# LED Drivers

## Built-in Step-up Circuit

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Function</th>
<th>Features</th>
<th>No. of output circuits</th>
<th>Number of LEDs</th>
<th>Booster method</th>
<th>Constant current circuit</th>
<th>Switching transistor</th>
<th>Input voltage range (V)</th>
<th>Output current (mA) MAX.</th>
<th>Oscillation frequency (Hz) TYP.</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR2E58U</td>
<td>White LED driver for backlight</td>
<td>• Capable of driving a maximum of 96 LEDs with 12 LEDs (in series) per channel</td>
<td>8</td>
<td>96</td>
<td>PWM</td>
<td>○</td>
<td>4.5 to 28</td>
<td>400 k to 1.5 M</td>
<td>35WL-CSP</td>
<td>24HQFN</td>
<td></td>
</tr>
</tbody>
</table>
| IR2E71Y   | LED driver for backlight and call alert display (auto brightness adjustment) | • 2 ch (11 LEDs x 2 ch) LED driver for backlight  
• Auto brightness adjustment backlight LED  
• 6 ch RBG LED driver for illumination  
• Built-in switching regulator for LCD backlight  
• Built-in LCD controller power supply (+5.8 V / –5.8 V MAX.)  
• LDO 1 ch  
• Interface for digital-output proximity sensor with ambient light sensor  
• Built-in general purpose input/output port (7 ch MAX.)  
Backlight 2 RGB 6  
Backlight 22 RGB 6  | PWM            | ○                    | 3.0 to 4.5              | Backlight 25.5ch RGB 12.7ch | 10 k to 1 M               | 35WL-CSP                    | 24HQFN          |
| IR2E70N   | White LED driver for backlight   | • Built-in step-up DC-DC controller for 2 ch individual control  
• Capable of 2 ch individual PWM brightness control  
• LED current value adjustable by external signal (voltage input / PWM signal)  
• Brightness control possible at high contrast ratio 3000:1  
• Step-up output control according to LED-VI | 2                      | PWM            | External       | 4.5 to 5.5     | 8 to 28               | 100 k to 500 k               | 35WL-CSP                    | 24SSOP          |

*1 Constant current (MAX.)
*2 Determined by external transistor voltage limit.
*3 Constant current can be controlled by LED anode voltage control.
*4 Determined by external resistor.
### AC-DC Conversion Type ICs for LED Lighting

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Features</th>
<th>Operating temperature range (°C)</th>
<th>Supply voltage range (V)</th>
<th>Dissipation current (mA)</th>
<th>Switching frequency (kHz)*1</th>
<th>Gate driver capacity</th>
<th>System</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR3M92N4</td>
<td>Overvoltage/overheat/overcurrent circuits, high-speed activation, stand-by feature, PWM brightness control</td>
<td>−30 to +100</td>
<td>10 to 18</td>
<td>1</td>
<td>160</td>
<td>MAX. 15 MIN. 40</td>
<td>Flyback Step-down</td>
<td>SOP-8</td>
</tr>
</tbody>
</table>

*1 When operating a flyback converter