

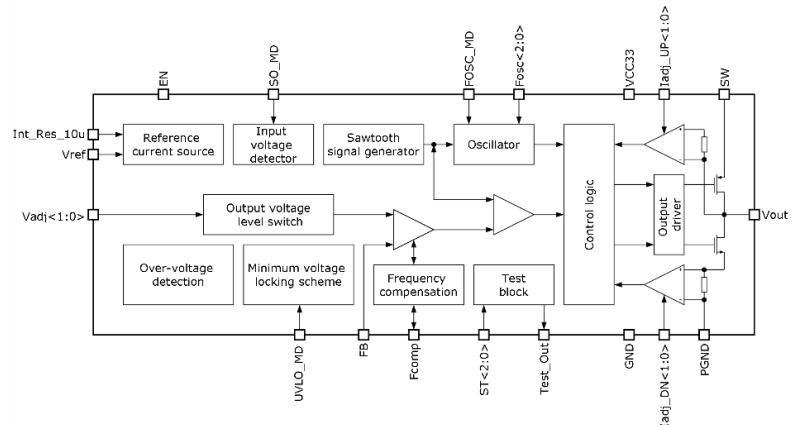
1.8-3.6V to 2.7-3.0V step up DC/DC converter
OVERVIEW

130iHP_DCDC_01 is a high-performance step up DC/DC converter designed to operate with 1.8-3.6V input voltage. The output voltage can be adjusted from 2.7V to 3.0V using $V_{adj}<1:0>$. DC/DC converter contains output voltage limit adjustment, overload protection and minimum voltage locking scheme. During start-up the DC/DC operates in soft start mode, which provides a gradual increase of the output voltage.

IP technology: iHP SiGe BiCMOS 130nm.

IP status: silicon proven.

Area: 0.63mm².


ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Unit
			min	typ.	max	
Supply voltage	V_{cc33}	Normal mode, UVLO disable	2.25	2.7	3.6	V
		UVLO enable	1.8	-	3.6	
Reference voltage	V_{REF}	-	-	1.06	-	V
Current consumption	I_{cc33}	$V_{cc} = 2.7\text{ V}$	-	10	-	mA
Output power supply	V_{dc-dc_out}	$V_{adj}<1:0> = "00"$	-	2.7	-	V
		$V_{adj}<1:0> = "01"$	-	2.8	-	
		$V_{adj}<1:0> = "10"$	-	2.9	-	
		$V_{adj}<1:0> = "11"$	-	3.0	-	
Load current	I_{dc-dc_load}	-	-	250	500	mA
OVP threshold	V_{OVP_R}	Rising, $V_{dc-dc_out} = 3.0\text{ V}$	-	3.36	-	V
	V_{OVP_F}	Falling, $V_{dc-dc_out} = 3.0\text{ V}$	-	3.05	-	
Power conversion efficiency	E	$V_{cc} = 2.5\text{ V}$, $I_{dc-dc_load} = 250\text{ mA}$, $V_{dc-dc_out} = 3.0\text{ V}$	-	85	-	%
Oscillator frequency	F_{osc}	Adjustable	600	-	2000	kHz
High-side switch-on resistance	$R_{DS(on)}$	$V_{cc33} = 2.5\text{ V}$, $I_{dc-dc_load} = 250\text{ mA}$, $V_{dc-dc_out} = 3.0\text{ V}$	-	0.32	-	Ω
Low-side switch-on resistance			-	0.20	-	
Output current limit	I_{LIM_OUT}	$I_{adj_DN}<1:0> = "00"$	-	1050	-	mA
		$I_{adj_DN}<1:0> = "01"$	-	900	-	
		$I_{adj_DN}<1:0> = "10"$	-	750	-	
		$I_{adj_DN}<1:0> = "11"$	-	600	-	
Soft start frequency	F_{SW}	$V_{dc-dc_out} = 2.8\text{ V}$	-	270	-	kHz
Maximum duty cycle	D_{max}	UVLO disable, $V_{adj}<1:0> = 3.0\text{ V}$, $I_{dc-dc_load} = 500\text{ mA}$, $I_{adj_DN}<1:0> = 1050\text{ mA}$	-	95	-	%