



# LED Drivers

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# LED Drivers

## Boost Converter LED Drivers

### White LED Drivers with External FET

Part No.	Supply Voltage (V)	No. of LEDs	Output Voltage (V)	Switching Frequency (MHz)	Primary Brightness Control Method	Control Interface	Package (mm)
BD6583MUV-A	2.7 to 22.0	Max.72 12series×6strings in parallel (V <sub>r</sub> restrictions exist)	Max.43.0	1	PWM signal from the PWMPOW/PWMDRV terminal Resistance switching at the ISET terminal	Pin logic setting	VQFN024V4040
BD9486F	9 to 18	Max.About 120 120series×1string in parallel	Max.About 400	0.05 to 0.80	PWM signal Analog signal	Pin logic setting	SOP16
BD9411F	9 to 35	Max.About 120 120series×1string in parallel	Max.About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP18
BD9413F	9 to 35	Max.About 120 120series×1string in parallel	Max.About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP18
BD9483F	11 to 35	Max.About 240 120series×2strings in parallel	Max.About 400	0.05 to 0.80	PWM signal Analog signal	Pin logic setting	SOP24
BD9483FV	11 to 35	Max.About 240 120series×2strings in parallel	Max.About 400	0.05 to 0.80	PWM signal Analog signal	Pin logic setting	SSOP-B24
BD9416F	9 to 35	Max.About 240 120series×2strings in parallel	Max.About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP24
BD9416FS	9 to 35	Max.About 240 120series×2strings in parallel	Max.About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SSOP-A24
BD9479FV	9 to 35	Max.About 96 12series×8strings in parallel	Max.About 40	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SSOP-B40
<b>New</b> BD9408FV	9 to 35	Max.About 120 120series×1string in parallel	Max.About 400	0.05 to 2.00	PWM signal Analog signal	Pin logic setting	SSOP-B14
BD9409F	11.5 to 35.0	Max.About 120 120series×1string in parallel	Max.About 400	0.05 to 1.00	PWM signal Analog signal	Pin logic setting	SOP16
BD9420F	9 to 35	Max.72 12series×6strings in parallel (V <sub>r</sub> restrictions exist)	Max.About 40	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SOP28
BD9421F	9 to 35	Max.72 12series×6strings in parallel (V <sub>r</sub> restrictions exist)	Max.About 40	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SOP24

### White LED Drivers with Integrated FET

BD60A00NUX	2.7 to 5.5	Max.10 10series×1string in parallel	Max.40.0	0.6	PWM signal Resistance switching at the ISET terminal	Pin logic setting	VSON008X2030
BD60A60NUX	2.7 to 5.5	Max.6 6series×1string in parallel	Max.26.0	0.6	PWM signal Resistance switching at the ISET terminal	Pin logic setting	VSON008X2030
BD65B60GWL	2.7 to 5.5	Max.16 8series×2strings in parallel	Max.28.5	1.1/0.6	I <sup>2</sup> C BUS PWM signal Resistance switching at the ISET terminal	I <sup>2</sup> C BUS + PWM	UCSP50L1 1.4 × 1.8, H=Max.0.55
BD6586MUV	2.7 to 5.5	Max.24 6series×4strings in parallel	Max.24.0	1	PWM signal Resistance switching at the ISET terminal	Pin logic setting	VQFN024V4040
BD65D00MUV	6 to 27	Max.40 10series×4strings in parallel	Internal FET Max.40.0 External FET Max.80.0	0.6 to 1.6	PWM signal Resistance switching at the ISET terminal Analog voltage control	Pin logic setting	VQFN028V5050
BD6142AMUV	4.2 to 27	Max.80 10series×8strings in parallel	Max.41.0	0.6 to 1.6	PWM signal Resistance switching at the ISET terminal Analog voltage control	Pin logic setting	VQFN024V4040
BD9394EFV	9 to 35	Max.72 18series×4strings in parallel	Max.60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	HTSSOP-B24
BD9394FP	9 to 35	Max.72 18series×4strings in parallel	Max.60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	HSOP20
BD93941EFV	9 to 35	Max.72 18series×4strings in parallel	Max.60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	HTSSOP-B20
BD93941FP	9 to 35	Max.72 18series×4strings in parallel	Max.60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	HSOP20
BD93942F	9 to 35	Max.72 18series×4strings in parallel	Max.60.0	0.1 to 0.8	PWM signal Analog signal	Pin logic setting	SOP16
BD9470AEFV	9 to 35	Max.72 18series×4strings in parallel	Max.40.0	0.1 to 0.5	PWM signal	Pin logic setting	HTSSOP-B28
BD9470AFM	9 to 35	Max.72 18series×4strings in parallel	Max.40.0	0.1 to 0.5	PWM signal	Pin logic setting	HSOP-M28
BD9397EFV	9 to 35	Max.84 14series×6strings in parallel	Max.50.0	0.10 to 1.25	PWM signal Analog signal	Pin logic setting	HTSSOP-B40
BD9422EFV	9 to 35	Max.84 14series×6strings in parallel	Max.60.0	0.10 to 1.25	PWM signal Analog signal	Pin logic setting I <sup>2</sup> C	HTSSOP-B40
BD9423EFV	9 to 35	Max.84 14series×6strings in parallel	Max.60.0	0.05 to 1.25	PWM signal Analog signal	Pin logic setting I <sup>2</sup> C	HTSSOP-B40

