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[Rohm Semiconductor](#)
[BD6111FV-E2](#)

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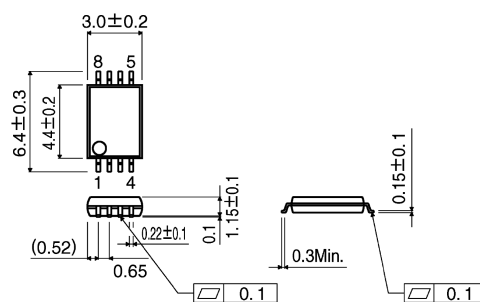
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Variable output, negative voltage IC BD6111FV

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 $OUT = -1.6 \times VIN$.

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	T _{opr}	-20 ~ +70	°C
Storage temperature	T _{stg}	-55 ~ +125	°C

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

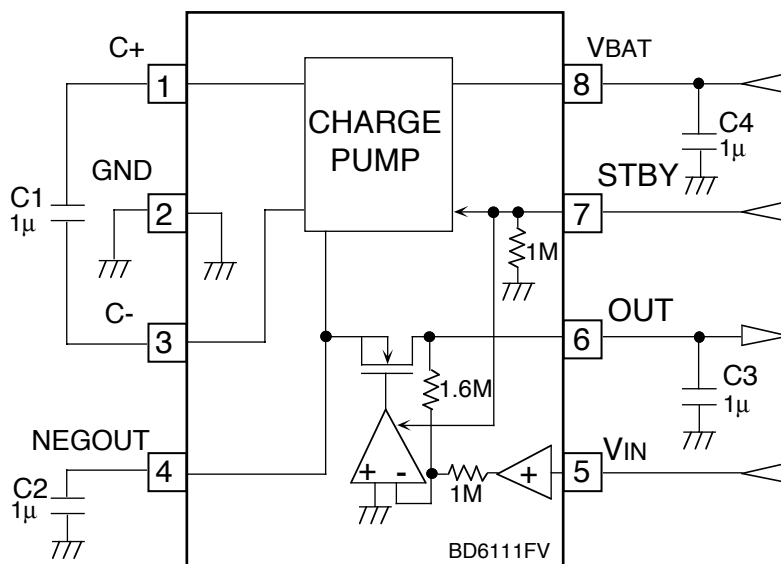
Recommended Operating Conditions (Ta=25°C)

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

Electrical characteristics (Unless otherwise noted: Ta=25°C, V_{BAT}=3.6V, STBY=3.6V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current	I _{Q1}	-	0.6	3	mA	No-load, V _{IN} =1.25V
Stand-by current	I _{Q2}	-	-	5	μA	No-load, V _{IN} =0V, STBY=0V
<Regulator block>						
Output voltage	V _O	-2.1	-2.0	-1.9	V	V _{IN} =1.25V, I _{OUT} =10mA
Output ripple voltage	V _{RR}	-	-70	-60	dBV	V _{IN} =1.25V, I _{OUT} =10mA
Maximum output current	I _{OMAX}	20	-	-	mA	V _{IN} =1.25V, V _{OUT} ≤ V _O +0.1V
Load stability	ΔV _{OL}	-	2	40	mV	V _{IN} =1.25V, I _O =0~10mA
Input stability	ΔV _{OI}	-	5	40	mV	
V _{IN} pin inflow current	I _{IN}	-	0	2	μA	V _{IN} =1.25V
<Charge pump block>						
Oscillation frequency	f _{osc}	-	120	-	kHz	
Voltage conversion efficiency	V _{CE}	-	97	-	%	No-load, NEGOUT monitor
Stand-by pin pull down resistor	R _{STBY}	0.6	1.0	1.6	MΩ	
Stand-by pin Control voltage	Operation	V _{IH}	2.0	-	-	V
	Non-operation	V _{IL}	-0.3	-	0.3	V

Application circuit



Appendix

Notes

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