S1D15107 Series

Automotive 16-Grayscale 688 Segment Static Drive LCD Driver IC

■ DESCRIPTIONS

The S1D15107 is a segment LCD driver IC that can be directly connected to a microcontroller, enabling the display image data transferred from the microcontroller to be displayed on the segment LCD without external memory. It is also capable of high contrast by static drive and 16-grayscale display by PWM method, making it ideal for improving the expressiveness of speedometer and RPM display.

In addition, it has display safety functions such as segment/common output abnormality (open/short) detection, etc. If a display abnormality is detected due to an open state in the wiring from the driver output to the display, the display can be restored by switching the driver output pin under control from the microcontroller. These display safety functions support the construction of highly reliable display systems. In addition, this product meets the stringent quality requirements for automotive applications, with an operating temperature of up to 105 ℃ and AEC-Q100 corresponsive.

In this product, COM terminal is located at every 48 SEG. Mixed SEG-COM wiring to both top and bottom glass enables 1COM to achieve wiring efficiency equivalent to 2COM.

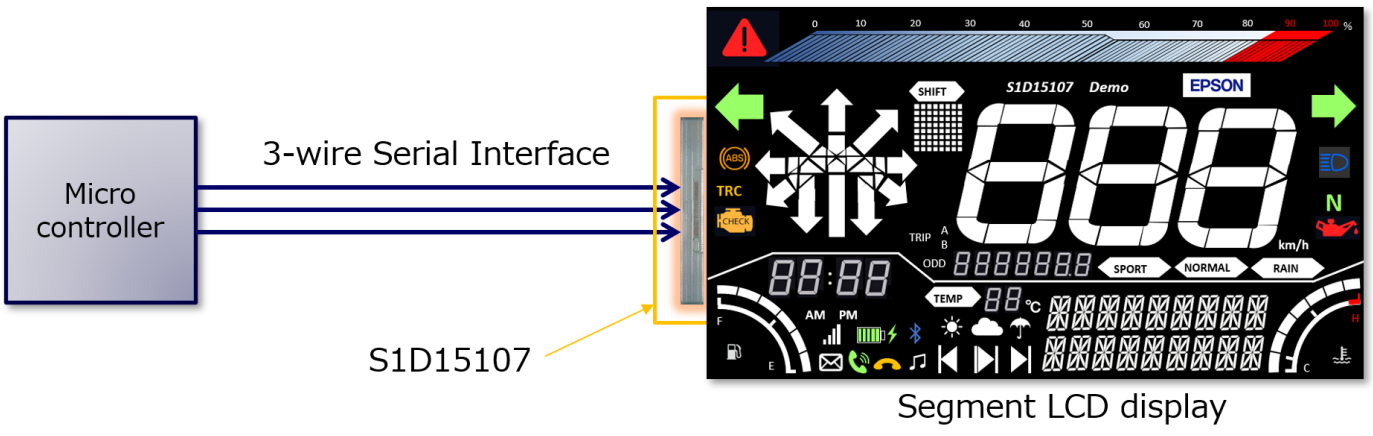
■ FEATURES

- Segment: 688 outputs Common: 1 output (16 terminals)
- High contrast by static drive
- 16-grayscale display by PWM method
- Display safety features