### Synchronous White LED Drivers with Integrated FET

BD6071HFN	2.7 to 5.5	Max.3 3series×1string in parallel	Max.14.0	1	PWM signal from EN terminal	—	HSO8
BD6072HFN	2.7 to 5.5	Max.4 4series×1string in parallel	Max.18.0	1	PWM signal from EN terminal	—	HSO8

### LED Camera Flash Drivers

Part No.	Supply Voltage (V)	Number of LED	Output Voltage (V)	Output Current	Switching Frequency (MHz)	Control Interface	Package (mm)
BD6164GUT	2.7 to 4.5	1 (Large current LED)	Max.4.7	52, 72mA(Torch mode) 260, 280, 300, 320mA(Flash mode)	4	I <sup>2</sup> C BUS	VCSP60N1 1.5 × 1.1, H=Max.0.675
BD7710GWL	2.7 to 5.5	Max.6 1 to 2series×3strings in parallel (V <sub>r</sub> restrictions exist) (large current LED)	Max.5.5	ch1=0 to 400mA ch2=0 to 800mA ch3=0 to 400mA ch1, 2, 3 short=0 to 1.6A	2	I <sup>2</sup> C BUS	UCSP50L2
BD7757MWX	2.7 to 5.0	Max.2 1 to 2series×1string in parallel (V <sub>r</sub> restrictions exist) (large current LED)	Max.5.1	0 to 1.5A	2	UPIC*	USON014X3020

### White LED Driver for Head Light

Part No.	Supply Voltage (V)	Application	ch	Maximum Input Voltage (V)	Output Current	Dimmer Mode	DC/DC	Operating Temperature (°C)	Package	Automotive Grade AEC-Q100
BD18351EFV-M	4.5 to 65.0	Head Lamp/DRL	1	65	Depend on Extra parts	PWM/DC	Boost	-40 to +125	HTSSOP-B24	YES

\*:UPIC : Uni-Port Interface Control

## Buck Converter LED Drivers

### Buck Converter LED Lighting Drivers for DC/DC Converter type

Part No.	Supply Voltage (V)	Switching Terminal Voltage (V)	Ron (Ω)	Operating Frequency (kHz)	Over Current Protection	Package
<b>BM531Q11</b>	9.0 to 35.0	250	0.93(Typ.)	Max.440	✓	DIP7AK
<b>New</b> <b>BD94062F</b>	10.5 to 35.0	—	—	Max.800	✓	SOP16

### White LED Drivers for PFC Direct Connection Current Resonance type

Part No.	Supply Voltage (V)	Drive Method	Oscillation Frequency Variable (kHz)	Primary Brightness Control Method	Control Interface	Package
<b>BD92111F</b>	8.0 to 18.0	Half Bridge	30 to 200	PWM signal	Pin logic setting	SOP18
<b>BD94121F</b>	9.0 to 18.0	Half Bridge	30 to 300	PWM signal/Analog signal	Pin logic setting	SOP18
<b>New</b> <b>BD94122F</b>	9.0 to 18.0	Half Bridge	30 to 300	PWM signal/Analog signal	Pin logic setting	SOP18

