

## Key Features

### Multimedia Storage Viewer P-2000 Key Features

- Built-in 40GB Hard Disk Drive (36.5GB for usable storage)
- CF & SD Memory card slots
- RAW image support (NIKON/CANON/EPSON)\*1
- Browse JPEG image smoothly up to 8.9M Pixels
- Movie and music support (Motion JPEG, MPEG4, MP3, and AAC)
- Built-in speaker (Mono) and support Headphone output (Stereo)
- Direct Print available (USB DIRECT-PRINT compatible printers)

\*1 JPEG data stored in the header of RAW files are displayed.



### L-500V Key Features

Fun to capture and share your precious memories via brilliant Epson Photo Fine, 2.5inch LCD

- 5.0 megapixel CCD
- 3x optical zoom, 4x digital zoom
- 30frame per second VGA movie
- 3frame per second continuous shooting
- Built in Frame (PRINT Image Framer) for fun printing
- Direct Print available (USB DIRECT-PRINT compatible printers)
- Size (WxHxD) 92x63x32mm
- Weight approx. 170g



### STYLUS PHOTO RX700 Key Features

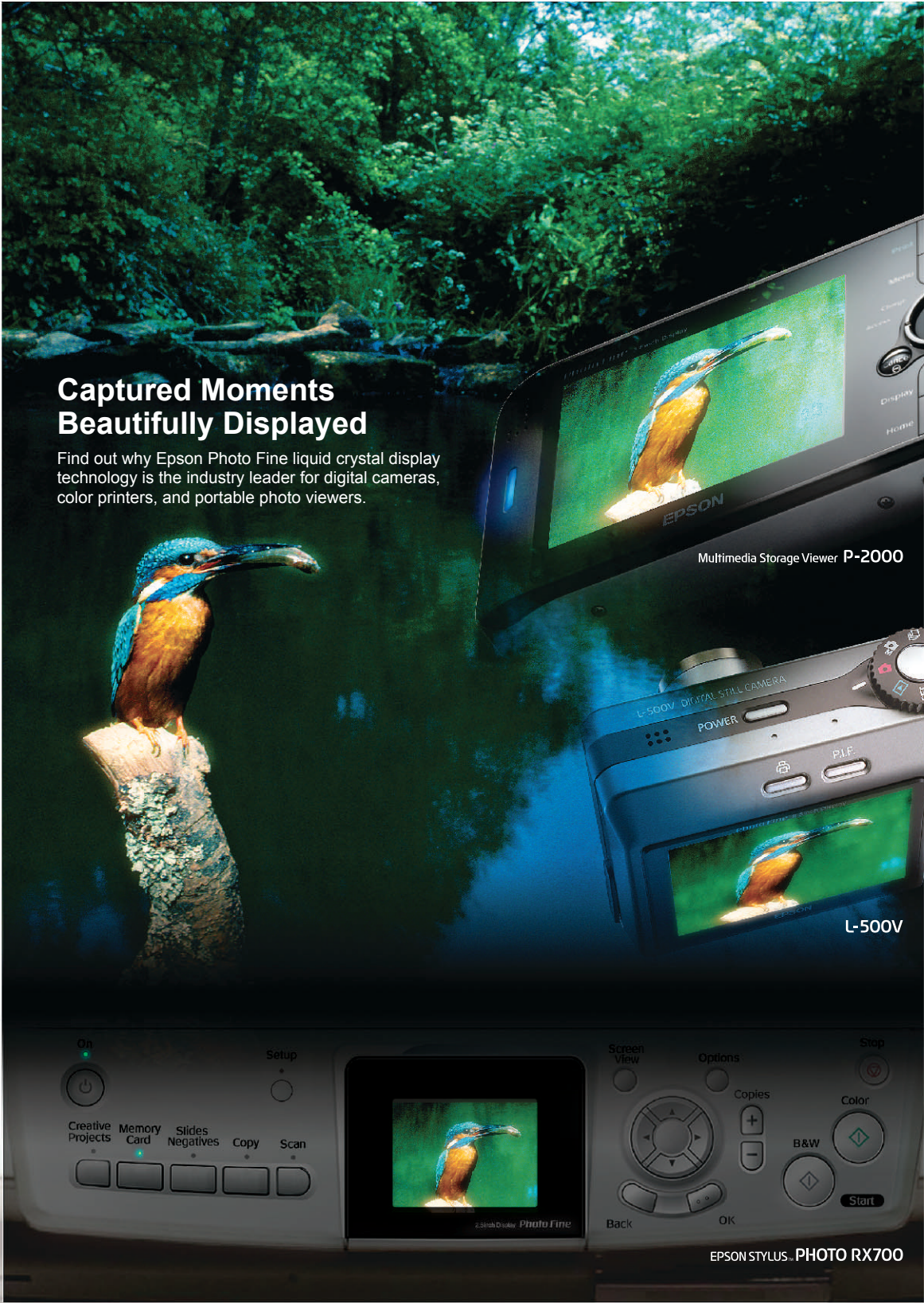
Premium multi photo function

- 3200x6400dpi High resolution scanner with TPU
- CD/DVD direct copying/printing
- Easy stand-alone operation with Epson Photo Fine LCD viewer
- High quality photos with fast printing
- Memory card direct printing/storing
- PictBridge and USB direct printing
- Double paper tray for plain paper
- USB host for direct printing/Back-up from the external devices; CD/DVD/MO/Zip, and USB flash memory drives.

