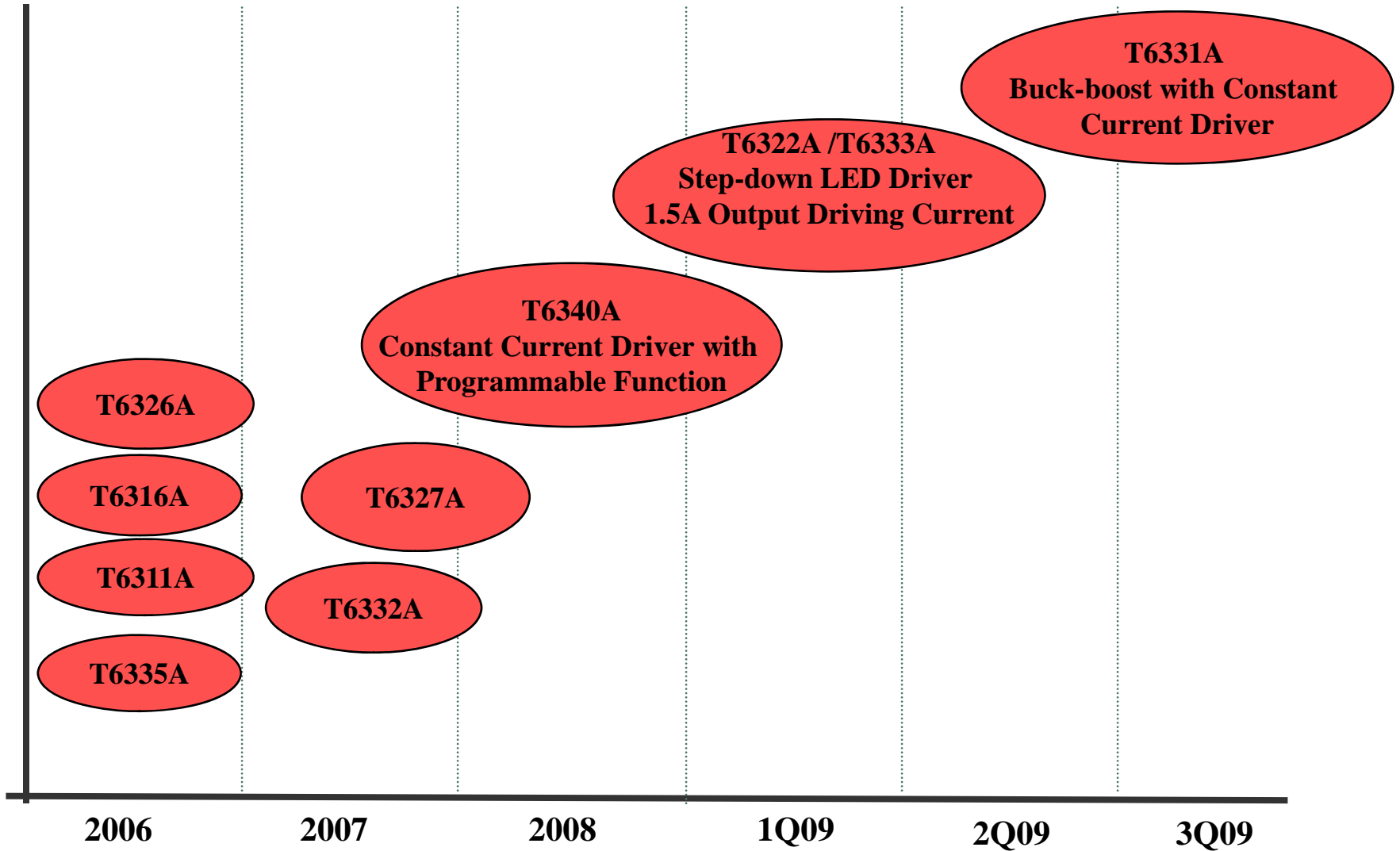




TM Technology, Inc.

# Introduction to TM LED Driver Product Line

# LED Driver for Lighting



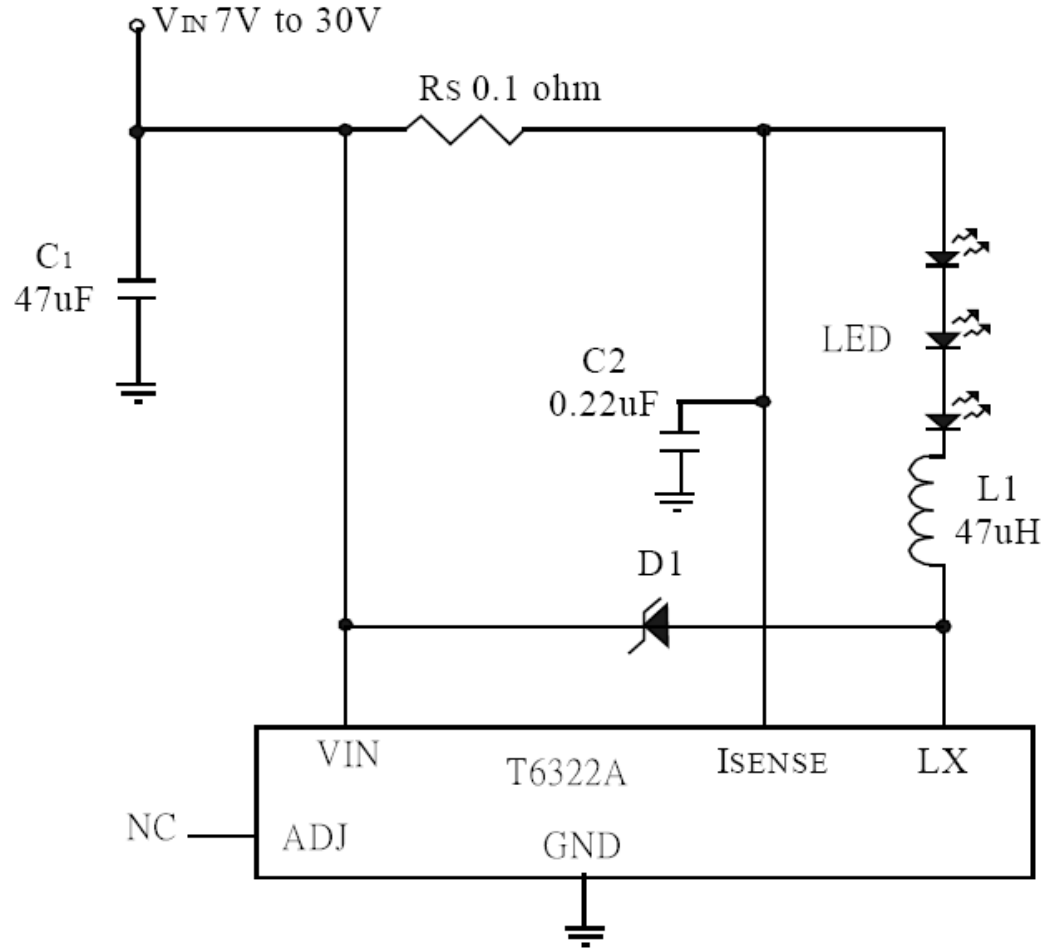
# LED Driver Product List

LED Driver for Lighting						
Part No.	V <sub>IN</sub> (V)	I <sub>OUT</sub> (mA)	Driving CH	Package	Description	Status
T6335A	2.5~5	80~350	1	SOT-89/ TO-252	Constant Current Driver	Available
T6311A	2.5~5.5	200/CH	4	SOP-8	Current Setting by Rset connected to VDD	Available
T6316A	2.5~5.5	400/CH	4	SOP-8 / TO-252	Current Setting by Rset connected to GND	Available
T6332A	2.5~5.5	350	1	SOT-23	Current Setting by Rset connected to GND	Available
T6322A	7.0~30	1500	1	SOP-8/ SOT- 23	Hi-power LED Driver with Buck Regulator	Available
T6333A	7.0~42	1000	1	SOP-8/ SOT- 23	Hi-power LED Driver with Buck Regulator	Available
T6340A	2.5~6	20~700	1	TO-252/ SOP-8/ SOT-23	Constant Current Driver with Programmable Control Function	Available
T6331A	2.7~5.5	External MOS	1	SOP-8/ SOT-23	Buck-boost Regulator with Constant Current Driver	Available