■ OUTLINE SPECIFICATIONS

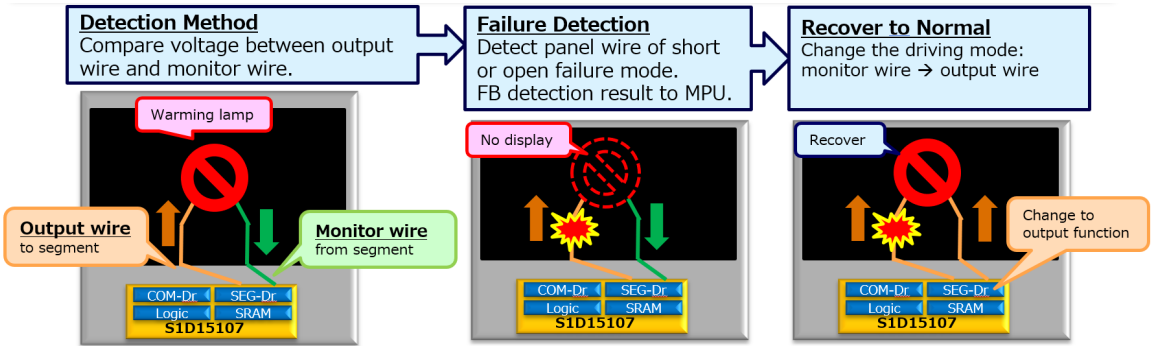
Operating Power Supply Voltages	System VDD: 2.7 V～5.5 V LCD Drive VLCD: 2.7 V～7.0 V
Host Interface	3-wire Serial Interface
LCD Driver	Segment: 688 outputs Common 1 output
Grayscale	16-level (PWM)
Display Data RAM	688 outputs × 4 bits (16-grayscale) = 2,752 bits
Safety Features	Display Safety Features
LCD Drive Duty Configuration	1 / 1 (Static Drive)
LCD Drive Bias Configuration	1 / 1 (Static Drive)
LCD Driver Power Supply	External Supply
Error Detection Functions	Bit error detection of command resisters Segment/Common output error (Open/Short) detection, etc..
Automotive QA	AEC - Q100 corresponsive
	-40 to +105 ℃
Others	Built-in Oscillation Circuit (External clock input is also available) Power-on Reset Function
Shipment Form	Au Bump Chip

■ System Block Diagram



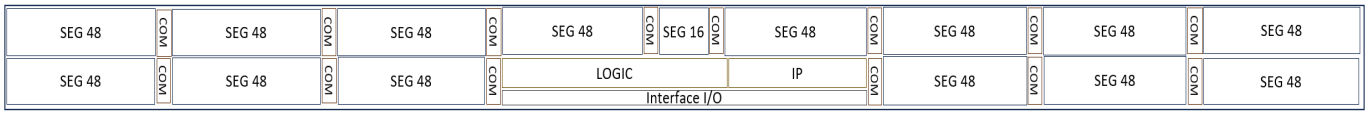
Segment LCD display

■ Display Safety Feature Example

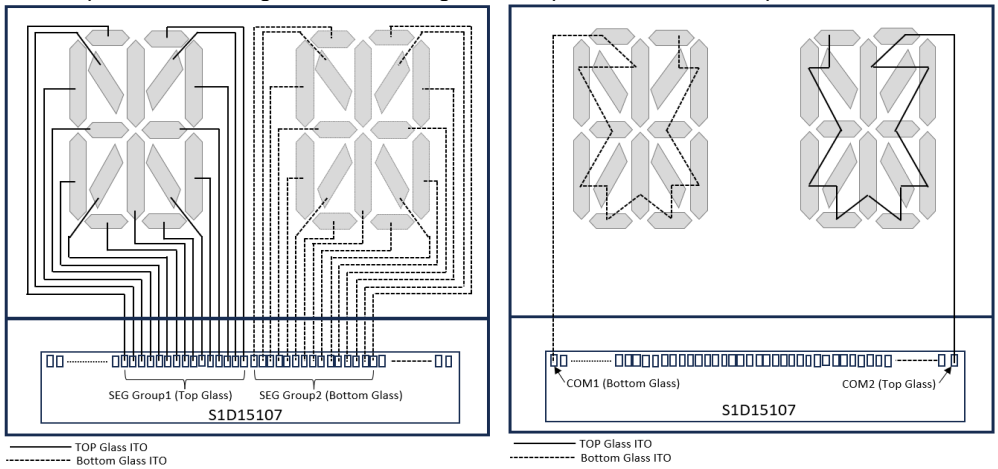


■ LCD Panel Connection Example

●SEG/COM pins layout image（COM terminals are placed every 48 SEGs）



●Example of SEG wiring and COM wiring on the top and bottom of the panel



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