## Specifications of LCDs

Item	Multimedia Storage Viewer P-2000	L-500V	STYLUS PHOTO RX700
Dot Format	640 (RGB) x480 VGA	512 (RGB) x384 QXGA	512 (RGB) x384 QXGA
Dot Pitch (mm)	0.040x0.120	0.033x0.99	0.033x0.99
Pixel Density	212ppi	256ppi	256ppi
Diagonal Dimension	3.8"	2.5"	2.5"
Display Color Num.	262,144	262,144	262,144
Display Mode	Transmissive	Transmissive	Transmissive

## Epson Photo Fine Technical Guidance



### Captured Moments Beautifully Displayed

Find out why Epson Photo Fine liquid crystal display technology is the industry leader for digital cameras, color printers, and portable photo viewers.

Multimedia Storage Viewer P-2000

L-500V

EPSON STYLUS PHOTO RX700





# Index

- Introduction ..... 3
- Outline of Epson Photo Fine Technology .....4
- Some Basics on LCDs and LTPS ..... 6
- Epson Photo Fine for Unsurpassed LCD Performance ..... 8
- See the Epson Photo Fine Difference for Yourself ..... 10
- The Many Benefits of Epson Photo Fine Technology ..... 12
- What Professionals Say about Epson Photo Fine Technology ..... 14
- A Glossary of Epson Photo Fine Technical Terms ..... 15
- Specifications ..... 16

## A Look inside Superior Epson Photo Fine Technology

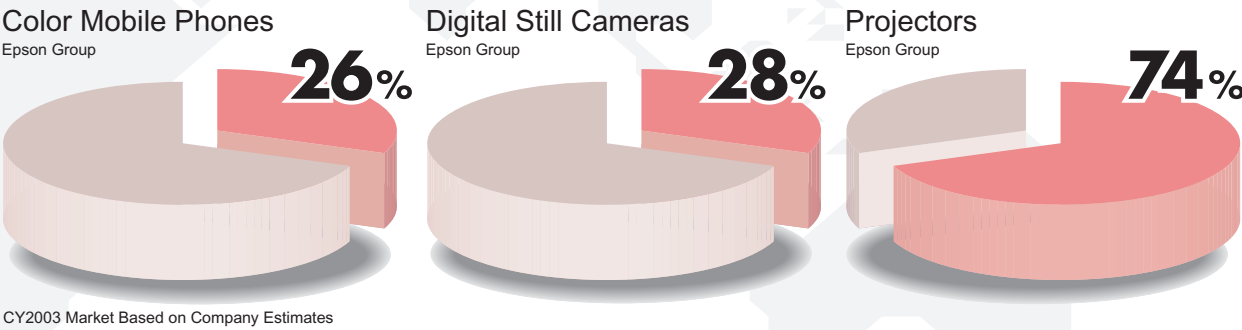
### Introduction

Epson's superiority in the field of digital color reproduction is due in no small part to its Epson Photo Fine liquid crystal display (LCD) technology. Showcased on Epson digital cameras, color printers, and photo viewers, Epson Photo Fine gives the user a sharp, lifelike preview of recorded images unsurpassed by any other manufacturer.

Epson is world renowned as a major manufacturer of LCDs and is the leading supplier of displays to other manufacturers of color mobile phones, digital cameras, and LCD projectors. Born as a result of Epson's commitment to being number one in LCD technology and production, Epson Photo Fine promises to further cement Epson's dominant position.

Armed with the information supplied within this guide, along with real life demonstrations of selected Epson Photo Fine products, you should feel confident in convincing even the most discriminating customers of Epson's commitment to quality.

### Epson is the Dominant Player in the Worldwide LCD Market





# The Epson Promise of a Clearer, Brighter Future

Epson enhances its reputation for high quality digital image reproduction with its new Epson Photo Fine LCD technology. Epson Photo Fine produces a high density liquid crystal display that exhibits truly outstanding color rendition, superb resolution, and excellent brightness. Both photographs and movies display razor sharp detail and realistic color and grayscale reproduction that outclasses the competition.