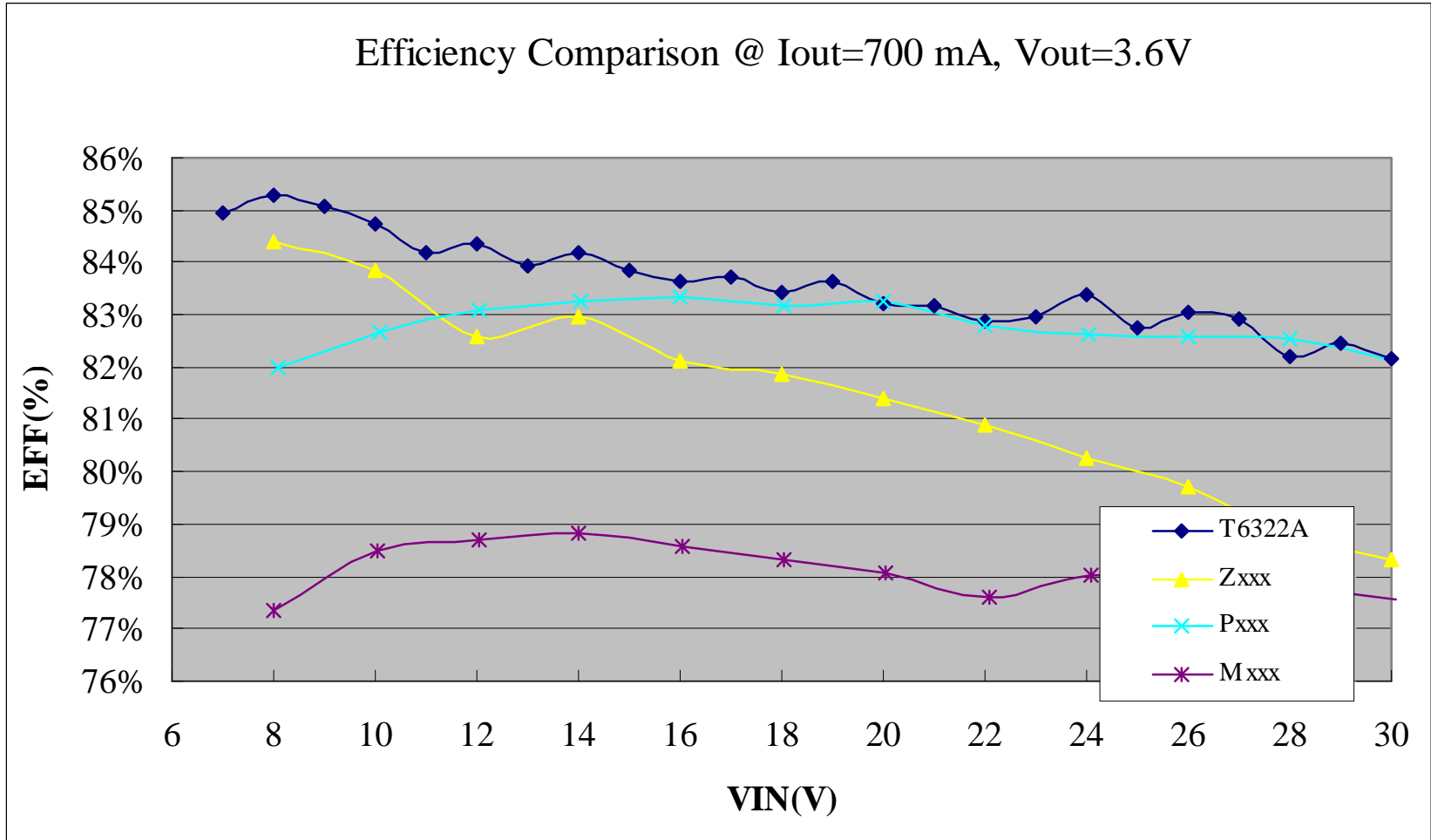
# T6322A/T6333A Features

- Integrate Constant Current Driver and Buck DC-DC Converter
- Ultra High Efficiency up to 97%
- Line Regulation around 0.1%/V
- Wide Input Voltage Range:
  - 7~30V for T6322A
  - 7~42V for T6333A
- Up to 1.5A Driving Current
- Embedded PWM & DC Level Dimming Control
- Tiny Package SOT-23-6/SOP-8

