



## FEATURES

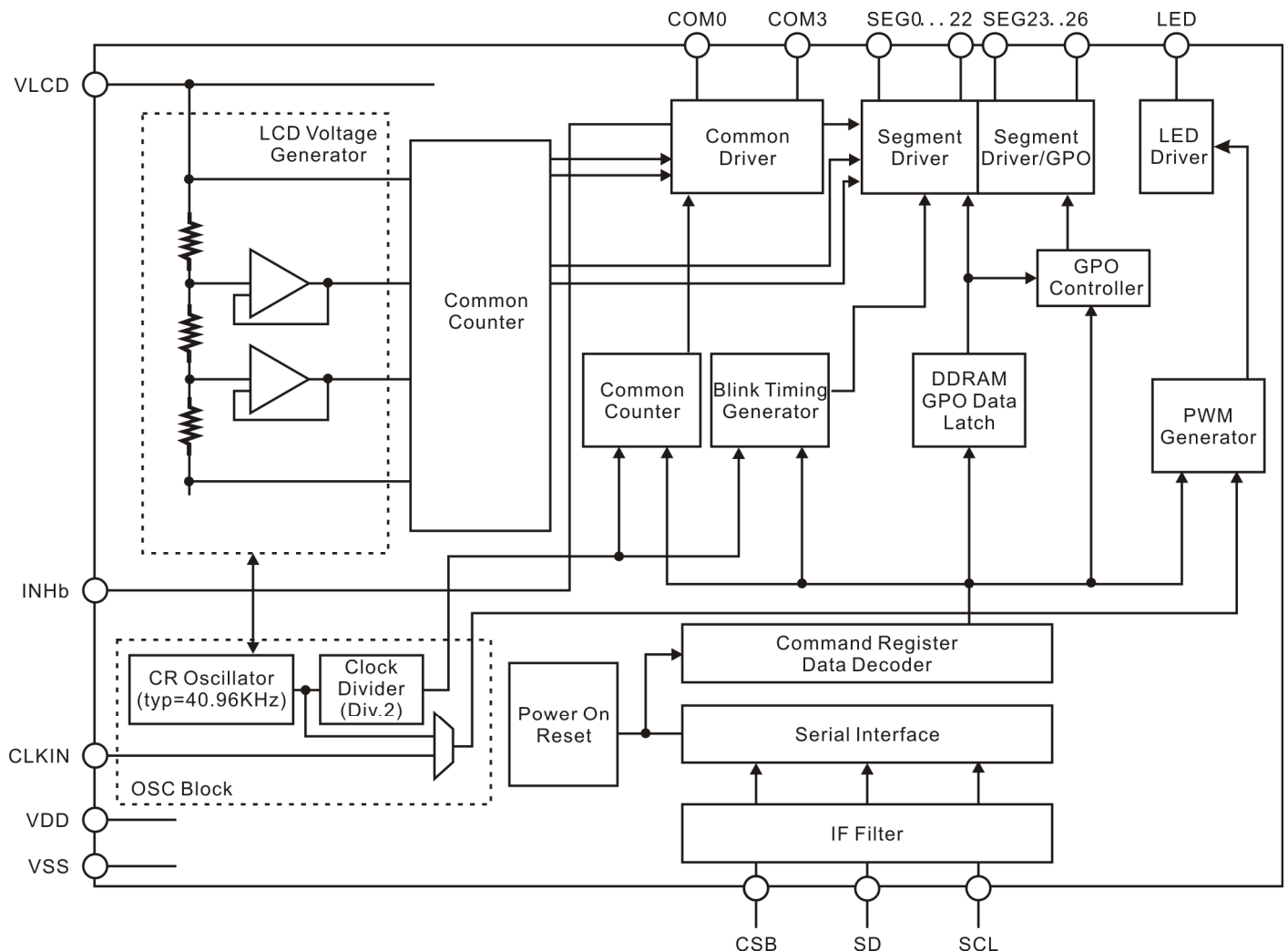
- LCD drive output: Common output: 4, Segment output: 27
- Integrated Display data RAM (DDRAM): RAM: 27x4 =108bit
- 3-wire Serial interface (SD, SCL, CSB)
- Integrated Oscillator circuit
- Integrated LCD Voltage generator circuit
- Support: 1/3 Bias, 1/3 or 1/4 Duty
- Support: 1/1 Bias, 1/1Duty (Static Driving)
- Integrated buffer amp
- Support separate power supply for Logic (VDD) and LCD (VLCD)
- Integrated LED driver circuit
- Segment output mode/GPO output mode selectable

