

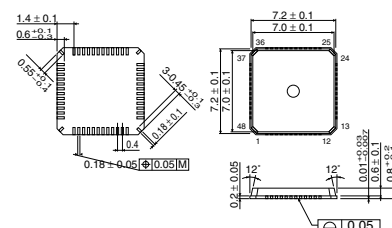
## Power management IC for cellular phones

# BH6039KN

### ●Description

BH6039KN is a compound power management IC incorporating regulator, detector, charge control circuit for charging lithium battery, and each driver for vibrator, LED, back light. The lithium battery charging circuit incorporates each monitor circuit such as the micro-controller charging current circuit.

### ●Dimension (Units : mm)



QFN48U

### ●Features

- 1) Built-in 5-channel CMOS type regulator
- 2) Built-in 4-channel detector circuit can vary delay time by external capacitor.
- 3) Built-in each driver for vibrator, LED, back light
- 4) Built-in charge control circuit for charging lithium battery in the set.
- 5) Small QFN48U package

### ●Applications

Cellular phones, Overseas cellular phones, PHS

### ●Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>cc</sub>	7.0	V
Power dissipation	P <sub>d</sub>	500 *	mW
Operating temperature range	T <sub>opr</sub>	-30 ~ +75	°C
Storage temperature range	T <sub>stg</sub>	-55 ~ +125	°C

\*Derating : 5.0mW/°C for operation above Ta=25°C

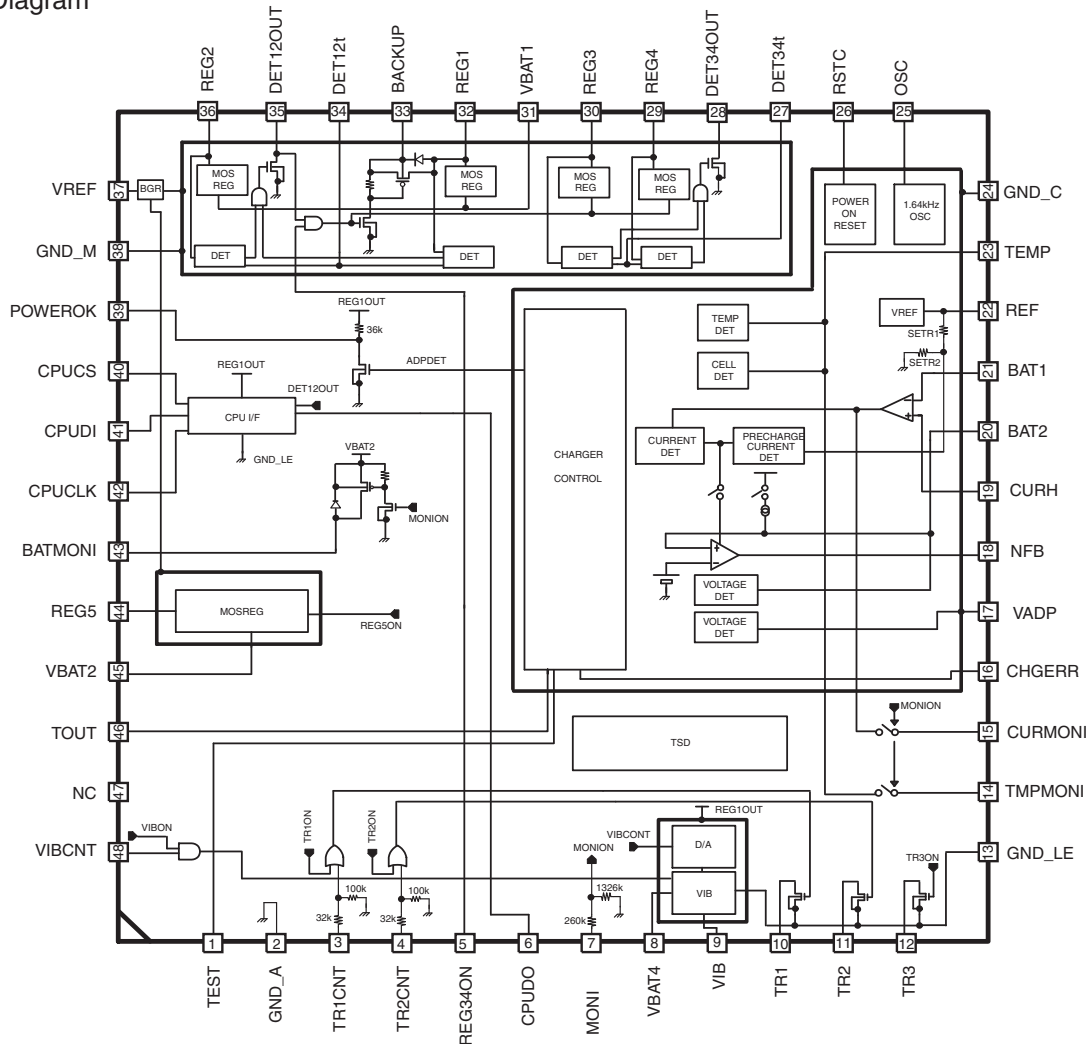
### ●Recommended Operating Conditions (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Battery voltage	V <sub>BAT</sub>	3.20	3.60	4.50	V
Adapter voltage	V <sub>adp</sub>	4.60	5.50	5.90	V

● Electrical characteristics (Unless otherwise noted: Ta=25°C, VBAT=3.6V, VADP=5.5V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current						
Circuit current 1	IQ1	—	38	54	μA	REG1,2=ON (Power off mode)
Circuit current 4	IQ4	—	80	170	μA	REG1~5=ON, BACK UP=ON, (Full On1)
REG block						
REG1,3,5 output voltage	Vo1,3,5	2.79	2.85	2.91	V	Io=50, 120, 80mA (REG1,3,5 order)
REG2,4 output voltage	Vo2,4	1.79	1.85	1.91	V	Io=30, 50mA (REG2,4 order)
REG ripple rejection rate	RR1~5	50	60	—	dB	VR=-20dBV, fR=120Hz, BW=20~20kHz, Io=50,30,120,50,80mA (REG1~5 order)
DET block						
DET1,3 detection voltage	VDET1,3	2.55	2.60	2.65	V	
DET2,4 detection voltage	VDET2,4	1.61	1.65	1.69	V	
CHG block						
Charge control voltage	VCHG	4.15	4.20	4.24	V	Ta=-10~60°C, charge current 60mA
Rapidity charge current	ICHG	0.9C	1C	1.1C		1C=500mA
SETR current	ISETR	60	76	92	μA	

● Block Diagram



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