction with external non-volatile memory (130GF_EEPROM_01 IP). Implemented the ability to access external memory for a third-party user (for example, through the HF NFC interface) according to the "First in and First Served" principle.

IP technology: Global Foundries Embedded EEPROM 0.13 um.

IP status: pre-silicon verification

Total area: 0.19mm²

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			min	typ.	max	
Battery voltage	V _{BAT}	-	2.4	3.0	3.6	V
External supply	V _{33EXT}	-	2.4	3.0	3.6	V
VDD power supply	V _{DD}	-	0.8	1.2	1.8	V
Operating temperature	T _A	-	-40	25	+85	°C
Operating carrier frequency	F _c	-	860	-	960	MHz
RC oscillator frequency	F _{osc}	-	1.97	2.45	3.35	MHz
External supply current consumption	I _{VDE33}	Extra current for start-up circuit	-	2	5	uA
Battery current consumption	I _{BAT}	Woken up, reading EEPROM	-	4.5	-	uA
		Standby mode	-	1.6	-	uA
Reverse (charging) battery current	I _{BATRVRS}	-	-	-	0.1	uA
Pull-down current	I _{PD}	For busy = "1"	0.5	0.7	1.2	uA
		For WU_IGNORE/THADJ, MULX2_I20n/IEE50n = "1"	1.8	2.5	3.9	
Minimum input power	P _{min}	READ sensitivity	-	-18	-	dBm
		WRITE sensitivity	-	-12*	-	
		READ and WRITE sensitivity in BAP mode	-	-22	-	
Impedance	Z	F _c = 860 MHz	-	30-j340	-	Ω
		F _c = 915 MHz	-	26-j320	-	
		F _c = 960 MHz	-	24-j305	-	

Note: *simulated with the GF130_EEPROM_01