

## Power Management Unit

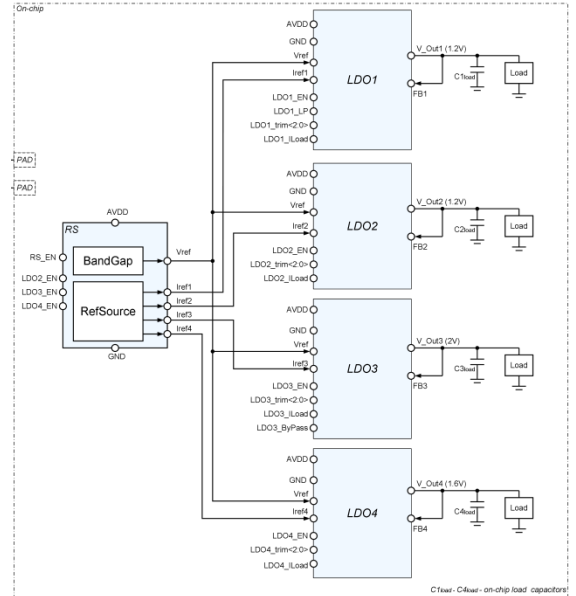
### OVERVIEW

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 mm<sup>2</sup>.



### 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 <sub>i</sub>	-	-40	27	100	°C	
Total Quiescent current	I <sub>Q</sub>	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 <sub>IH</sub>	For digital inputs	AVDD-0.15	-	AVDD	V	
Input logic-level low	V <sub>IL</sub>	For digital inputs	0	-	0.2	V	
<b>RS</b>							
Output reference voltage	V <sub>REF</sub>	-	642	650	656	mV	
Output reference currents	I <sub>ref1</sub>	-	30	40	50	nA	
	I <sub>ref2</sub> , I <sub>ref3</sub> , I <sub>ref4</sub>	-	0.75	1	1.25	μA	
Output reference voltage accuracy	A <sub>vref</sub>	-	-	-	3	%	
Temperature drift	A <sub>t</sub>	-	-	-	21	ppm/°C	
Switch-on time	T <sub>BG</sub>	-	-	1.5	-	ms	
Shutdown current	I <sub>SD_BG</sub>	RS_EN = “0”	-	0.5	0.8	nA	
<b>LDOs</b>							
Output voltage	V <sub>OUT1</sub>	LDO1_trim<2:0> = “000”	1.14	1.2	1.26	V	
Output current	I <sub>OUT1</sub>	Full power mode	LDO1_ILoad = “0”	-	1	5	mA
			LDO1_ILoad = “1”	-	5	50	
		Low power mode	<1	1	20	μA	
Load Capacitance	C <sub>1load</sub>	-	-	1	2	nF	
Output voltage	V <sub>OUT2</sub>	LDO2_trim<2:0> = “000”	1.14	1.2	1.26	V	
Output current	I <sub>OUT2</sub>	LDO2_ILoad = “0”	-	1	5	mA	
		LDO2_ILoad = “1”	-	5	50		
Load Capacitance	C <sub>2load</sub>	-	-	1	2	nF	
Output voltage	V <sub>OUT3</sub>	LDO3_trim<2:0> = “000”	1.9	2	2.1	V	
Output current	I <sub>OUT3</sub>	LDO3_ILoad = “0”	-	1	5	mA	
		LDO3_ILoad = “1”	-	5	50		
Load Capacitance	C <sub>3load</sub>	-	-	1	2	nF	
Output voltage	V <sub>OUT4</sub>	LDO4_trim<2:0> = “000”	1.5	1.6	1.8	V	
Output current	I <sub>OUT4</sub>	LDO4_ILoad = “0”	-	1	5	mA	
		LDO4_ILoad = “1”	-	5	50		
Load Capacitance	C <sub>4load</sub>	-	-	1	2	nF	