High-accuracy dimming with dual DC/PWM output
Boost LED Driver
BD65B60GWL

The BD65B60GWL is a 2ch LED driver designed for small LCD backlighting in smartphones, portable gaming devices, and more. Circuit optimization ensures high efficiency in the low-current region (i.e. during standby), while dual DC (current) and PWM control provides high precision dimming across the entire brightness range.

**Ensures high efficiency in the low-current region**
Optimization of the internal boost DC/DC converter circuit achieves high efficiency in the low-current region below 10mA (i.e. during standby).

**High accuracy dimming via dual DC/PWM output control**
Current setting for LED dimming is possible at the same time via both PWM input and DC (register) settings. In addition, users can select either PWM or DC output for the LED current during dimming, based on intended use, ensuring high-precision dimming across the entire brightness range.

**Dimming Examples**
Adjust the brightness via DC (current) by pressing a button on a dimming settings screen

**Original DAC dimming technology eliminates brightness variations**
Proprietary precision DAC dimming technology eliminates LED brightness variations across each channel, enabling uniform brightness for LED backlighting applications.

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ROHM Co., Ltd.  www.rohm.com
LED Driver Lineup

Applications
- Portable gaming
- Smartphones
- POS terminals
- Electronic dictionaries
- Multifunction printers
- Wearable devices
- Digital cameras
- Digital camcorders
- SLR cameras
- Refrigerators
And other sets utilizing compact LCDs

### Boost LED Drivers
White LED Drivers with Built-In FET

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Supply Voltage (V)</th>
<th>No. of LEDs</th>
<th>Output Voltage (V)</th>
<th>Output Current (mA)</th>
<th>Switching Frequency (MHz)</th>
<th>Primary Brightness Control Method</th>
<th>Control Interface</th>
<th>Package (mm)</th>
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<tbody>
<tr>
<td>BD60A00NUX</td>
<td>2.7 to 5.5</td>
<td>3</td>
<td>24 Max. 6pcs x 1 row</td>
<td>40.0 Max.</td>
<td>30</td>
<td>0.6</td>
<td>PWM signal at PWM pin/Resistance switching at SET pin</td>
<td>Pin logic setting</td>
</tr>
<tr>
<td>BD60A06NUX</td>
<td>2.7 to 5.5</td>
<td>2</td>
<td>16 Max. 9pcs x 1 row</td>
<td>28.5 Max.</td>
<td>25 (per row)</td>
<td>1.1</td>
<td>DC bias control/ PWM signal at PWM pin/Resistance switching at SET pin</td>
<td>Pin logic setting</td>
</tr>
</tbody>
</table>

**Multidisplay LED Drivers**
- White LED Driver Series
- Headlight LED Drivers (Automotive-Grade)
- White LED Driver Series (Automotive-Grade)
- Buck LED Lighting Drivers (requiring no electrolytic capacitors)
- DC/DC Converter Type Buck LED Lighting Drivers

### Synchronous Rectification White LED Drivers with Built-In FET

**Part No.**
- BD6071HFN
- BD6072HFN
- BD6076GUT
- BD6077GUT
- BD6079GWL
- BD6076GUT
- BD6071HFN

**Supply Voltage (V)**
- 3.1 to 5.5
- 2.7 to 5.5
- 2.7 to 5.5
- 4.5 to 5.5
- 6.0 to 27.0
- 4.2 to 27.0

**No. of LEDs**
- 3 x 3 pcs x 1 row
- 4 x 4 pcs x 1 row
- 4 x 4 pcs x 1 row
- 10 x 10pcs x 4 rows
- 80 x 8pcs x 4 rows
- 10 Max. 8pcs x 4 rows

**Output Voltage (V)**
- 14.0 Max. (for 10V output)
- 18.0 Max.
- 24.0 Max. (per row)
- 40.0 Max.
- 40.0 Max. (per row)
- 55.0 Max.

