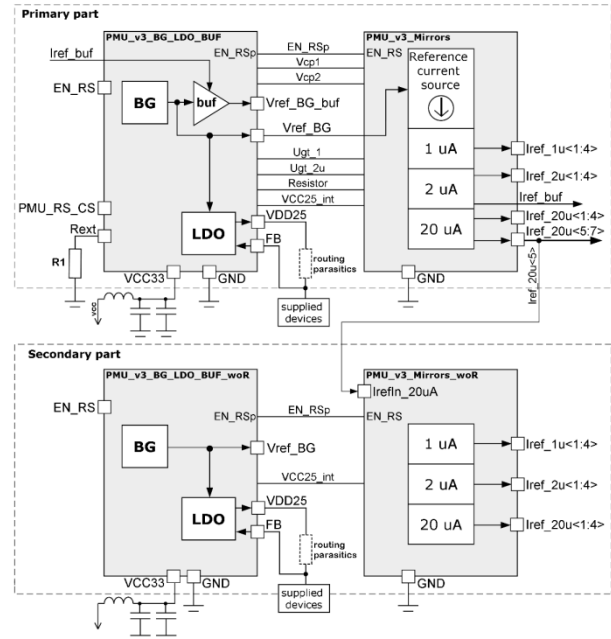


## Power management unit

### OVERVIEW

250iHP\_PMU\_03 is power management system, which divided in primary unit and up to three secondary units. Primary unit includes bandgap reference voltage source and its buffered version, low drop out voltage regulator with output voltage 2.5V and reference current source together with set of current mirrors to provide reference current. Secondary units include bandgap reference voltage source, low drop out voltage regulator with output voltage 2.5V and set of current mirrors, which take reference current from primary part current mirrors. The voltage regulator contains an error amplifier, a PMOS power transistor and resistors for setting output voltage. Error amplifier compares input reference voltage with voltage from feedback resistor divider and adjusts the impedance of the pass PMOS transistor for stabilization of output voltage at the targeted level.



Bandgap reference voltage source forms temperature and power supply variations independent voltage. Reference current sources provide stable output currents, which are independent of voltage/temperature variations, if external resistor is used (PMU\_RS\_CS = "0"). Reference current sources are dependent on internal resistor rppd PVT corner, if PMU\_RS\_CS = "1".

IP technology: iHP SiGe BiCMOS 0.25um.

IP status: pre-silicon verification.

Area: 0.099mm<sup>2</sup>

### ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			min	typ.	max	
Supply voltage	V <sub>CC33</sub>	-	3.15	3.3	3.47	V
LDO Output voltage	V <sub>DD25</sub>	-	-	2.5	-	V
Operating temperature range	T <sub>J</sub>	-	0	50	100	°C
Power-on rise time	T <sub>RISE</sub>	Refer to VCC33	10	-	-	us
Bandgap reference voltage	V <sub>REF_BG</sub>	Vref_BG output	-	1.12	-	V
Bandgap reference voltage temperature dependence	Δ <sub>T</sub> V <sub>REF_BG</sub>	Vref_BG output	-	-	1	%
Absolute bandgap reference voltage accuracy	ΔV <sub>REF_BG</sub>	Vref_BG output	-	-	3	%
Reference output currents	I <sub>REF_1u</sub>	Based on external/internal resistor	-	1	-	uA
	I <sub>REF_2u</sub>		-	2		
	I <sub>REF_20u</sub>		-	20		
Quiescence current	I <sub>q</sub>	Primary part	-	300	500	uA
		Secondary part	-	240	500	
Maximum LDO load current	I <sub>LDO_max</sub>	-	-	-	5	mA
LDO Load capacitance	C <sub>Load</sub>	-	10	-	100	nF
LDO Line regulation	-	V <sub>CC</sub> = 3.15 ÷ 3.47 V	-	0.1	-	%
LDO Load regulation	-	I <sub>LOAD</sub> = 10uA ÷ 5mA	-	0.05	-	%
Input logic high level	V <sub>IH</sub>	For digital inputs	V <sub>DD25</sub> -0.3	-	V <sub>DD25</sub> +0.3	V
Input logic low level	V <sub>IL</sub>		0	-	0.3	V