Description

GM9623 is a pulse width modulated (PWM) high efficient operation of LED driver control IC with internal high voltage power switching MOSFET.

Having HV MOSFET allows to use direct supply-line voltage ($220V_{AC}$ or $320V_{DC}$). The LED string is driven at constant current of 50mA, thus providing constant light output and enhanced reliability.

The GM9623 has constant time off PWM architecture. The peak current control scheme provides good regulation of the output current throughout the universal AC line voltage range of 85 to $264V_{AC}$ or DC input voltage of 20 to 400V.

GM9623 is designed and tuned for using low inductance value (typically 4.7mH).

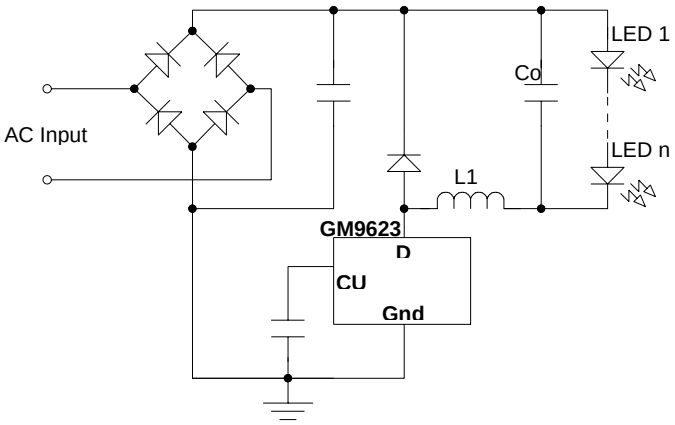
Features

- **High input voltage from 85 to $265V_{AC}$**
- **Fixed DC output current – 350mA with 3% accuracy**
- **Internal HV MOSFET switch with minimum 550V breakdown voltage**
- **Requires low inductance value (low cost)**
- **Available in SOT23 package**

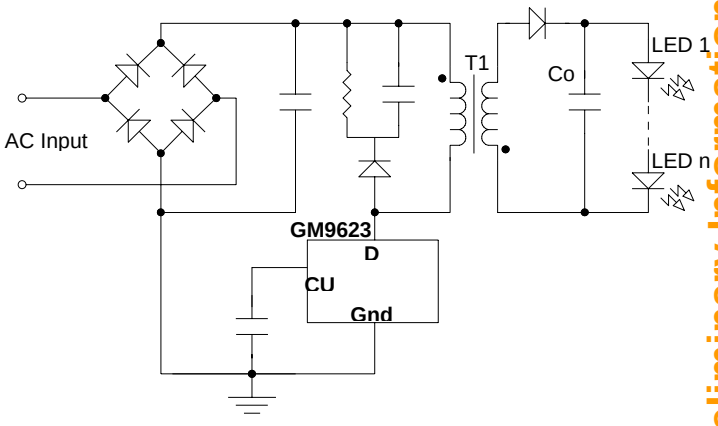
Applications

- **LED Lamps with AC or DC operation**
- **LED decorations**
- **General purpose constant current source**

Typical Application Circuit

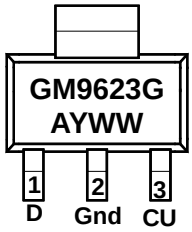


Typical Non Isolated Application Circuit



Typical Isolated Application Circuit

Marking Information and Pin Configurations (Top View)



SOT223 package

(Top View)

G: Green Product
A: Assembly / Test site code
Y: Year
WW: Week

Pin Descriptions

Pin #	Function	Description
1	D	Drain terminal of the output switching MOSFET and a linear regulator input
2	Gnd	Common pin
3	CU	Output for bypass capacitor

