

Foreward

In these past years we have been disposed to a large amount of information, and the role of 'display' has increasingly become important because it is a 'window', through which we view to gain various kinds of information. 'Display' today refers not only to the CRT but also to the PDP, and they are now being taken into more use. Above all, liquid crystal has become remarkably essential, applied to a wide variety of products such as notebook-type PCs, portable information devices, car navigation systems, liquid crystal televisions, liquid crystal projections, digital still cameras, and video cameras.



Vice-President Shigeo Misaka

It is 30 years since the first time RCA Co., Ltd. (USA) attempted to apply this new material, Liquid Crystal for display use in 1968. Liquid crystal display has made a distinctive progress ever since. When we look back to its transition, we can classify its technological progress into 3 generations:

1st.) The Generation of TN Liquid Crystal: when liquid crystal was used for the segmented displays of simple numbers, and also the products changed their performance quality as electric-devices oriented from precision-machinery oriented.

2nd.) The Generation of Transition from STN- to TFT-Liquid Crystal: when liquid crystal technology was applied to a small type of liquid crystal televisions, liquid crystal projections, word processors and FA devices by displaying texts/images from the segmented information such as numbers. This all meant that liquid crystal expanded its application to 'passive-oriented merchandise', which users made full use of the product with ease before they knew that they were actually using the product.

3rd.) The Generation of TFT-Liquid Crystal: when liquid crystal has expanded its application to 'positive-oriented merchandise' such as notebook-type PCs. The 'positive-oriented merchandise' refers to the products which users positively utilize with a specific motivation to accomplish a certain thing. It cannot be too much to say that notebook-type PCs have developed with the advancement of the liquid crystal.

A remarkable progress was made in production and development technologies of liquid crystal, especially during the Generation of TFT-Liquid Crystal. If we employ a mother glass in a manufacturing process for example, it has become larger from 300 x 420mm as of in the Generation of TN Liquid Crystal to 550 x 650mm as of in the Generation of TFT-Liquid Crystal. It

is during this generation that the PDA (Personal Data Assistant) was made available in our Zaurus, whose performance equals that of a notebook-type PC and also that video cameras and digital still cameras started to provide consumers with more amusement to view what they have shot.

We are focusing on easy-to-see and easy-to-carry displays with high level of viewing angle, contrast, response ratio, gray-scale reproduction, and low power consumption. These features are being enforced through the progress in semi-conductor technology and high-reflection super-mobile liquid crystal (HR-TFT) technology, which allows all kinds of information to be displayed anywhere, anytime.

We used to believe that the format of sending information is the same as that of receiving; information sent as a audio format was received as it is and text-format information was sent/received in a text format. We also believed that there was one kind of media that deliver a certain kind of information; televisions for visual images, books and newspapers for texts, and the like.

Now we are entering the 21st century, which is said to be a real era of multimedia and digitalization. We will have to perform as one terminal of the multimedia, which means that we have to leave these fixed concepts and come up with a new tool for sending/receiving any information format.

We take this future role very seriously and are striving to realize more human-friendly man-machine interface, focusing on the latest liquid crystal and LSI technologies. We all hope to contribute to the multimedia society through the new product development such as mobile communicator products with the cutting-edge technologies in visual image processing, super-low consumption power, pixel display, and high-speed transmission.

At last, we hope that this special issue of Sharp Technical Journal on LCD technologies will stimulate people to realize our great efforts on the field and further that our technologies will play an essential role in the new product development.