# T6322A Application Circuit

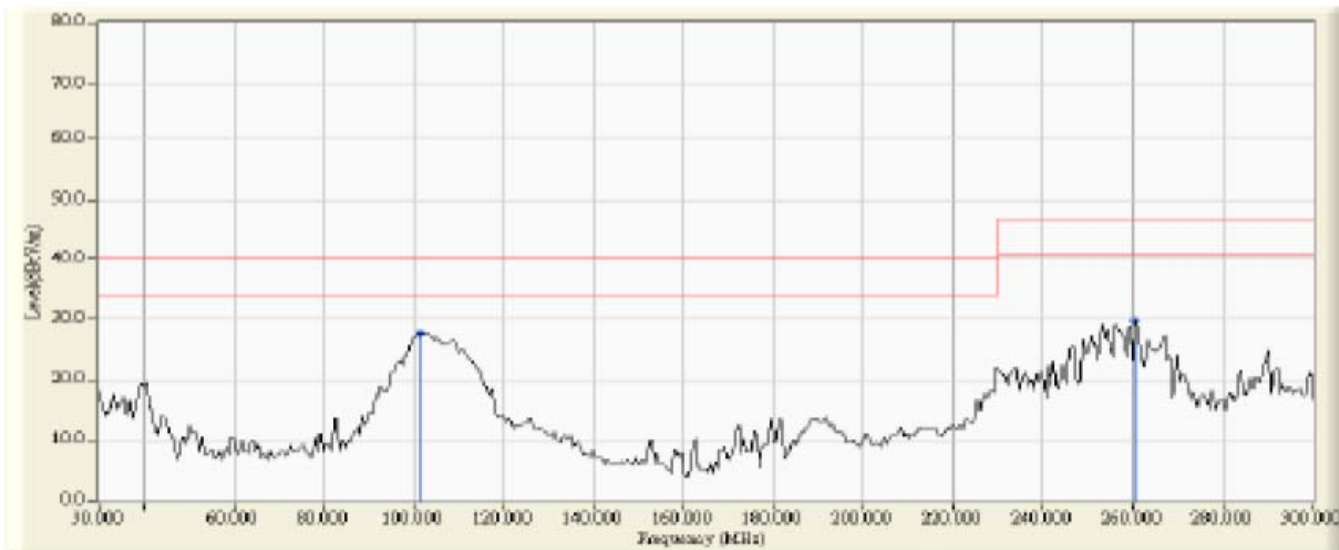


# T6322A & Competitors Efficiency Comparison

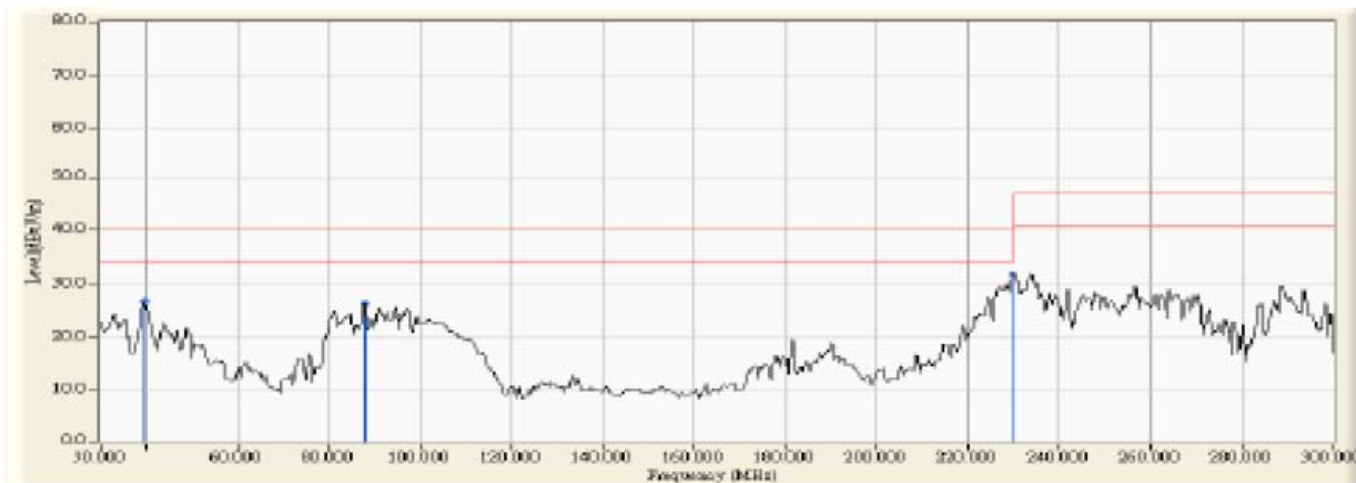


# T6322A EMI Test Result

Horizontal



Vertical

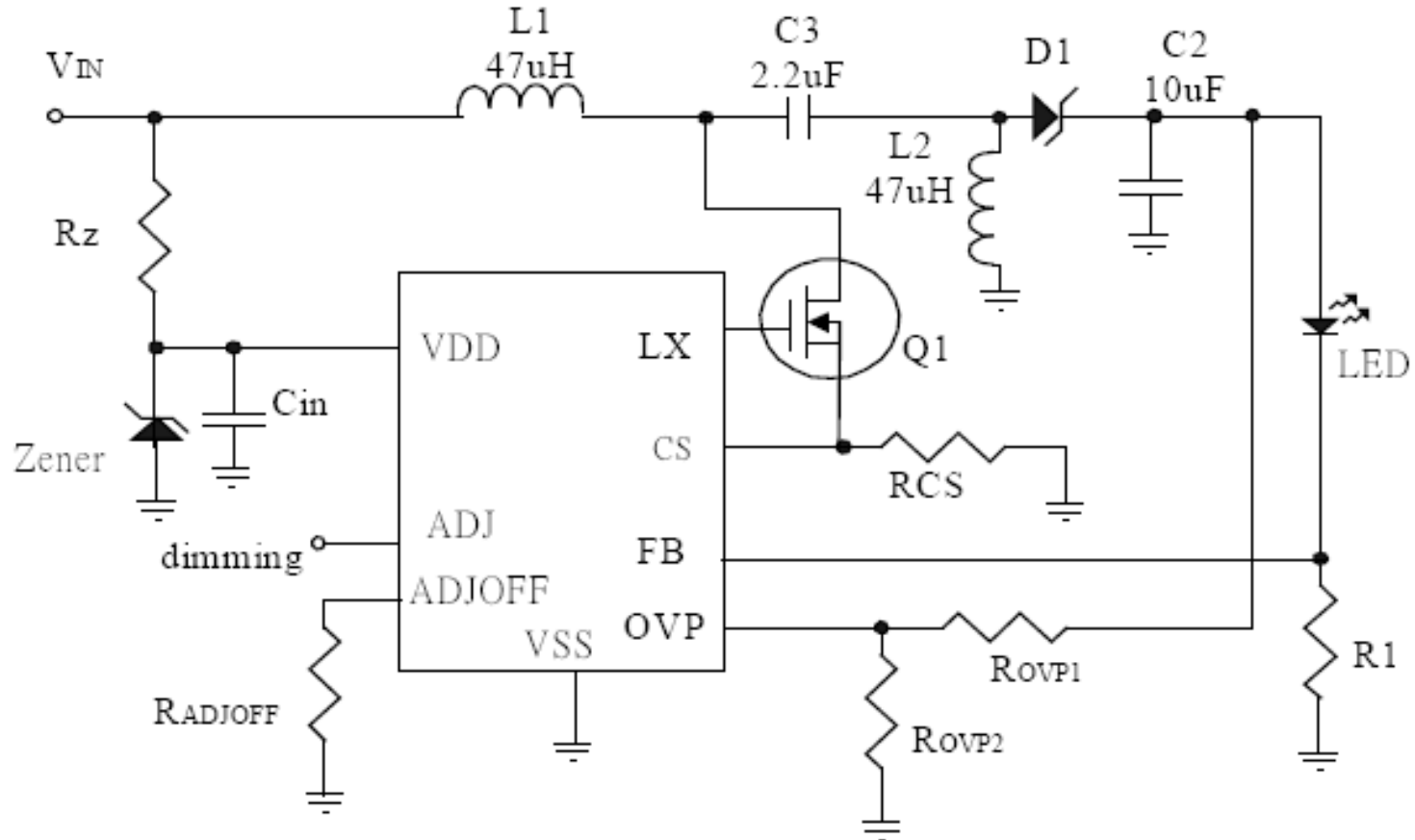


# T6331A Features

- Boost or Buck-boost (SEPIC) Topologies.
- Feedback Voltage is 0.15V.
- External Switching MOSFET is Needed.
- Support Analog & PWM Dimming Function
- Adjustable Turn-off Voltage for Analog Dimming
- Soft Start & Under Voltage Lock Out Function
- $V_{DD}$  Voltage 2.5 ~ 6.0V
- SOT-23-6/SOP-8 Package.



# T6331A Application Circuit

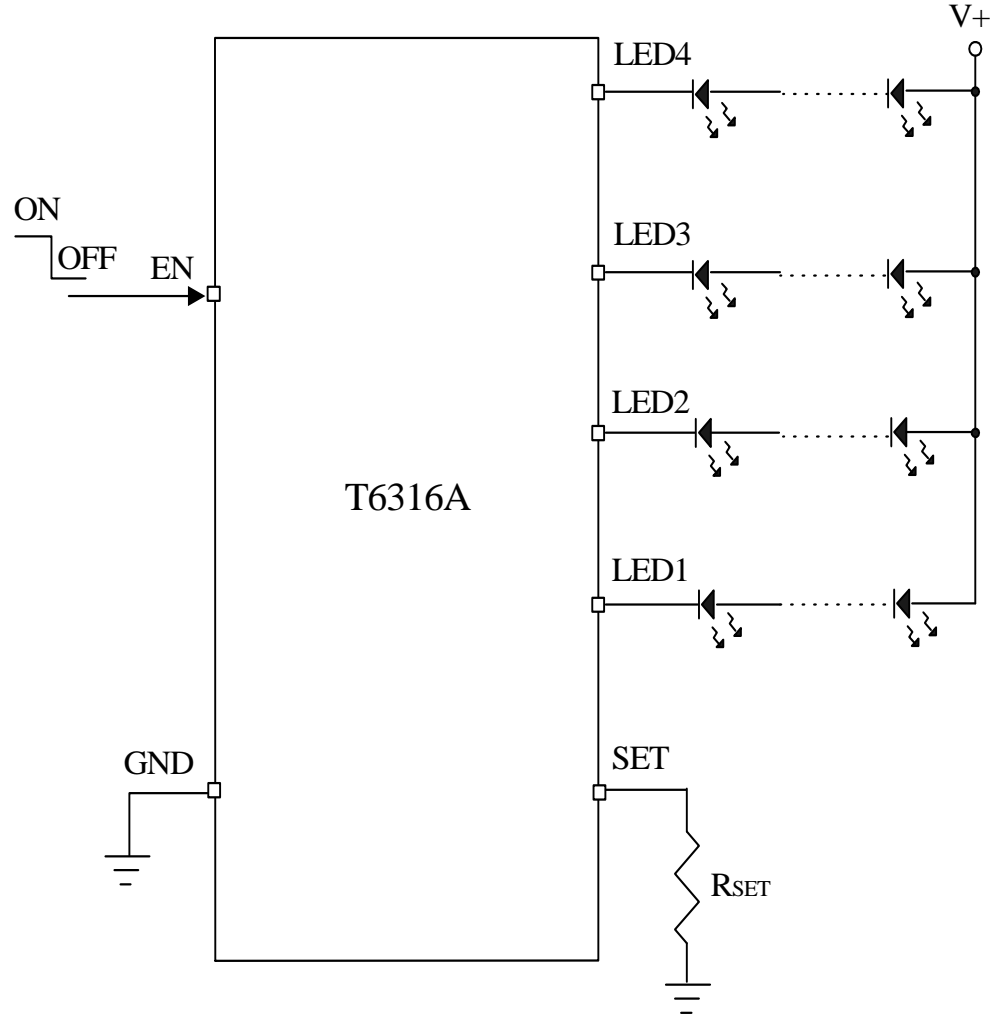


Buck-boost Reference Circuit

# T6316A/T6332A Features

- 4-output High Power LED Driver with Constant Current for T6316A SOP-8  
1-output High Power LED Driver with Constant Current for T6316A TO-252 & T6332A SOT-23
- Driving Current up to 400 mA each Channels  
Maximum Driving Current 1.6A Totally
- Driving Current Setting through Rset Connecting GND
- ESD HBM > 8KV.
- Simple LED Brightness Control through “EN” Pin.
- 0.05 uA Shutdown Current.
- SOP-8/TO-252/SOT-23 Package

