

[Automotive]



The driving force in automotive technology

A quarter century supplying the automotive industry, and Sharp is still accelerating. From information and entertainment to safety equipment, Sharp designs and produces leading electronics for the world's premier automotive brands. You gain local engineering support, global logistics, and access to all the major TFT display types as well as CMOS camera modules when you source from Sharp Devices Europe.

SHARP
SHARP DEVICES EUROPE

[TFT technology — setting the standard]

Sharp display technologies are founded on decades of research and manufacturing expertise in all the major TFT types. But world-leading display technology alone is not enough to meet the demanding requirements of OEMs for in-vehicle applications. That's why Sharp has built production facilities specifically designed to supply the automotive industry and obtained TS 16949 certification. Combine this industry expertise with Sharp's global logistics and engineering support, and you've got a trusted partner that meets milestones and protects your production schedule.



[The new frontier in display technology]

Sharp innovations in TFT displays have a long history of improving key performance characteristics such as brightness, contrast, and power consumption. What will make the display of tomorrow outstanding? Factors such as safety and visibility, design flexibility, and user interface integration are how displays will add value in the future. With Free-Form Displays (FFD), integrated sensor functionality, and high visibility, Sharp's automotive displays are defining the automotive displays of tomorrow.

[Advanced technologies]

New dimensions of performance, usability, and value are built on groundbreaking technologies.

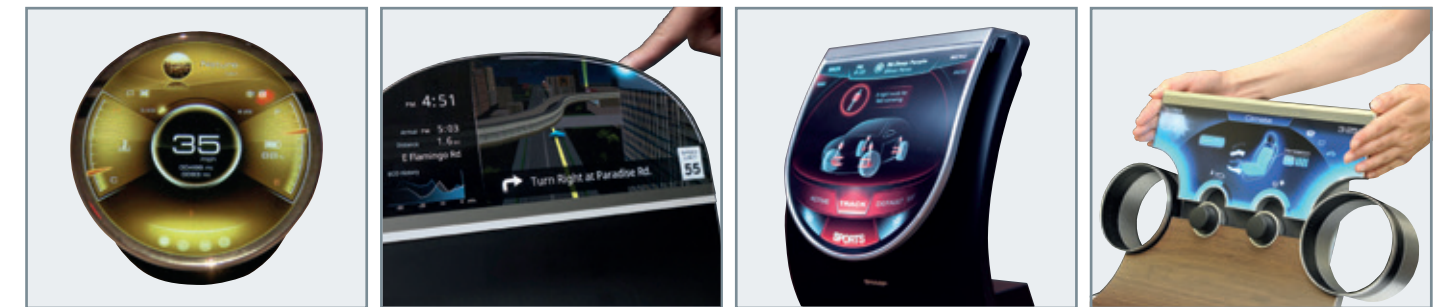
New Mode 2	superior contrast throughout viewing angle
Free-Form Displays	displays of any shape
auto-stereoscopic 3D	driver-tracked 3D without glasses
curved displays	convex/concave display surfaces
Progressive Super View (PSV)	low-reflection LCDs with reflection rates of <0.7% of ambient light
mirror LCDs	enable images to be displayed in mirrors
added value display systems	touch solutions, cover glass, optical bonding
high dynamic range	high contrast through local dimming backlight system

[TFT technology — applications]

Sharp produces in-vehicle displays for a number of applications including:

- central information display (CID)
- instrument clusters
- rear seat monitors
- e-mirrors
- custom digital cockpit styles

[Free-Form Displays — shaping the future]