## Buck-Boost LED Drivers

### White LED Drivers

Part No.	Power Supply (V)	Boost FET	ch	Output Voltage (V)	Output Current (mA)	Switching Frequency (MHz)	PWM Dimming Ratio	Operating Temperature (°C)	Package	Automotive Grade AEC-Q100
<b>BD81A24EFV-M</b>	4.5 to 35.0	Internal	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	HTSSOP-B28	YES
<b>BD81A24MUV-M</b>	4.5 to 35.0	Internal	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	VQFN28SV5050	YES
<b>BD81A24MUF-M</b>	4.5 to 35.0	Internal	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	VQFN28FV5050	YES
<b>BD81A44EFV-M</b>	4.5 to 35.0	External	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	HTSSOP-B28	YES
<b>BD81A44MUV-M</b>	4.5 to 35.0	External	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	VQFN28SV5050	YES
<b>BD81A44MUF-M</b>	4.5 to 35.0	External	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	VQFN28FV5050	YES
<b>New</b> <b>BD81A74EFV-M</b>	4.5 to 35.0	External	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	HTSSOP-B28	YES
<b>New</b> <b>BD81A74MUV-M</b>	4.5 to 35.0	External	4	Max.35	Max.120/ch	0.2 to 2.2	10,000 : 1@100Hz	-40 to +125	VQFN28SV5050	YES

### White LED Driver for Head Light

Part No.	Power Supply (V)	Application	ch	Rated Voltage (V)	Output Current	Dimmer Mode	DC/DC	Operating Temperature (°C)	Package	Automotive Grade AEC-Q100
<b>BD8381AEFV-M</b>	5 to 30	Head Lamp/DRL	1	50	Depend on extraparts	PWM/DC	Buck-Boost, Boost, Buck	-40 to +125	HTSSOP-B28	YES

## LED Drivers for Lighting

### AC/DC Controller ICs for LED Lighting Included 650V MOSFET

Part No.	Supply Voltage (V)	Input AC Voltage (Vac)	Built-in PFC Function	Built-in MOSFET	LED Average Current (mA)	Switching Frequency (kHz)	Package
<b>BM520Q15F</b>	8.9 to 26.0	80 to 275	—	✓	up to 200	20 to 200	SOP8
<b>BM521Q25F</b>	8.9 to 25.0	80 to 275	✓	✓	up to 200	20 to 300	SOP8
<b>BD521GOFJ</b>	8.9 to 25.0	80 to 275	✓	—	—	20 to 300	SOP-J8

## Inductorless(Charge Pump)LED Drivers

### White LED Drivers

Part No.	Supply Voltage (V)	No. of LEDs	Charge Pump Step-up Circuit			Primary Brightness Control Method	Control Interface	Package
			Output Voltage (V)	Output Current (mA)	Pump Frequency			
<b>BD1604MUV</b>	2.7 to 5.5	1 to 4	Max.4.5	120	1MHz	PWM control via EN terminal Resistance switching at ISET terminal	Pin logic setting	VQFN016V3030
<b>BD2606MVV</b>	2.7 to 5.5	1 to 6	Max.4.7	120	250kHz/1kHz	Built-in 64-step current DAC(0.5 to 32.0mA)	I <sup>2</sup> C BUS	SQFN016V4040