**Output Current (mA)**
- 30
- 30
- 25 (per row)
- 30
- 30
- 30 (per row)

**Switching Frequency (MHz)**
- 1.0
- 1.0
- 1.0
- 1.25
- 0.6 to 1.5
- 0.6 to 1.5

**Primary Brightness Control Method**
- PWM signal at EN pin
- PWM signal at EN pin
- PWM signal at EN pin
- PWM signal at PWMDRV pin/Resistance switching at SET pin
- PWM signal at PWMDRV pin/Resistance switching at SET pin
- PWM signal at PWMDRV pin/Resistance switching at SET pin

**Control Interface**
- –
- –
- –
- Pin logic setting
- Pin logic setting
- Pin logic setting

**Package (mm)**
- VCSP85H2
- VCSP85H2
- VCSP85H2
- VSON008X2030
- VSON008X2030
- VSON008X2030

**White LED Drivers (External FET Type)**

**Part No.**
- BD6581GU
- BD6583MUV-A
- BD6592MUV
- BD9285F
- BD9479FV
- BD9488F

**Supply Voltage (V)**
- 12 to 60V (Vf limit)
- 12 to 60V (Vf limit)
- 12 to 60V (Vf limit)
- 2.5 to 5.5
- 12 to 60V (Vf limit)
- 2.7 to 5.5

**No. of LEDs**
- 12pcs x 6 rows
- 40 x 2 rows
- 3 x 3 pcs x 1 row
- 4pcs x 1 row
- 56 Max. 12pcs x 5 rows
- 100pcs x 1 row

**Output Voltage (V)**
- 43.0 Max.
- 43.0 Max.
- 43.0 Max.
- 18.0 Max.
- 43.0 Max.
- 400 Max.

**Output Current (mA)**
- 25 (per row)
- 25 (per row)
- 40 (per row)
- 30
- 500 Max.
- 250 Max.

**Primary Brightness Control Method**
- PWM signal at PWM pin/Resistance switching at ISET pin
- PWM signal at PWMDRV pin/Resistance switching at SET pin
- PWM signal at EN pin
- PWM signal at EN pin
- PWM signal at EN pin
- PWM signal at EN pin

**Control Interface**
- Pin logic setting
- Pin logic setting
- Pin logic setting
- Pin logic setting
- Pin logic setting
- Pin logic setting

**Package (mm)**
- VCSP85H2 (0.4×0.8), H=0.55Max.
- VCSP85H2 (0.35×0.5), H=0.5Max.
- VCSP85H2 (0.35×0.5), H=0.5Max.
- SOP18
- SOP18
- SOP18

Drivers for LED Camera Flash

**Part No.**
- BD7700GU
- BD6164GUT
- BD7704MUX

**Supply Voltage (V)**
- 3.1 to 5.5
- 2.7 to 4.5
- 2.7 to 5.5

**No. of LEDs**
- 1 of 3
- 2
- 1 to 2

**Output Voltage (V)**
- 5.5 Max.
- 4.7 Max.
- 5.4 Max.

**Output Current (mA)**
- 20mA to 50mA (continuous)
- 80mA to 120mA (flash)
- 50mA to 300mA (flash)

**Primary Brightness Control Method**
- PWM signal control
- Analog signal control
- Analog signal control

**Control Interface**
- Pin logic setting
- PC BUS
- UPIC

**Package (mm)**
- VCSP85H2 (0.35×0.24), H=1.1Max.
- VCSP85H2 (0.35×0.24), H=1.1Max.
- VCSP85H2 (0.35×0.24), H=1.1Max.

**Boost-Buck LED Drivers**
White LED Driver Series (Automotive-Grade)
Headlight LED Drivers (Automotive-Grade)

**Versatile LED Drivers**
White LED Driver Series
Multidisplay LED Drivers
LED Drivers for Decorative Lighting

The content specified herein is for the purpose of introducing ROHM’s products (hereafter “Products”). If you wish to use any such Product, please be sure to refer to the specifications which can be obtained from ROHM upon request.}

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ROHM Co., Ltd.
21 Sakai, Morisaki-cho, Uji-ku,
Kyoto 615-8585 Japan

www.rohm.com