- Support PWM generation from external clock or internal clock (resolution: 8bit)
- Low power consumption
- Support standby mode
- Integrated Power-On-Reset circuit (POR)
- No external components
- Support Blink function (Blink frequency 1.6, 2.0, 2.6, 4.0Hz selectable)
- Operating power supply: 1.8 ~ 3.6V
- LCD drive power supply: 2.7 ~ 5.5V

## APPLICATIONS

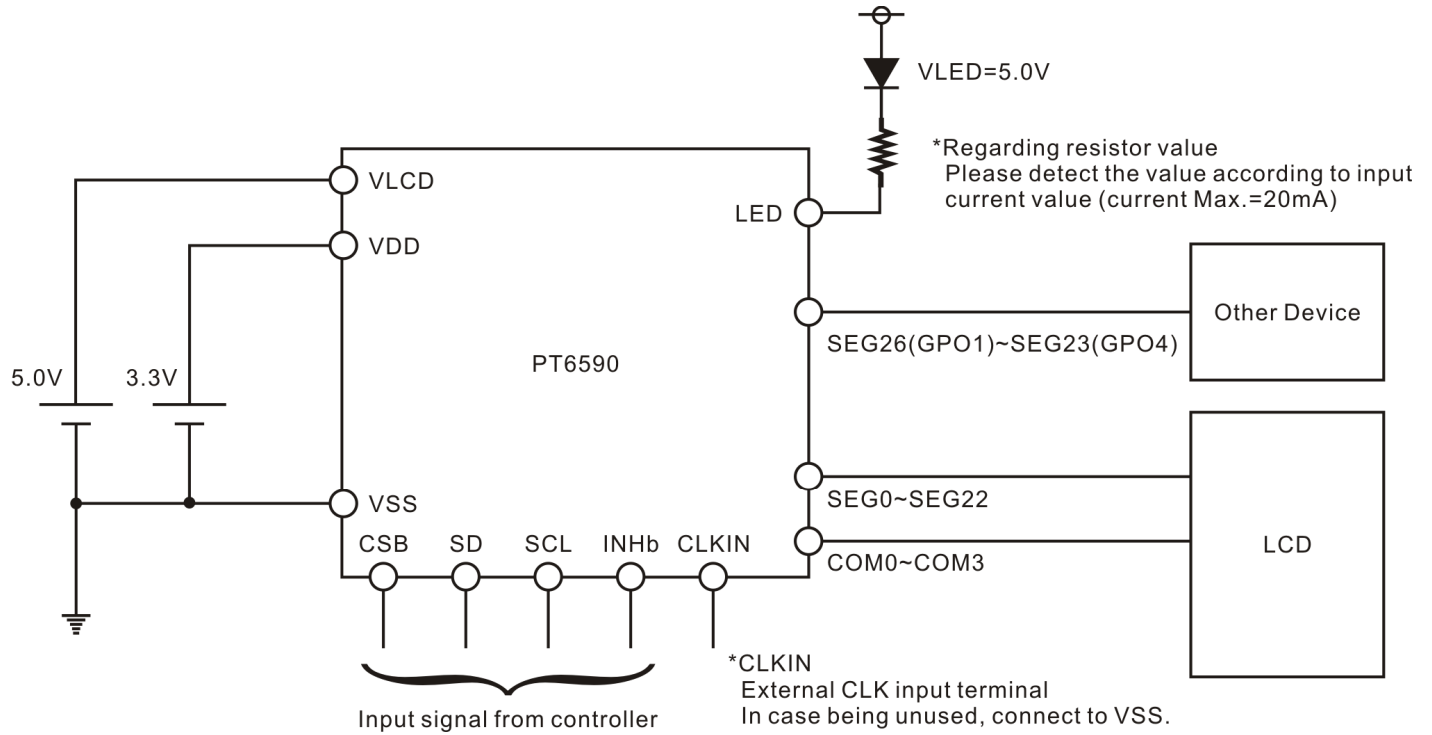
- Telephone, FAX, Portable equipment (POS, ECR, PDA etc.)
- DSC, DVC, Car audio, Home electrical appliance, Meter equipment etc.