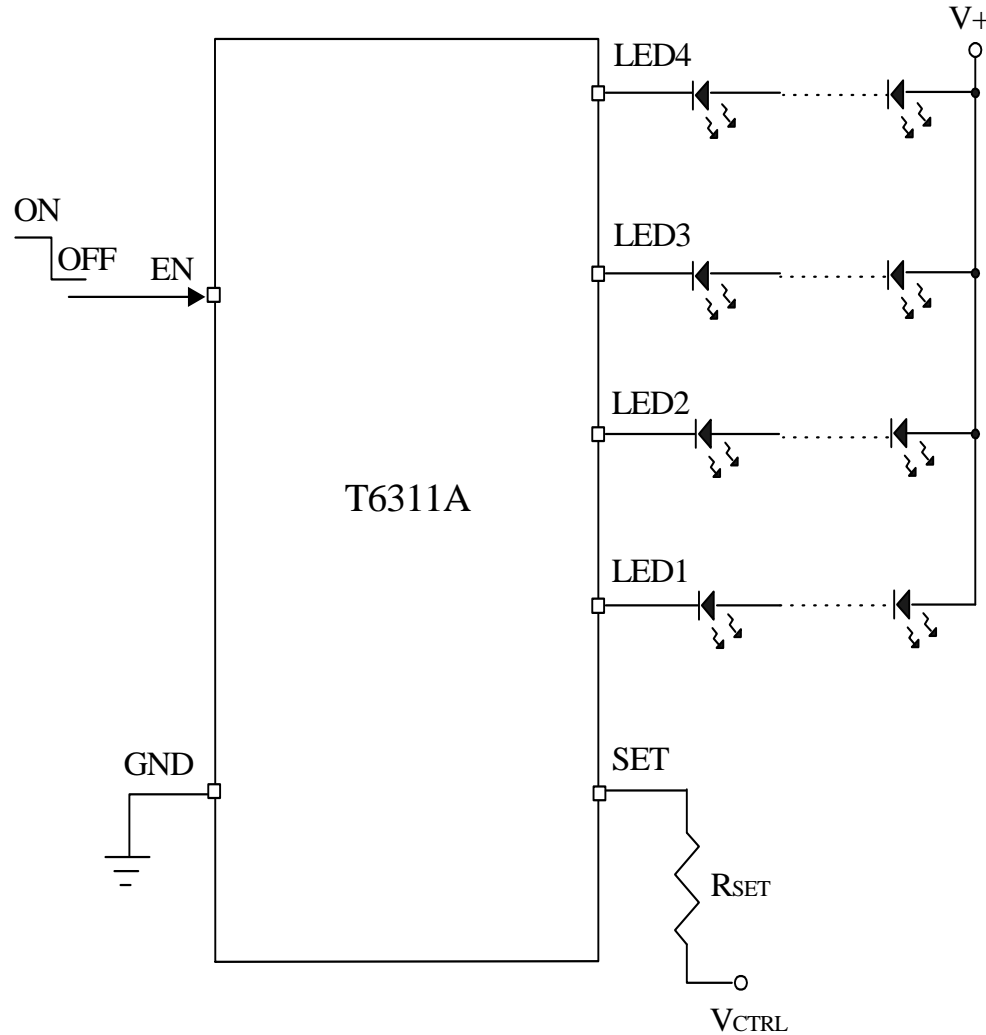
# T6316A Application Circuit



# T6311A Features

- 4 Current Source Outputs
- Up to 200 mA LED Bias Current per Channel.
- Simple LED Brightness Control.
- 40  $\mu$ A Supply Current and 0.05  $\mu$ A Shutdown Current.
- SOP-8 Package

# T6311A Application Circuit

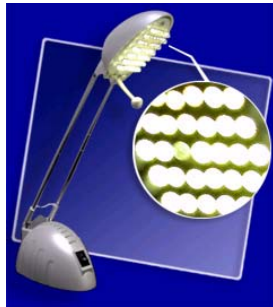


# T6322A/T6333A/T6316A/T6332A/T6311A Applications

- Desk Lamp
- Street Lamp
- MR16/AR111
- Light Bar
- Lighting Equipments for Automobile
- CCTV



**MR16**



**Desk Lamp**



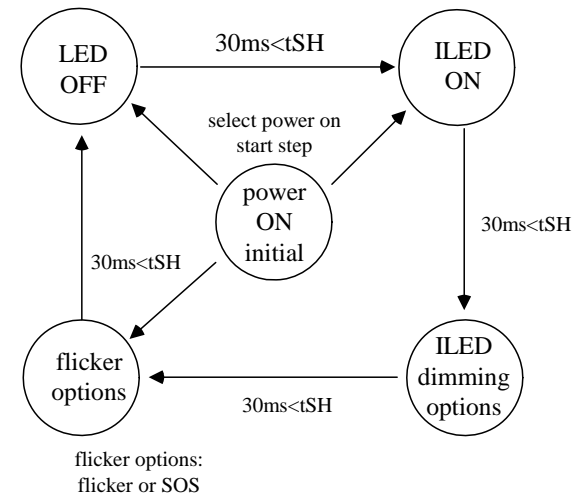
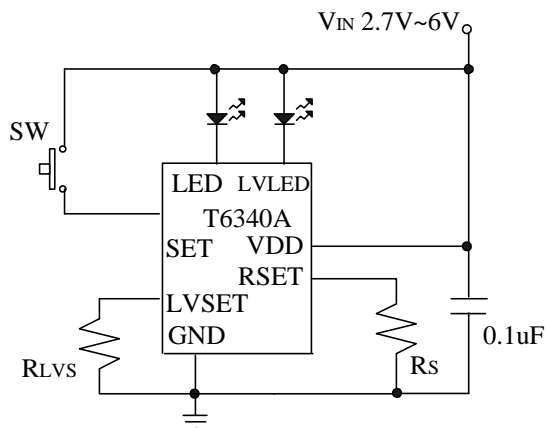
**Street Lamp**



**CCTV IR Module**

# T6340A Features

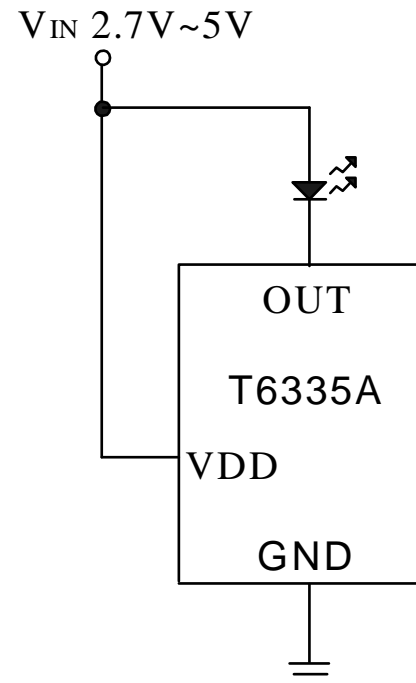
- Low Drop-out Voltage Constant Current LED Driver
- Flexible Control Function: 5 Step Dimming Control, Flicker Control
- Directly Drive without Extra MOSFET, Maximum Current 700 mA
- Built-in Low Voltage Detect Function
- SOT-23-6/SOP-8/TO-252 Package



if none select step function, jump to next step

# T6335A Features

- High Power LED Driver
- Output Driving Current: 80 ~ 350 mA Diverse Current Type
- Directly Drive High Power LED without Extra Components
- Low Drop-out Voltage
- ESD HBM > 8KV
- SOT-89 Package





# T6335A/T6340A Applications

- Miner's Lamp
- Flash Light, Bike Lamp, Camping Lamp
- Portable Lighting Equipments



