

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

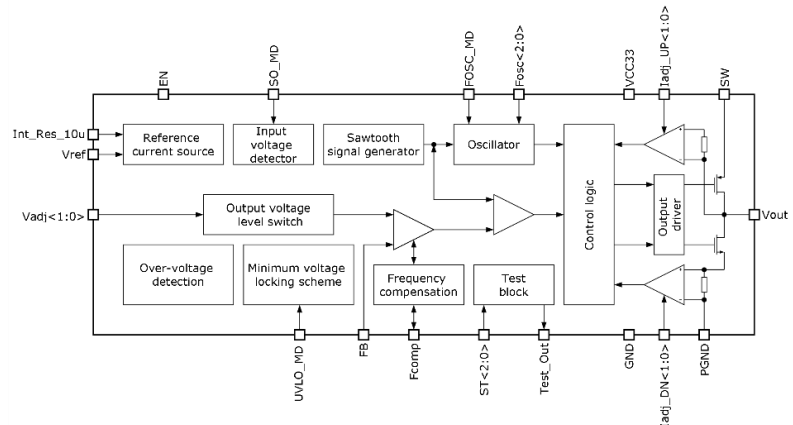
### OVERVIEW

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: 0.63mm<sup>2</sup>.



### 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	-	$\Omega$
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	-	%