## BLOCK DIAGRAM

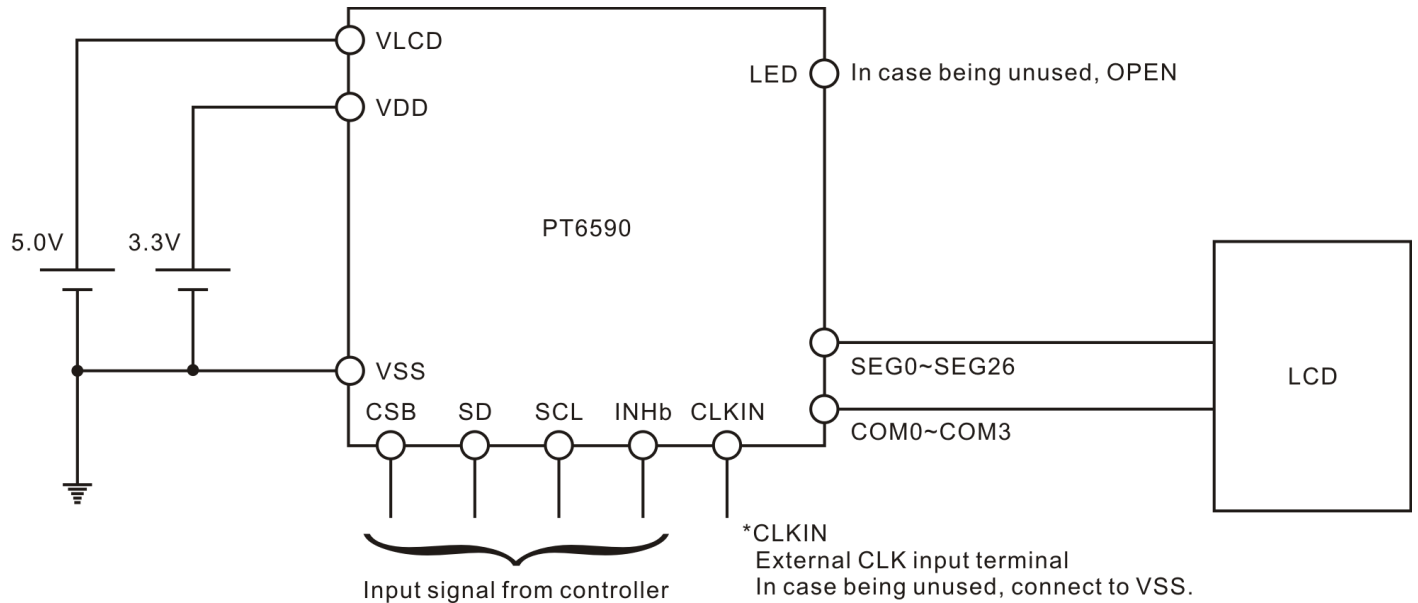


# APPLICATION CIRCUIT

## LED/GPO USING CASE



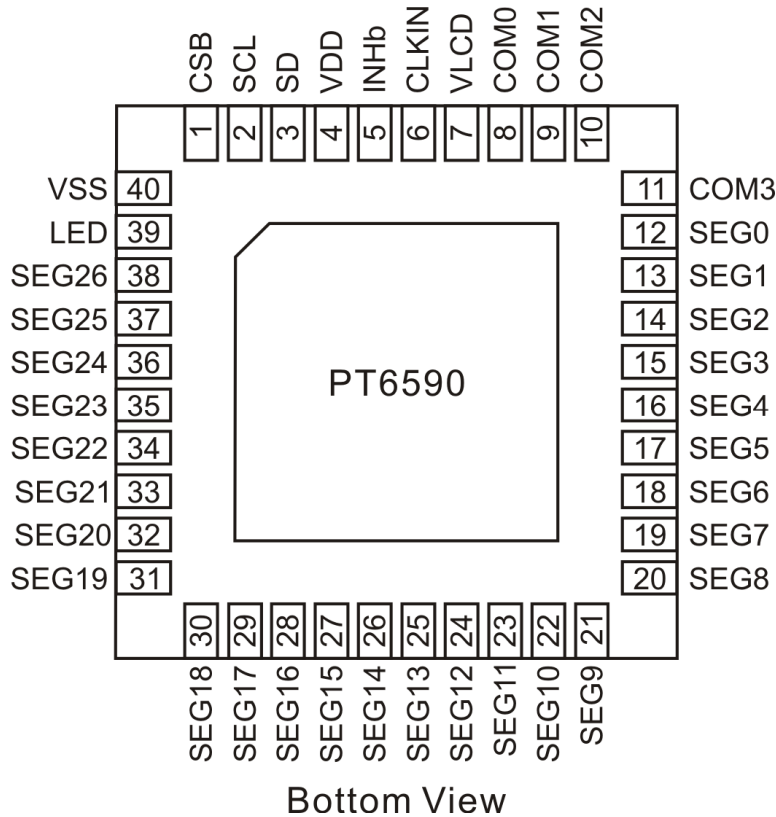
## SEG OUTPUT ONLY CASE



## ORDER INFORMATION

| Valid Part Number | Package Type | Top Code |
|-------------------|--------------|----------|
| PT6590            | 40 Pins, QFN | PT6590   |

## PIN CONFIGURATION



## PIN DESCRIPTION

| Pin Name    | I/O | Unused case | Description  | Pin No. |
|-------------|-----|-------------|--|---------|
| CSB         | I   | -           | Chip select: "L" active  | 1       |
| SCL         | I   | -           | Serial data transfer clock   | 2       |
| SD          | I   | -           | Input serial data  | 3       |
| VDD         | -   | -           | Power supply for LOGIC   | 4       |
| INHb        | I   | VDD         | Display turning on/off select terminal<br>H: turning on display, L: turning off display<br>INHb="L": All SEG/COM terminal: output VSS level<br>GPO terminal: output VSS level<br>LED drive terminal: output Hi-Z | 5       |
| CLKIN       | I   | VSS         | External clock input terminal (for display/PWM using selectable)<br>Must be connect to VSS when use internal clock mode.   | 6       |
| VLCD        | -   | -           | Power supply for LCD   | 7       |
| COM0~COM3   | O   | OPEN        | COMMON output for LCD  | 8~11    |
| SEG0~SEG22  | O   | OPEN        | SEGMENT output for LCD   | 12~34   |
| SEG23~SEG26 | O   | OPEN        | SEGMENT output for LCD/GPO   | 35~38   |
| LED         | O   | OPEN        | LED driver output  | 39      |
| VSS         | -   | -           | GND  | 40      |
| EXT-PAD     | -   | VSS         | Substrate  | -       |



## **IMPORTANT NOTICE**

Princeton Technology Corporation (PTC) reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and to discontinue any product without notice at any time.

PTC cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a PTC product. No circuit patent licenses are implied.

Princeton Technology Corp.  
2F, 233-1, Baociao Road,  
Sindian Dist., New Taipei City 23145, Taiwan  
Tel: 886-2-66296288  
Fax: 886-2-29174598  
<http://www.princeton.com.tw>