**Camping Lamp**



**Flash Light**

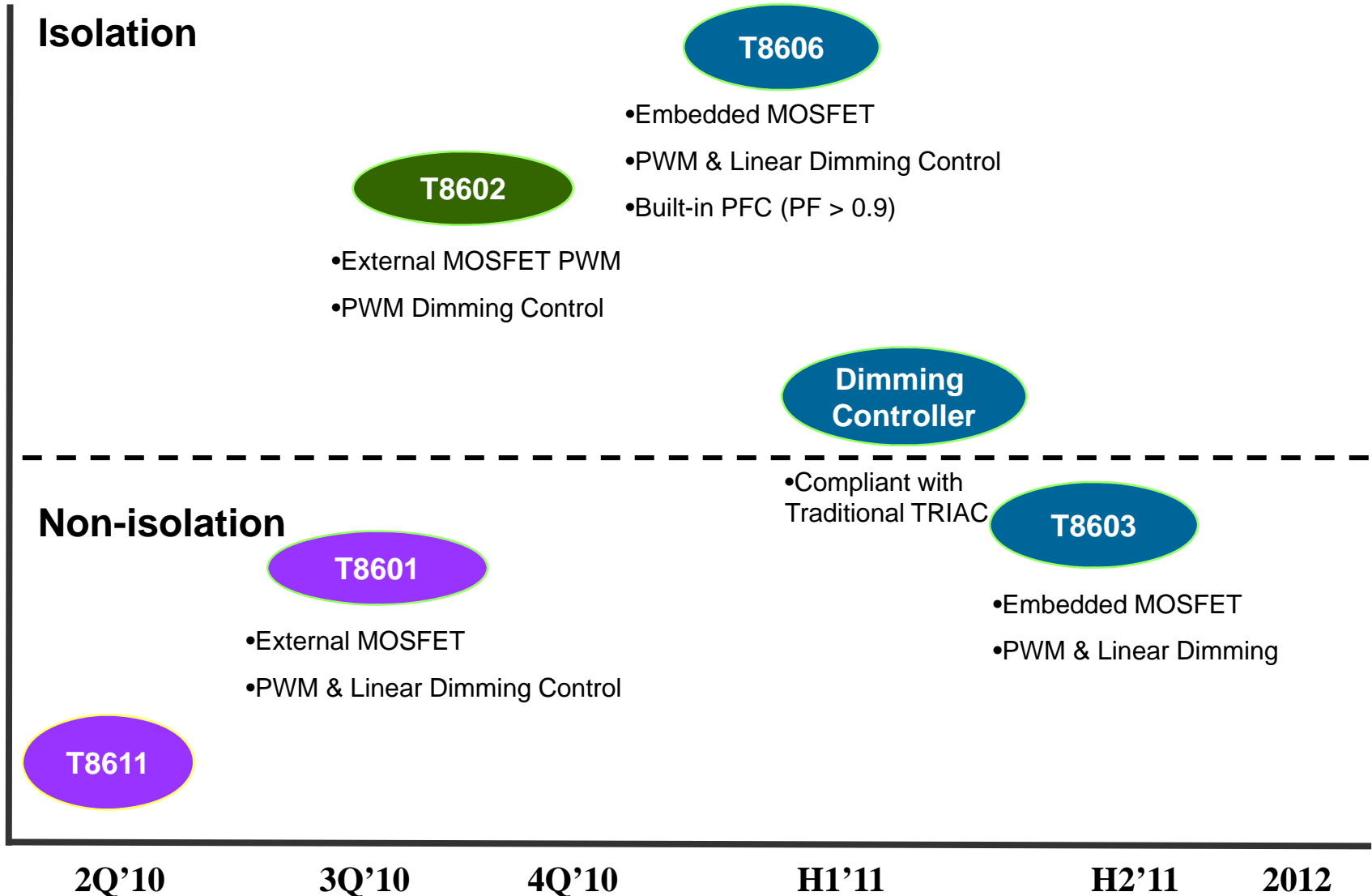


**Bike Lamp**



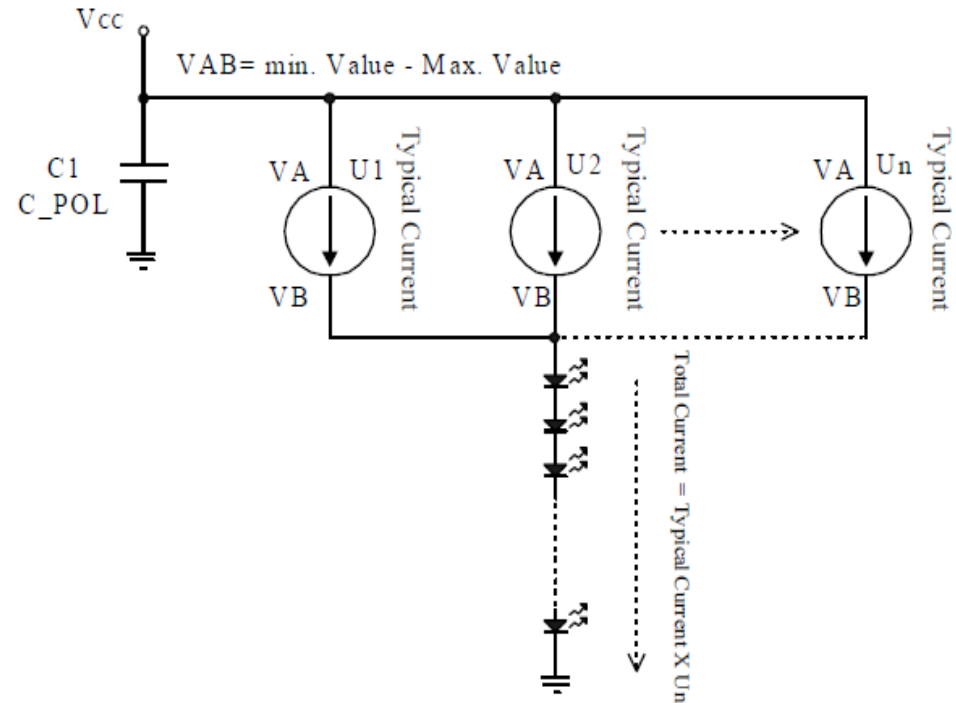
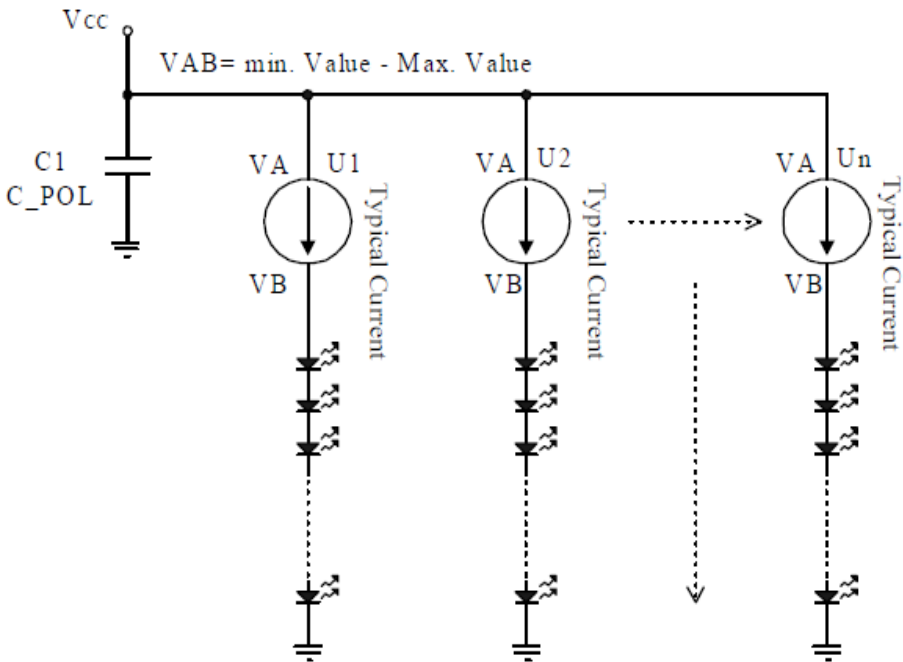
**Miner's Lamp**