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LED Drivers

**Constant Current/Serial-in Parallel-out LED Drivers**

Parallel-out LED Drivers											
Part No.	Supply Voltage (V)	No. of LEDs	Constant Current Driver							Control Interface	Package
			Max. Current Setting Method	Max. Current	Channel-to-Channel Matching	Brightness Control	Output Voltage (V)	No. of Output (ch)	Output Method		
BD1754HFN	2.7 to 5.5	1 to 4 (Parallel Connection)	Resistance change at ISET terminal	32mA (at an ISET resistance of 120kΩ)	Max. 3% (at 1V LED pin voltage)	Built-in 64-step current DAC	UPIC*	HSO8			
BD2802GU	2.7 to 5.5	6 (RGB 2ch)	Resistance change at ISET terminal	30.48mA (at an ISET resistance of 120kΩ)	Max. 10% (at 1V LED pin voltage)	Built-in 128-step current DAC	i <sup>2</sup> C BUS	VCSP85H2			
BD2812GU	2.7 to 5.5	6 (RGB 2ch)	Resistance change at ISET terminal	30.48mA (at an ISET resistance of 120kΩ)	Max. 10% (at 1V LED pin voltage)	Built-in 128-step current DAC/ Inductorless (Charge Pump)	i <sup>2</sup> C BUS	VCSP85H3			
Part No.	Supply Voltage (V)	Output Voltage (V)	No. of Output (ch)	Output Method	Max. LED Current	Each Output Format	Other	Control Method	Max. Clock Frequency (MHz)	Package	Automotive Grade AEC-Q100
BD8378FV-M	3.0 to 5.5	35	8	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25	SSOP-B16	YES
BD8379FV-M	3.0 to 5.5	35	12	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25	SSOP-B20	YES
BD8379EFV-M	3.0 to 5.5	35	12	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25	HTSSOP-B20	YES
BD2808MUV-M	3.0 to 5.5	20	RGB × 8 (24ch)	Constant Current	50mA/ch	Built-in 64-step current DAC for RGB	Built-in 256-step PWM control for all channels	2-Wire Serial	1.0	VQFN48MCM070	YES
<b>New</b> BD8389FV-M	3.0 to 5.5	40	12	Open Drain	50mA/ch	ON/OFF	—	SPI	1.25	SSOP-B20	YES

Dot Matrix LED Drivers												
Part No.	Supply Voltage (V)	LED Matrix	Max. LED Current	Built-in Pattern		Matrix Data RAM	Mobile Light	PWM Dimming (step)	Current Setting (step)	Interface	Max. Clock Frequency	Package (mm)
				Scroll	Slope							
☆BU26507GUL	2.7 to 5.5	5 × 6 30dots	42.5mA/Line	✓	✓	2pages	—	64	16	i <sup>2</sup> C BUS/SPI (2 address/—)	400kHz/13MHz	VCSP50L2 2.5 × 2.5, H=Max.0.55
BD26503GUL	2.7 to 5.5	7 × 17 119dots	30mA/Line	✓	✓	2pages	—	64	16	i <sup>2</sup> C BUS/SPI (2 address/—)	400kHz/13MHz	VCSP50L3 3.6 × 3.6, H=Max.0.55
BD26503KS2	2.7 to 5.5	7 × 17 119dots	30mA/Line	✓	✓	2pages	—	64	16	i <sup>2</sup> C BUS/SPI (2 address/—)	400kHz/13MHz	SQFP-T52
BU16501KS2	2.7 to 5.5	8 × 16 128dots	42.5mA/Line	—	—	1page	—	64	16	i <sup>2</sup> C BUS/SPI (2 address/—)	400kHz/13MHz	SQFP-T52

LED Source Drivers (For Automotive)											
Part No.	Supply Voltage (V)	Application	ch	Driver	Maximum Input Voltage(V)	Maximum Output Current (mA)	Dimmer Mode	Accuracy of Current	Operating Temperature (°C)	Package	Automotive Grade AEC-Q100
BD18340FV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	PWM/DC	±3 (Ta=25 to 125°C)	-40 to +125	SSOP-B16	YES
BD18341FV-M	4.5 to 19.0	DRL/Position/FOG/Turn/Rear	1 to 10	Controller (External PNP)	70	Total 1,000	PWM/DC	±3 (Ta=25 to 125°C)	-40 to +125	SSOP-B16	YES
BD8372EFJ-M	5.5 to 40.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	200	High Current/ Low Current	±3 (Ta=25°C)	-40 to +125	HTSOP-J8	YES
BD8372HFP-M	5.5 to 40.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	200	High Current/ Low Current	±3 (Ta=25°C)	-40 to +125	HRP7	YES
BD8374EFJ-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	±3 (Ta=25°C)	-40 to +125	HTSOP-J8	YES
BD8374HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	±3 (Ta=25°C)	-40 to +125	HRP7	YES
BD83732HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM/DC	±3 (Ta=25°C)	-40 to +125	HRP7	YES
BD83733HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM/DC	±3 (Ta=25°C)	-40 to +125	HRP7	YES
BD83740HFP-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	±3 (Ta=25°C)	-40 to +125	HRP7	YES
<b>New</b> BD83740EFJ-M	4.5 to 42.0	DRL/Position/FOG/Turn/Rear	1	Internal	50	500	PWM	±3 (Ta=25°C)	-40 to +125	HTSOP-J8	YES

\*UPIC : Uni-Port Interface Control

☆ : Under Development