You can find Epson Photo Fine LCDs in a variety of different products like Epson multimedia storage viewers, digital cameras, and color printers.

## Brilliant, lifelike picture quality

Epson Photo Fine LCDs produce truly breathtaking images. Subtle colors and tones are reproduced evenly with no noticeable shifts, and highlights and shadows display the smallest details. Furthermore, the superior picture quality is clearly evident in both still images and movies.

## Clear, razor sharp display

Thanks to the super-high density pixel arrangement, Epson Photo Fine products reveal subtleties in your images that cannot be seen on ordinary LCDs. This makes Epson Photo Fine ideal for previewing digital images before printing or transferring to a PC.

## Outstanding image brightness

The bright, vivid displays found in Epson Photo Fine products make them suitable for use under most lighting conditions. Whether you are indoors or outdoors, you'll be able to enjoy all the beauty of your still images and movies.

## Epson Photo Fine

### Epson Photo Fine... A super-high density liquid crystal display

Residing at the core of Epson Photo Fine technology is the active matrix display featuring a low temperature, poly-silicon base (LTPS) charged by a thin film transistor (TFT) array. What sets Epson Photo Fine apart from the competition is the super-high density pixel arrangement which provides more than twice the number of pixels than that of our closest competitor's models. The results for you are clearer, sharper images that can be easily demonstrated in side-by-side comparisons with similar products.

### Epson Photo Fine Products



Multimedia Storage Viewer P-2000



L-500V



EPSON STYLUS™ PHOTO RX700





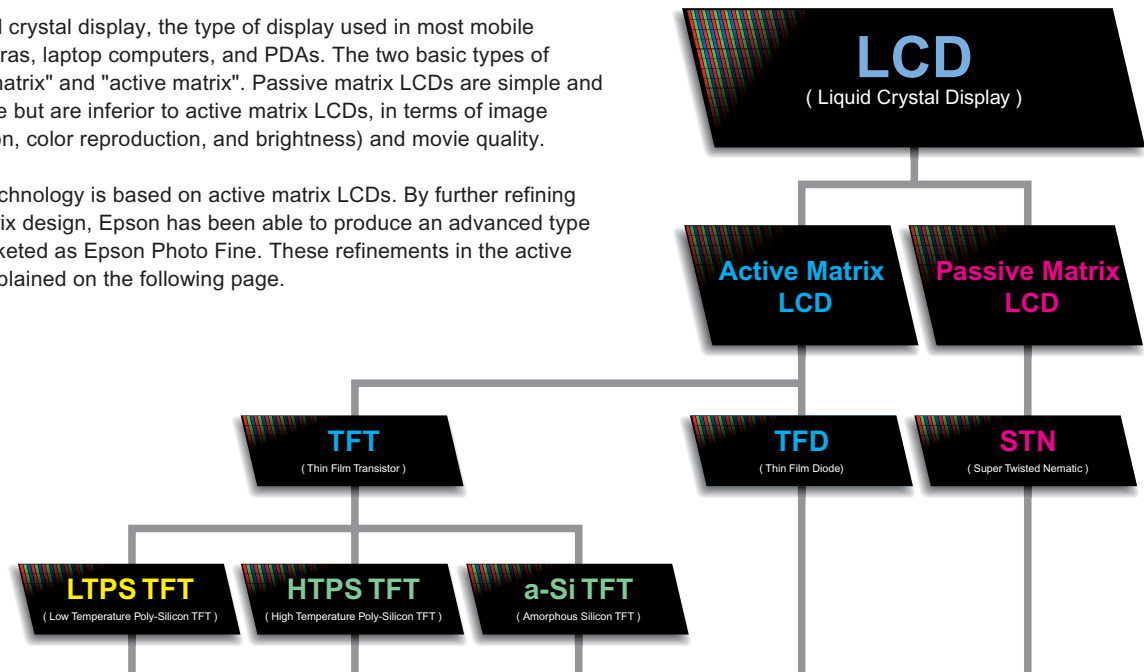
# Some Basics on Liquid Crystal Displays (LCDs) and Low Temperature Poly-silicon (LTPS)

Give yourself an edge in your sales efforts with this following short primer on basic LCD technology. This will help you answer your customers questions when demonstrating Epson Photo Fine products.