# LED Driver for AC-DC Products



# T8611 High Voltage Constant-Current Driver

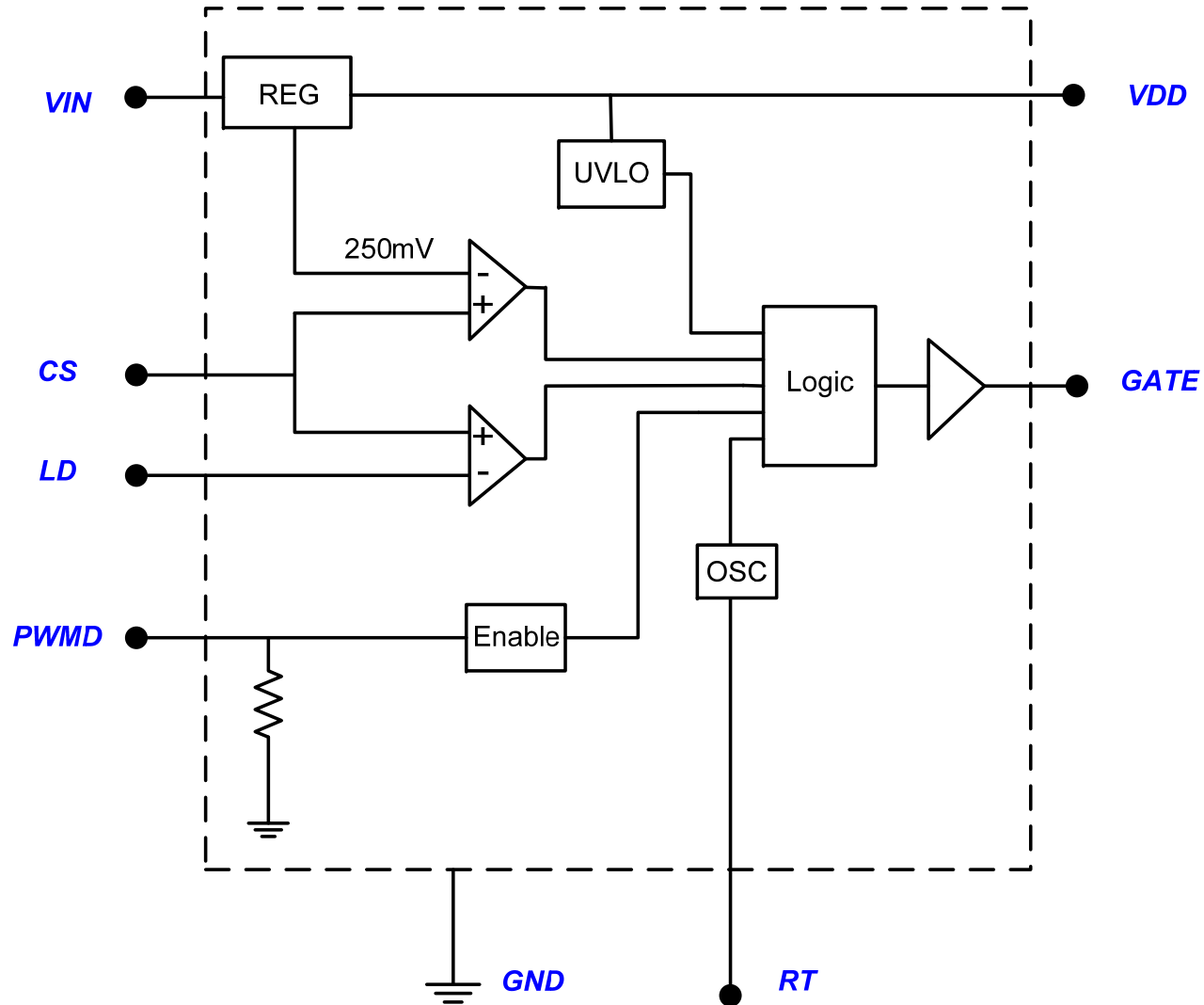
- Wide operating voltage range : 5V to 90V
- Output current tolerance: 15mA~25mA  $\pm$  10%
- Connected in parallel for higher current



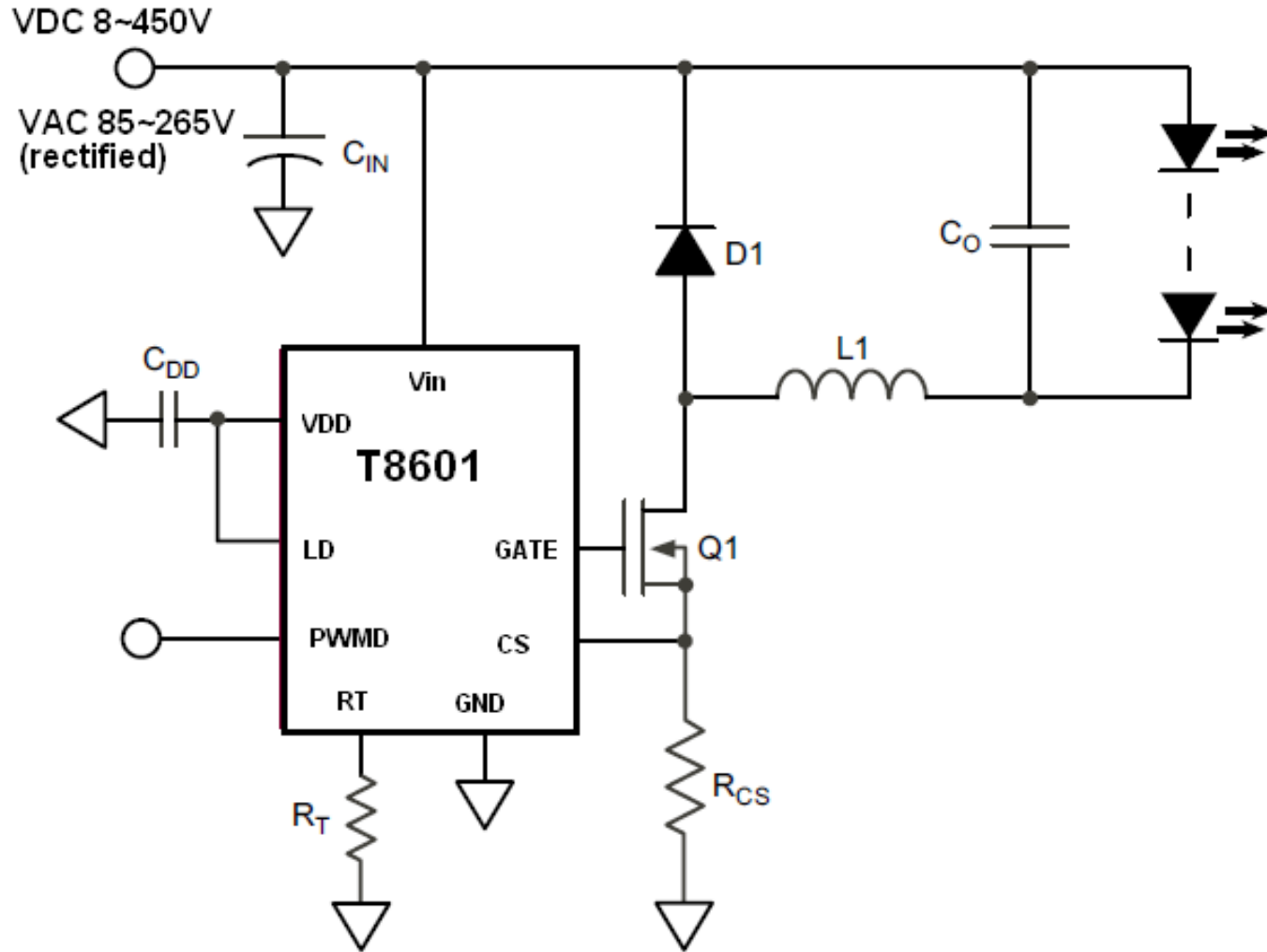
## T8601 Universal High Brightness LED Driver

- Switch-mode controller for single switch LED driver
- Wide operating voltage range : 8Vdc ~ 450Vdc
- Open-loop peak current mode controller
- Constant frequency or constant off-time mode
- PWM or analog dimming capability
- Few external components required

# T8601 Universal High Brightness LED Driver



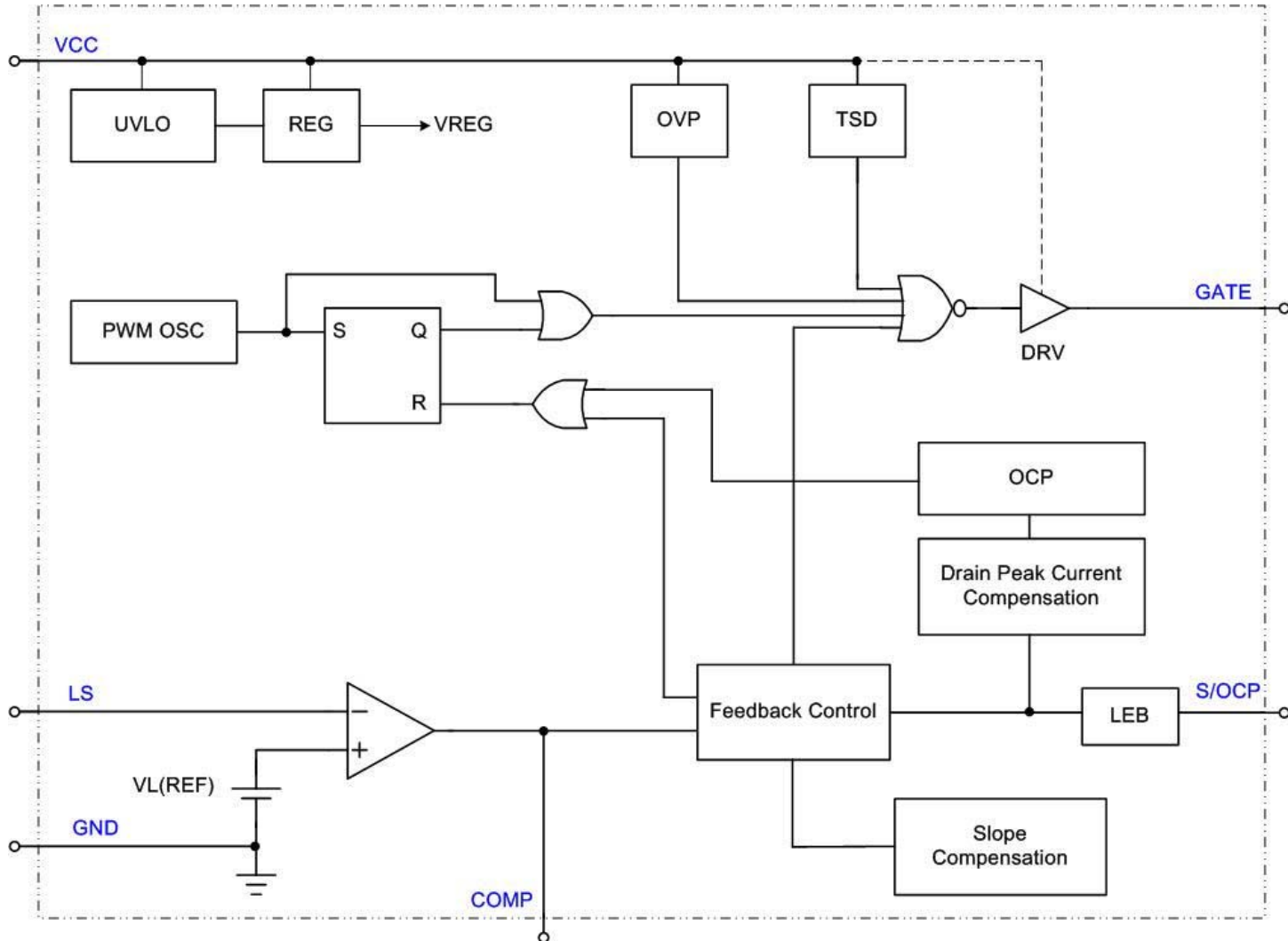
# T8601 Universal High Brightness LED Driver



