

# Epson Shipping Samples of New Interface Conversion IC for In-Vehicle Systems

## S2D13V70 contributes to efficient development of automotive display systems

Seiko Epson Corporation (TSE: 6724, "Epson") has developed a new interface conversion IC for in-vehicle systems that converts eDP (Embedded DisplayPort) video signals to OpenLDI (open LVDS display interface).



PFBGA8-81

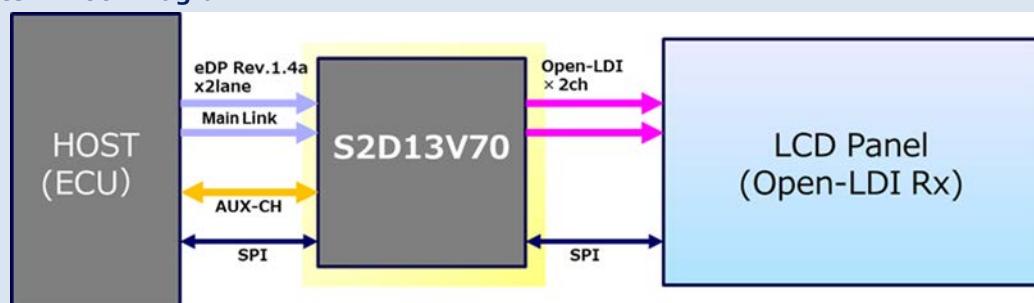
**Features of S2D13V70:** Both eDP and OpenLDI are interface standards for transmitting video signals to displays, but eDP supports higher resolution video and faster speeds than the more widely used OpenLDI.

"S2D13V70" is compliant with AEC-Q100\*2 and operates at temperatures up to 105°C.compliant with AEC-Q100\*2 and operates at temperatures up to 105°C.

With the electrification and automation of automobiles, manufacturers will increasingly require higher resolution displays in in-vehicle systems such as instrument clusters and central information displays. As this trend accelerates, products that support eDP, which can transfer video signals at higher rates, are growing in popularity in ECUs\*3 that control in-vehicle displays. On the other hand, in-vehicle displays that support eDP input are not yet mainstream, and since displays are connected using an OpenLDI interface, eDP output signals from an ECU\*1 have to be converted to OpenLDI in the development of in-vehicle systems.

To address this issue in in-vehicle systems development, Epson developed the S2D13V70, an interface conversion IC that supports automotive standards. The new product satisfies the strict quality requirements of the automotive industry.

**System Block Diagram**



## Safety functions required

The conversion IC is also equipped with safety functions required for automotive systems. For example, a CRC function monitors whether video signals output from an ECU are being properly received, and a blank screen function masks the display with a particular image pattern when a problem is detected in the transmission path between an ECU and the conversion IC.

## Splitter function

The IC supports the design of dual-display instrument clusters, with a splitter function that splits and outputs video signals on two displays.

## Product features

Automotive standards-compliant eDP to OpenLDI interface conversion IC

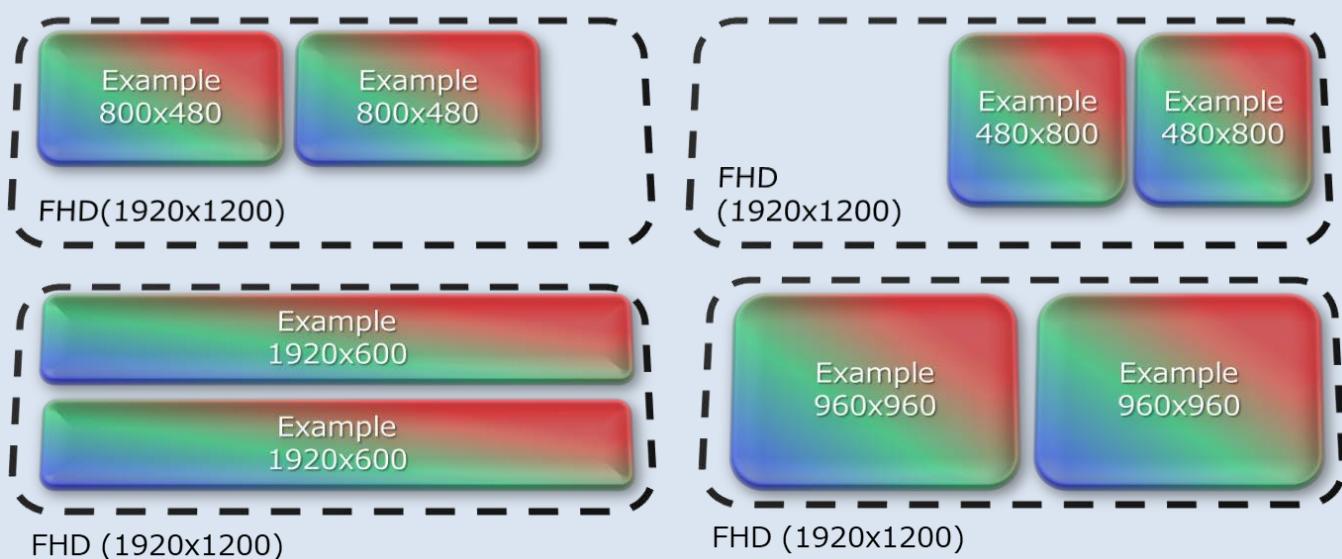
Extensive safety functions (SPI connection, CRC, blank screen)

Splitter function that enables video of the same resolution up to full-HD to be simultaneously output on two displays

### Splitter Function(Line or LR split)

Resolution size :

Possible to split dual display within 1920×1080 resolution.



## S2D13V70 features

Model No.	S2D13V70
Supply voltage	3.3V (I/O) 1.8V (Internal core voltage)
Input interface	eDP 1.4a x 2 lanes, up to 2.7 Gbps/lane
Output interface	OpenLDI-Tx x 2 channels, up to 120 MHz/ch
Display resolution	Up to 1920 x 1200 @ 60 fps
Image correction	8-bit digital gamma LUT + 2-bit dithering
Safety functions	SPI connection (checksum with 16-Byte cache)
	Input pixel clock/Sync signal monitoring
	CRC (full screen/register setting/frame comparison)
	Blank screen
Automotive standard conformance	AEC-Q100
Operating temperature range	-40 to +105°C
Other	System clock: 48 MHz
	Splitter function
Package	PFBGA8-81 (8 mm x 8 mm x 1.2 mm, with a pin pitch of 0.8 mm)

## Summary

**S2D13V70 contribute developing automotive display system by using advanced ECU(SOC) and Existing LCD display. It also has safety feature and splitter function. So, it leads to increase value of customer's system. EPSON will keep to development IC products focusing on "high resolution" and "safety feature" for automotive display system.**

## S2D13V70product information

- [Interface ICs for Automotive data sheet](#)
- [News release"S2D13V70"/Interface ICs Automotive](#)
- [Contact Windows](#)

## Descriptions

### ※1 Electronic control unit (ECU)

Any of various units that use electronic circuitry to control a system, usually in a vehicle. Numerous ECUs are found in vehicles, where they control systems such as engines, brakes, and car navigation systems.

### ※2 AEC-Q100

The Automotive Electronics Council (AEC) is an industry group that creates standards for the reliability and qualification of automotive electronics. It was formed by the "Big Three" U.S. automobile manufacturers in partnership with major electronic component manufacturers. The AEC standard is a de facto global standard that has been widely adopted as a standard for automotive electronic components.