

## NXP GreenChip lighting driver ICs UBA2026x & UBA2027x

# Deep-dimming CFL driver ICs with boost function

These dimmable CFL drivers and power ICs, based on NXP's proven GreenChip technology, enable next-generation dimmable CFLs that deliver incandescent dimming performance with CFL efficiency.

### Key features: UBA2027x

- ▶ Robust, deep-dimmable solution for most leading- and trailing-edge phase cut dimmers (benchmark performance)
- ▶ Natural dimming curve by logarithmic correction

### Key features: UBA2026x

- ▶ Four-level step dimming adjustment using a standard on/off mains switch
- ▶ Adjustable memory retention time for step dimming

### Shared features

- ▶ Boost function for shorter run-up time
- ▶ Fixed boost ratio of 1.5 times after ignition
- ▶ Adjustable boost timing
- ▶ Accurate adjustable in current and time preheat function to extend number of switching cycles
- ▶ Adjustable minimum dimming level
- ▶ Meet and exceed SuperCFL specifications

NXP's UBA2026x and UBA2027x devices allow the lamp manufacturer to meet or exceed the latest SuperCFL specifications, as well as the Energy Star and EU regulations.

The UBA2027x family suits retrofit CFL designs based on existing triac- or transistor-based wall dimmers. These ICs emulate a natural dimming curve using logarithmic correction together with an adjustable minimum deep dimming level down to 2%.

The UBA2026x family provides an easy-to-use "step-dimmable" solution. The ICs feature an adjustable memory retention time and an adjustable minimum dimming level, and dim in four defined steps by simply toggling the standard on-off switch.

Both families include dedicated devices for 120 V and for 230 V mains voltages. Housed in an SO20 package and incorporating half-bridge MOSFETs, they offer very high integration for lamps



up to 20 W. The devices are also available in a controller-only SO16 package, without these half-bridge MOSFETs, so designers can use two external MOSFETs for higher lamp powers and greater design flexibility.

Several "smart" features improve performance in CFLs. The UBA2027x contains special circuitry to enable flicker-free deep dimming; this is a dedicated feature for TRIAC dimmable systems, which is not present in generic CFL/TL controller ICs. A unique "boost" system accelerates lamp warm-up for up to three minutes, enabling a fully bright light in less time. Also, an

integrated preheat function maximizes the number of switching cycles and consequently delivers longer lamp lifetimes. Bulbs based on these ICs can reach lifetimes well above standard CFL expectations, with over 15,000 hours of use and up to 100,000 on/off switching cycles.

### Design tools

The ICs are supported by special software tools that calculate the right component values based on customer requirements and lamp characteristics. Demo boards and samples are also available; please contact NXP for details.

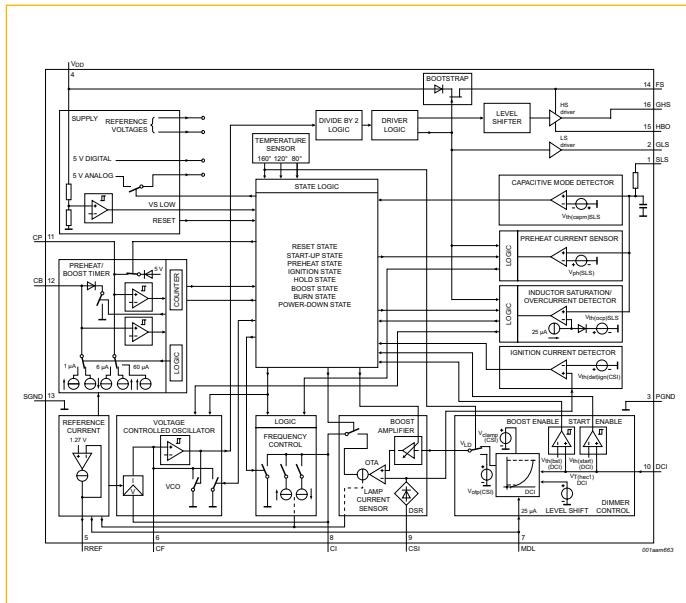
### Selection guide: Triac dimming

Product	Description	Mains	Integrated NMOS power FET	Boost	Package
UBA20270	Controller IC for triac dimming (> 15 W)	120/230 V	-	Yes	SO16
UBA20271	Power IC for triac dimming (< 20 W)	120 V	2 x 350 V/1 Ω	Yes	SO20
UBA20272	Power IC for triac dimming (< 20 W)	230 V	2 x 600 V/3 Ω	Yes	SO20

### Selection guide: Step dimming

Product	Description	Mains	Integrated NMOS power FET	Boost	Package
UBA20260	Controller IC for step dimming (> 15 W)	120/230 V	-	Yes	SO16
UBA20261	Power IC for step dimming (< 20 W)	120 V	2 x 350 V/1 Ω	Yes	SO20
UBA20262	Power IC for step dimming (< 20 W)	230 V	2 x 600 V/3 Ω	Yes	SO20

### UBA20270 block diagram



### Typical system implementation, UBA20270

