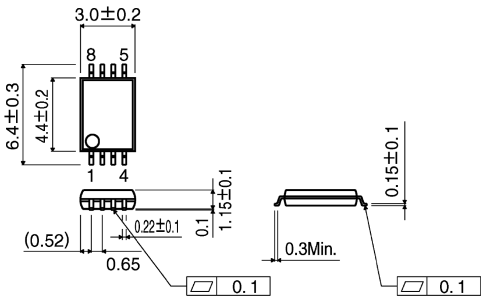
Variable output, negative voltage IC
BD6111FV

Description

The BD6111FV is a charge-pump, negative supply IC containing a regulator. The charge pump block inverts a positive power supply voltage that is inputted to VBAT pin into a negative voltage and outputs it from the NEGOUT pin. The regulator block stabilizes this negative voltage with low-noise and outputs it from OUT pin. Output voltage values of this regulator can be controlled by voltage value inputted to VIN pin and determined by OUT=-1.6 ×VIN .

Dimension(Units:mm)



SSOP-B8

Features

1) Highly efficient, built-in inverting charge pump
2) Built-in variable, negative voltage linear regulator.
3) Built-in stand-by switch circuit (pull down resistor 1M Ω)
4) Compact SSOP-B8 package

Applications

Compact information computer terminal, such as PDC, PHS and PDA.
Battery driving apparatus requiring negative voltage.

Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Limits	Unit
Maximum applied power supply voltage	V_{BAT}	-0.3 ~ +6.0	V
Maximum applied input voltage	V_{IN}	-0.3 ~ +6.0	V
Power dissipation	Pd	300 *	mW
Operating temperature range	Topr	-20 ~ +70	˚C
Storage temperature	Tstg	-55 ~ +125	˚C

*Derating:3.0mW/˚C for operation above Ta=25˚C.

Recommended Operating Conditions (Ta=25˚C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{BAT}	2.5	-	5.5	V

Electrical characteristics (Unless otherwise noted: Ta=25˚C, VBAT=3.6V, STBY=3.6V)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current		IQ1	-	0.6	3	mA	No-load, VIN=1.25V
Stand-by current		IQ2	-	-	5	μA	No-load, VIN=0V, STBY=0V
<Regulator block>							
Output voltage		Vo	-2.1	-2.0	-1.9	V	VIN=1.25V, IOUT=10mA
Output ripple voltage		VRR	-	-70	-60	dBV	VIN=1.25V, IOUT=10mA
Maximum output current		IOMAX	20	-	-	mA	VIN=1.25V, VOUT ≦Vo+0.1V
Load stability		ΔVOL	-	2	40	mV	VIN=1.25V, Io=0~10mA
Input stability		ΔVOI	-	5	40	mV	
VIN pin inflow current		IIN	-	0	2	μA	VIN=1.25V
<Charge pump block>							
Oscillation frequency		fosc	-	120	-	kHz	
Voltage conversion efficiency		VCE	-	97	-	%	No-load, NEGOUT monitor
Stand-by pin pull down resistor		RSTBY	0.6	1.0	1.6	MΩ	
Stand-by pin Control voltage	Operation	VIH	2.0	-	-	V	
	Non-operation	VIL	-0.3	-	0.3	V	

Application circuit