## T8602 High Voltage AC to DC LED Driver

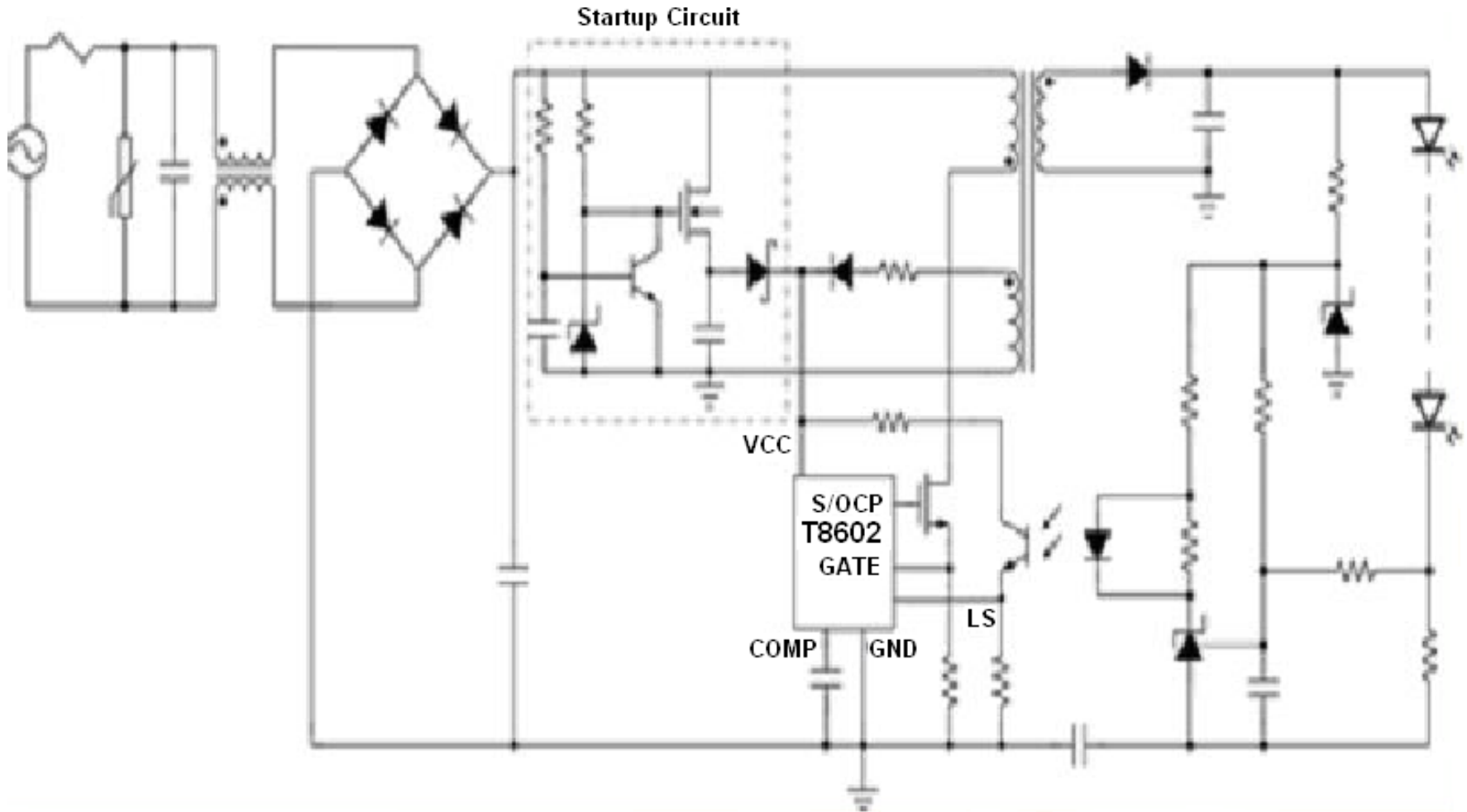
- Universal AC input voltage
- Over Voltage Protection
- Thermal Shut Down
- Adjustable Over Current Protection