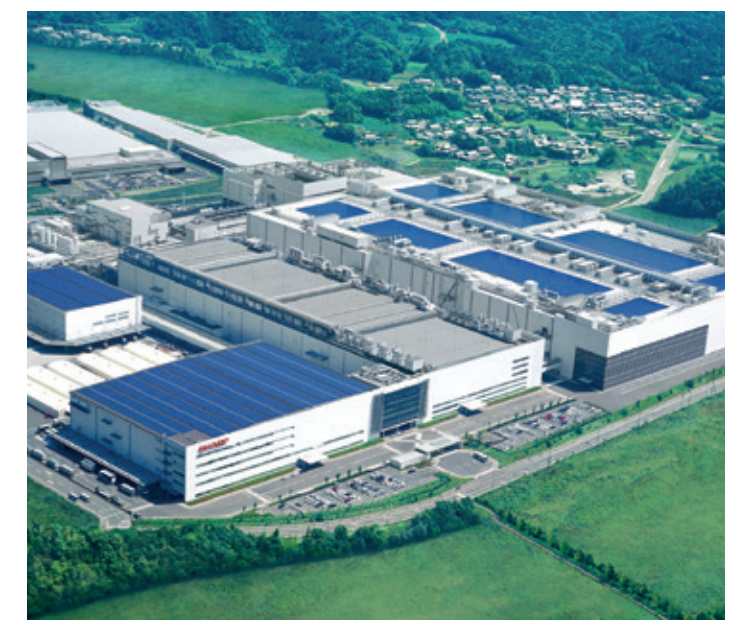


The narrow constraints on automotive displays have now been cast aside. Sharp's Free-Form Display (FFD) offers unprecedented freedom to use rounded edges, recesses, and custom contours. Sharp's revolutionary combination of indium gallium zinc oxide (IGZO) TFT tech and integrated gate drivers makes FFD displays brilliant, sharp, and efficient. Sharp's Free-Form Displays allow OEMs to specify the display to fit their cockpit design, not the other way round.

[Customer benefits]

More than 25 years of experience in the development and production of automotive TFT displays.

- supplier of all the major TFT display technologies for automotive applications
- local engineering support to safeguard customer project milestones
- global logistics and support scheme
- innovations such as Free-Form Displays are shaping the cockpit of the future
- on-site quality support
- outstanding worldwide production capacity



State-of-the-art production facilities for automotive

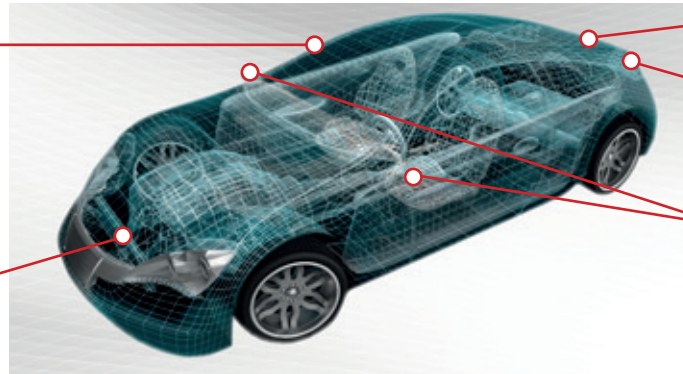


[360 degrees of quality]

Sharp has extensive experience mass producing high-quality CMOS camera modules for vehicles and mobile devices. Boasting high resolutions (up to 2 MP) and high frame rates (30-60 fps), Sharp CMOS automotive camera modules stand out from the competition with exceptional quality.

Interior camera

- driver monitoring
- cabin view
- dashboard camera



Surround view camera

Rear view camera

Side camera

- camera monitoring system
- surround view

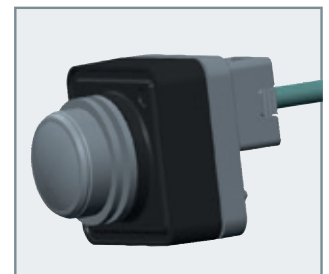
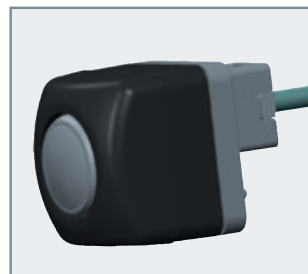
Front camera

- surround view

[Features]

- high reliability and quality
- small form factor suitable for a wide range of applications, high density packages
- complete assemblies (bracket, washer nozzle) available upon request

[Line up]



Face size	Analog	Digital
24.5 x 38.5 mm	----	1/2.7 type 1M CMOS / digital output / distortion correction
27.4 x 25 mm	1/3.6 type VGA CMOS / analog output (NTSC) / cropping	Platform 1/4 type 1.2M CMOS / 1/2.56 type 1.3M / CMOS 1/3 type 2M CMOS / digital output
23 x 23 mm	1/3.6 type VGA CMOS / analog output (NTSC) / cropping	1/4 type 1.2M CMOS / 1/2.56 type 1.3M / CMOS 1/3 type 2M CMOS / digital output

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