

Communication ICs

# Intelligent LED Management IC

## BH6046KN/BH6047GLU

### Description

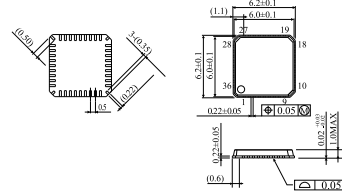
BH6046KN/BH6047GLU is an intelligent LED management IC that incorporates all LED drivers used for mobile phones. All drivers and charge-pump circuits of white LEDs for color LCD backlights, full-color LED, and LED for key backlights are incorporated. This IC also incorporates a constant-voltage power supply and detection circuit for external photo-transistors. This IC itself can control the brightness of all LEDs to the quantity of light outside.

### Features

- Built-in 4-channel driver for white LED that can control current in 16 steps
- Built-in 3-channel driver for RGB LED that can control current in 8 steps
- Built-in step-up charge-pump circuit (×1.5 or ×2 can be switched by serial data.)
- Built-in 2-channel driver for Key LED
- Built-in light detection circuit
- Built-in 4channel GPIO(BH6047GLU : 1channel)
- Power supply voltage : 3.1 to 4.5V

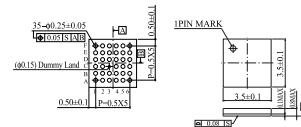
### Dimension (Unit : mm)

BH6046KN



VQFN36

BH6047GLU



VFLGA35

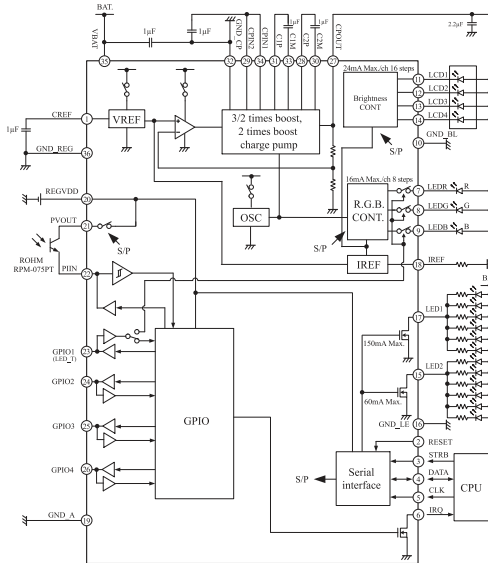
### Electrical characteristics

(Unless otherwise noted; Ta=25°C, VBAT=3.6V, VREG=2.8V)

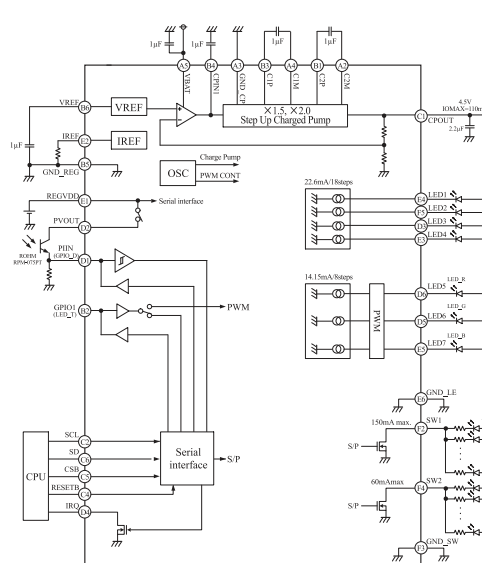
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit Current IA (VBAT)	IQIA	—	5	10	mA	×1.5 charge-pump, ICPOUT=0mA
Circuit Current IB (VBAT)	IQIB	—	3.2	6	mA	×2 charge-pump, ICPOUT=0mA
Charge-pump Voltage	VOIA	4.35	4.50	4.65	V	×1.5 charge-pump, ICPOUT=90mA, VBAT=3.6V
RGB LED Output Current MAX	IRGBMAX	11.2	14.15	17.1	mA	When terminal voltage is 0.5V.
RGB LED Output Current MIN	IRGBMIN	3.1	4.0	4.9	mA	When terminal voltage is 0.5V.
White LED Output Current MAX	IWLEDMAX	18.0	22.6	27.2	mA	When terminal voltage is 0.5V.
White LED Output Current MIN	IWLEDMIN	0.8	1.3	1.8	mA	When terminal voltage is 0.5V.
Key LED 1 Output Current MAX	ILED1MAX	—	—	150	mA	
Key LED 2 Output Current MIN	ILED1MAX	—	—	60	mA	

### Application Circuit

BH6046KN



BH6047GLU



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