Ordering Information

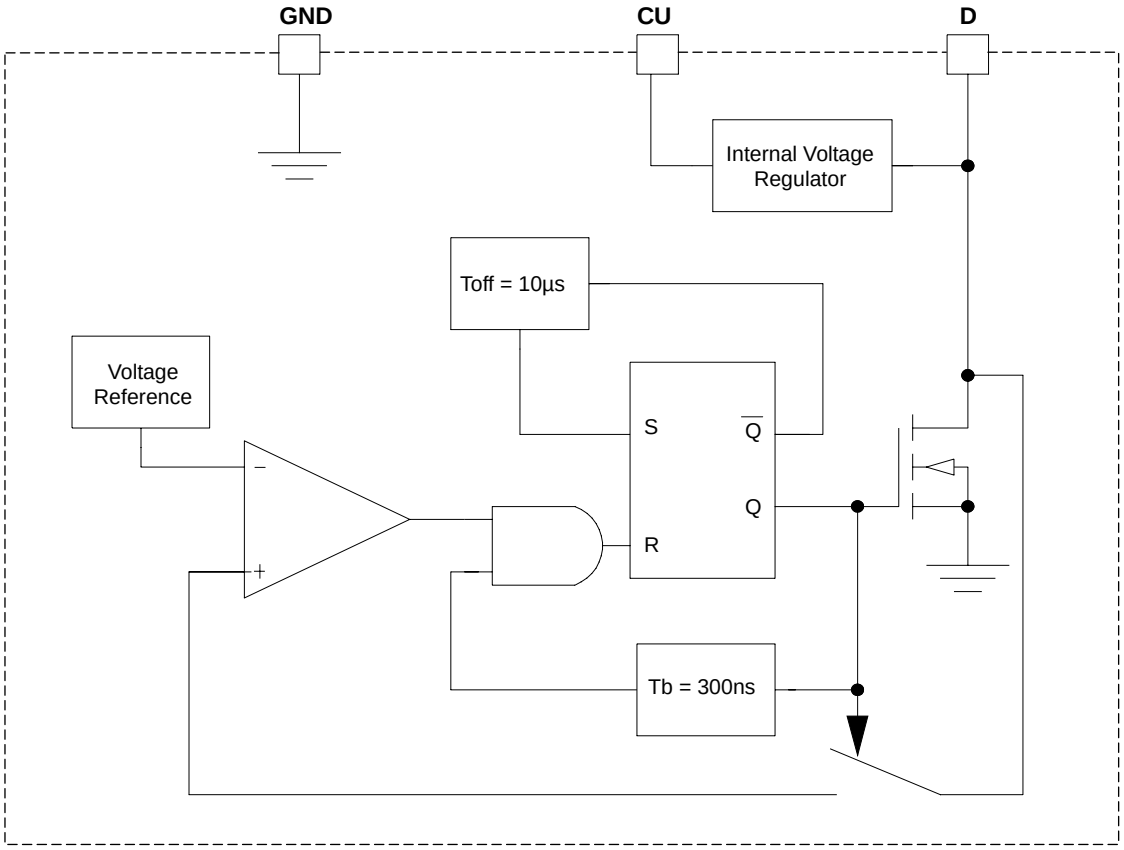
Ordering Number	Package	Shipping
GM9623ST3RG	SOT-223	100 Units / Tube

Absolute Maximum Ratings

PARAMETER	RATINGS
Operating voltage at D output with regard to Gnd (Vd)	550V
Operating Temperature Range	- 40°C to + 70°C
Junction Temperature	+125°C
Storage Temperature	- 65°C to + 150°C

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

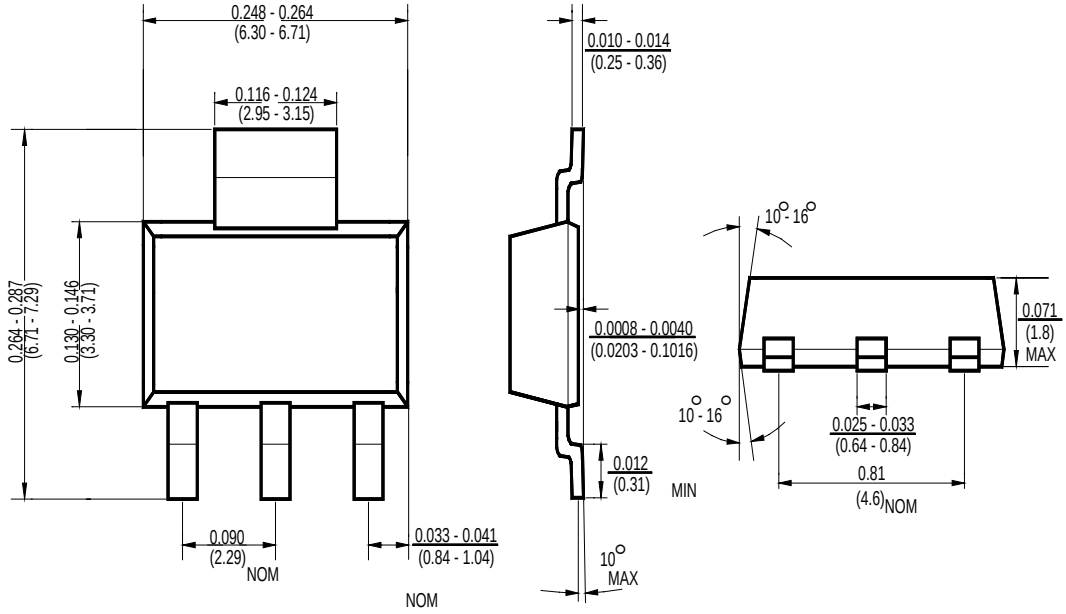
Block Diagram



Electrical Characteristics (T_A = 25°C, Vd = 320V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Internal regulator output	Vdd			7.5		V
Supply current	Id			400	800	µA
Supply voltage	Vdrain		20	320	450	V
Breakdown voltage	Vdb		550			V
On-resistor	Ron				15	Ω
Average current	Iom	L1 = 4.7mH, Co = 0.1uF, Vom =50V (16 LEDs)	340	350	360	mA
Leading edge blanking delay	Tb		200	300	400	ns
Minimum on-time	Ton				650	ns
Off-time	Toff		8	12	18	ns

Package Outline Dimensions – SOT223



Ordering Number

GM	9623	ST3	R	G
APM Gamma Micro	Circuit Type	Package Type ST3: SOT223	Shipping Type R: Taping & Reel T: Tube	Blank: Pb-free G:Green

Note:

Pb-free products:

- RoHS compliant and compatible with the current require-ments of IPC/JEDEC J-STD-020.
- Suitable for use in SnPb or Pb-free soldering processes with 100% matte tin (Sn) plating.

Green products:

- Lead-free (RoHS compliant)
- Halogen free(Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight)