

Power Management Unit

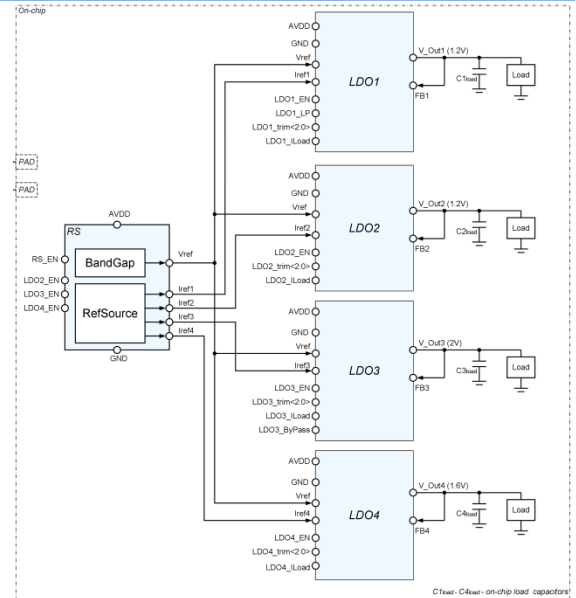
OVERVIEW

PMU is designed to supply integrated circuits with stable and precise voltage. 055UMC_PMU_01 is a library including RS block and 4 LDOs: LDO1 to supply digital circuits; LDO2 and LDO3 to supply analog circuits; LDO4 to supply flash memory. Each of LDO1-LDO4 has an option of choosing load current from 1mA to 50mA. LDO1 operates in two modes: “Full Power” from 1mA to 50mA load current and “Low Power” at 1μA load current to save battery charge if high performance of the system is not required.

IP technology: UMC 55nm eFlash CMOS technology.

IP status: pre-silicon verification.

Total area: 0.2203 mm².



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units		
			min	typ.	max			
Input supply voltage	AVDD	From battery	2	3	3.6	V		
Operating temperature range	T _j	-	-40	27	100	°C		
Total Quiescent current	I _Q	All block except LDO1_LP = “0”	-	75	95	μA		
		LDO1_LP = “1”, LDO1_EN = “1”, LDO2_EN = “0”, LDO3_EN = “0”, LDO4_EN = “0”, RS_EN = “1”	-	0.6	1			
Input logic-level high	V _{IH}	For digital inputs	AVDD-0.15	-	AVDD	V		
Input logic-level low	V _{IL}	For digital inputs	0	-	0.2	V		
Output reference voltage	V _{REF}	-	642	650	656	mV		
Output reference currents	I _{ref1}	-	30	40	50	nA		
	I _{ref2}	-	0.75	1	1.25	μA		
	I _{ref3}	-						
	I _{ref4}	-						
Output reference voltage accuracy	A _{vref}	-	-	-	3	%		
Temperature drift	A _t	-	-	-	21	ppm/°C		
Switch-on time	T _{BG}	-	-	1.5	-	ms		
Shutdown current	I _{SD_BG}	RS_EN = “0”	-	0.5	0.8	nA		
Output voltage	V _{OUT1}	LDO1_trim<2:0> = “000”	1.14	1.2	1.26	V		
		Full power mode	LDO1_ILoad = “0”	-	1		5	mA
			LDO1_ILoad = “1”	-	5		50	
Output current	I _{OUT1}	Low power mode	<1	1	20	μA		
Load Capacitance	C _{1load}	-	-	1	2	nF		
Output voltage	V _{OUT2}	LDO2_trim<2:0> = “000”	1.14	1.2	1.26	V		
		LDO2_ILoad = “0”	-	1	5		mA	
			LDO2_ILoad = “1”	-	5			50
Load Capacitance	C _{2load}	-	-	1	2	nF		
Output voltage	V _{OUT3}	LDO3_trim<2:0> = “000”	1.9	2	2.1	V		
		LDO3_ILoad = “0”	-	1	5		mA	
			LDO3_ILoad = “1”	-	5			50
Load Capacitance	C _{3load}	-	-	1	2	nF		
Output voltage	V _{OUT4}	LDO4_trim<2:0> = “000”	1.5	1.6	1.8	V		
		LDO4_ILoad = “0”	-	1	5		mA	
			LDO4_ILoad = “1”	-	5			50
Load Capacitance	C _{4load}	-	-	1	2	nF		