# T8602 High Voltage AC to DC LED Driver

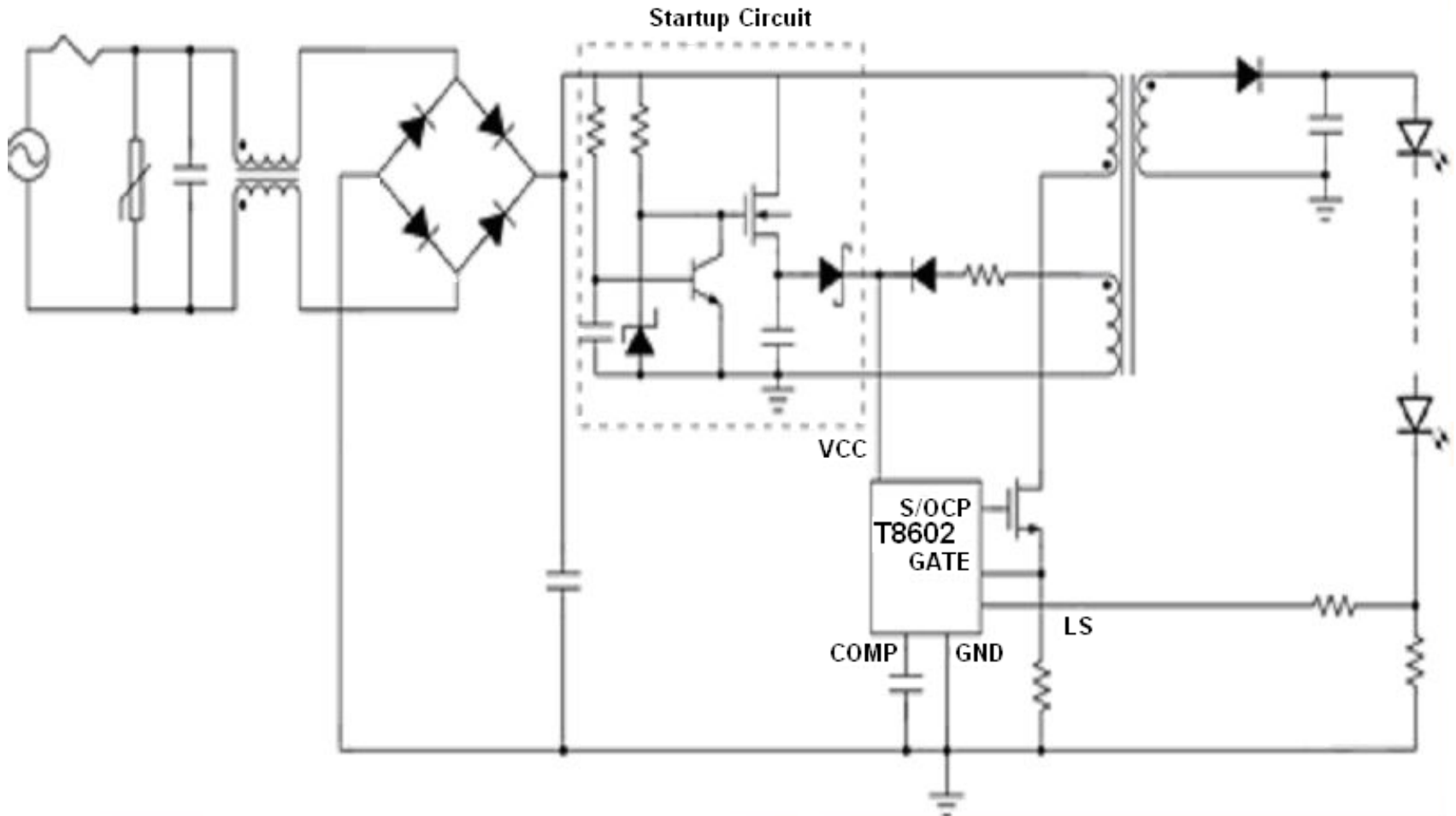




# T8602 High Voltage AC to DC LED Driver (Isolated)



# T8602 High Voltage AC to DC LED Driver (Non-Isolated)



# T8611/T8601/T8602 Applications

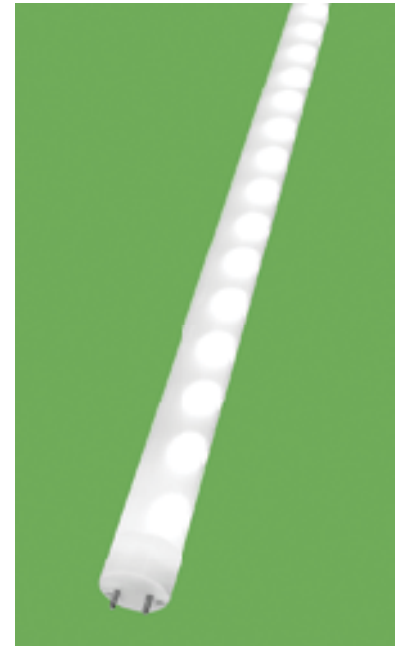
- A-Lamp & Globes
- PAR-Lamp & R-Lamp
- T5/T8 Tube



***A-Lamp***

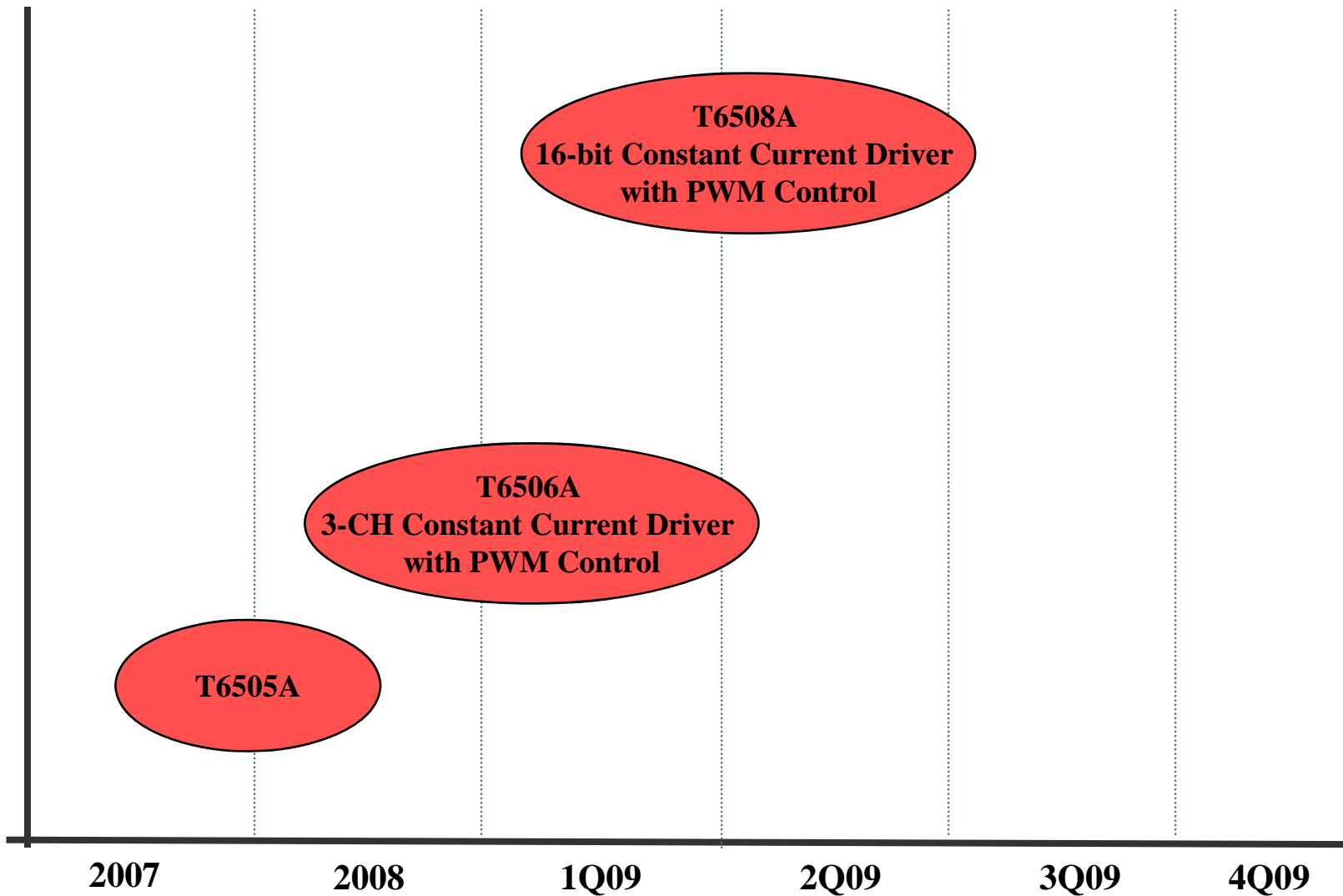


***PAR 20***



***T8 Tube***

# LED Driver for LED Display



# LED Driver Product List

LED Driver for Display						
Part No.	V <sub>IN</sub> (V)	I <sub>OUT</sub> (mA)	Channel #	Package	Description	Status
T6508A	2.5~5.5	3~90	16	SOP-24	16-channel Constant Current Driver with PWM Controller	Available
T6505A	2.5~5.5	3~60	16	SOP-24	16-channel Constant Driver	Available
T6506A	2.5~5.5	3~45	3	SOP-16	3-channel Constant Current with PWM Control	Available

# T6505A Features

- 16-channel Constant Current Output
- Driving Current: 3~60 mA @  $V_{DD}=5V$
- Driving Current Accuracy:
  - $\pm 3\%$  for Channel-by-channel
  - $\pm 6\%$  for Chip-by-chip
- Maximum Data Clock Frequency: 25 MHz
- Fast Response of Output Current Driving:
  - Falling Time: typ. 25 ns
  - Rising Time: typ. 50 ns
- Lower Supply Current  $I_{DD}$ : max. 5mA
- Operating Temperature: -40 ~ 85 °C
- SOP-24/SSOP-24 Package

# T6508A Features

- 16-channel Constant Current Output
- Driving Current: Max. 90 mA @  $V_{DD}=3\sim 5V$
- Driving Current Accuracy:
  - $\pm 1.5\%$  for Channel-by-channel
  - $\pm 3\%$  for Chip-by-chip
- Maximum Data Clock Frequency: 30 MHz
- Embedded 16-bit PWM Gray Level Controller
- Built-in 8-bit Programmable Current Gain Control
- Provide Individual Channel Open/Short Detection
- Operating Temperature: -40 ~ 85 °C
- SOP-24/SSOP-24 Package

# T6506A Features

- 3-channel Constant Current Output
- Embedded PWM Control with 32-step Linear or Non-linear Gray Level
- Driving Current: 3~45 mA with Internal MOSFET
- Provide External Transistor Mode for High Current Driving
- Driving Current Accuracy:  $\pm 6\%$
- Support 2-wire/4-wire Serial Interface
- Maximum Data Clock Frequency: 25 MHz
- Maximum Connecting Distance > 6 Meter
- Maximum Connecting Stage > 256
- Operating Temperature: -40 ~ 85 °C
- SOP-16 Package



# T6505A/T6508A/T6506A Applications

- Indoor/Outdoor LED Display
- Architecture Lighting
- Building Decoration Lamp



***LED Display***



***Architecture Lighting***