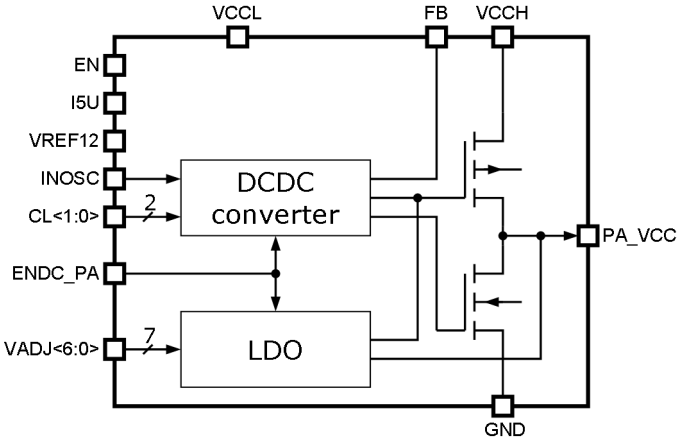
50 mA LDO voltage regulator (output voltage 0V to 1.8V)

OVERVIEW

250iHP_LDO_05 is LDO to convert voltage 1.9V÷2.7V to 0V÷1.8V and designed to supply integrated circuits with stable and precise voltage with load up to 50mA. The block operates in two modes: DC/DC step down converter and LDO. The DC/DC step down converter mode offers high efficiency over a supply voltage range (up to 85.33%). Voltage adjustment is made by switching resistive chain in feedback circuit. Voltage drop on power line is also compensated by feedback.



IP technology: iHP SiGe BiCMOS 0.25 um.
IP status: silicon proven.
Silicon area: 0.22mm^2

ELECTRICAL CHARACTERISTICSДА

Parameter	Symbol	Conditions	Value			Unit
			min	typ.	max	
Analog supply voltage	VCCH	-	1.9	2.05	2.7	V
	VCCL	-	1.7	1.8	1.9	
Operating junction temperature	T_j	-	-45	27	85	°C
Reference voltage	V_R		-	1.17	-	V
Reference current	I_R	-	-	5	-	uA
Input logic-level high	V_{IH}	For digital inputs	0.7VCCH	-	VCCH	V
Input logic-level low	V_{IL}		-0.25	-	0.3VCCH	V
Maximum load current	I_{load}	-	-	-	50	mA
Quiescent current	I_Q	LDO operating mode	-	143	-	uA
		DC/DC operating mode	-	188	-	µA
Standby current mode	I_{STB}	-	-	9.8	127	nA
Regulated output voltage	PA_VCC		0	-	1.8	V
DC/DC converter operating frequency	F_{IN}	mV	-	515	-	kHz
		mV	-	172	-	
Output voltage tuning interval	dV	=1.8 V	-	14	-	mV
DC/DC converter duty cycle	DC	-	7	-	95	%
DC/DC converter efficiency	$\eta_{DC/DC}$	PA_VCC =1.56 V, I_{load} = 40 mA	85.33	-	83.8	%
LDO converter efficiency	η_{LDO}	PA_VCC =1.56 V, I_{load} = 40 mA	57.04	-	81.73	%