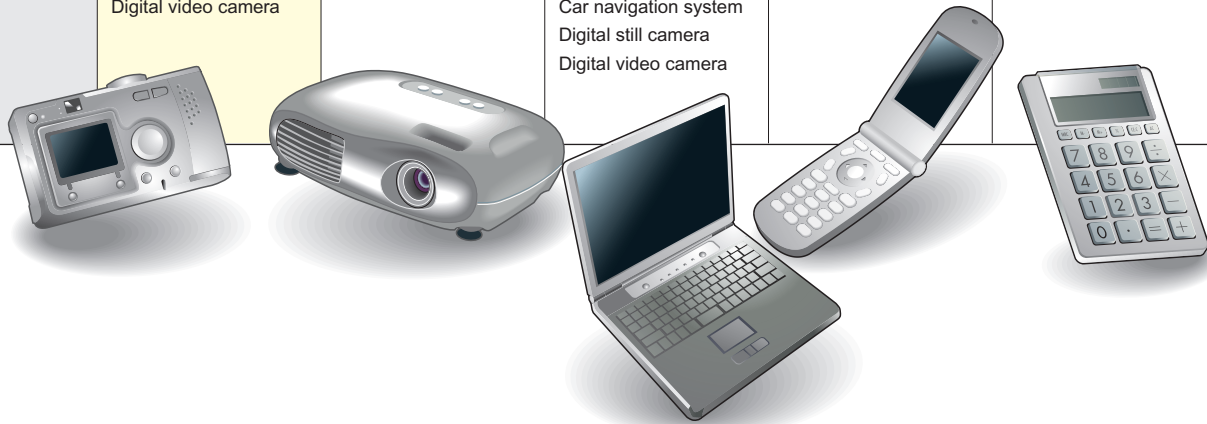
## What are LCDs?

LCD stands for liquid crystal display, the type of display used in most mobile phones, digital cameras, laptop computers, and PDAs. The two basic types of LCDs are "passive matrix" and "active matrix". Passive matrix LCDs are simple and relatively inexpensive but are inferior to active matrix LCDs, in terms of image quality (e.g. resolution, color reproduction, and brightness) and movie quality.

Epson Photo Fine technology is based on active matrix LCDs. By further refining the basic active matrix design, Epson has been able to produce an advanced type of LCD which is marketed as Epson Photo Fine. These refinements in the active matrix design are explained on the following page.



High-resolution	Excellent	Excellent	Good	Acceptable	Not Applicable
Color Reproduction	Excellent	Excellent	Good	Good	Not Applicable
Surface Brightness	Excellent	Excellent	Good	Good	Good
Compact	Excellent	Good	Good	Good	Acceptable
Low-power consumption	Acceptable	Acceptable	Acceptable	Excellent	Excellent
Large Screen Sizes	Good	Not Applicable	Excellent	Acceptable	Acceptable
LCD Cost	Good	Acceptable	Good	Good	Excellent
Application	High End Mobile Phone PDA Digital still camera Digital video camera	Data Projector AV Projector	Mid Range Mobile Phone Note PC LCD television Car navigation system Digital still camera Digital video camera	Mid Range Mobile Phone Digital still camera	Low End Mobile Phone Calculator Home Appliance



Epson Photo Fine

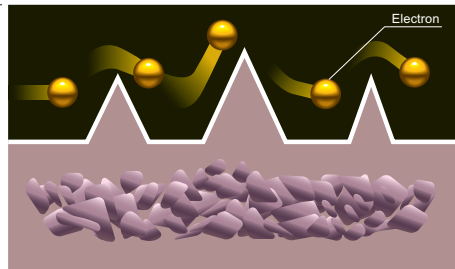
## What is LTPS?

LTPS stands for low temperature poly-silicon and describes the base material used in Epson Photo Fine LCDs. Displays using LTPS are found in mobile phones, PDAs, and digital still and digital video cameras.

Displays in products of this sort sometimes use a different base called "a-Si" (amorphous-silicon). This base, however, is inferior to LTPS due to its slower speed and higher energy requirements. The electron mobility in LTPS displays can be up to 100 times faster than in a-Si displays due to silicon crystallization. This allows LTPS displays to have a higher pixel density and be more compact.

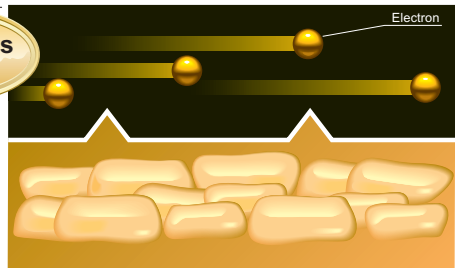
### Electron Mobility

a-Si TFT



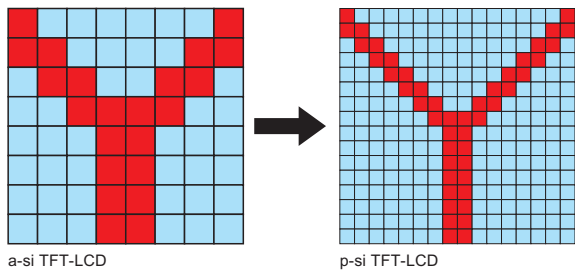
LTPS TFT

100 times Faster



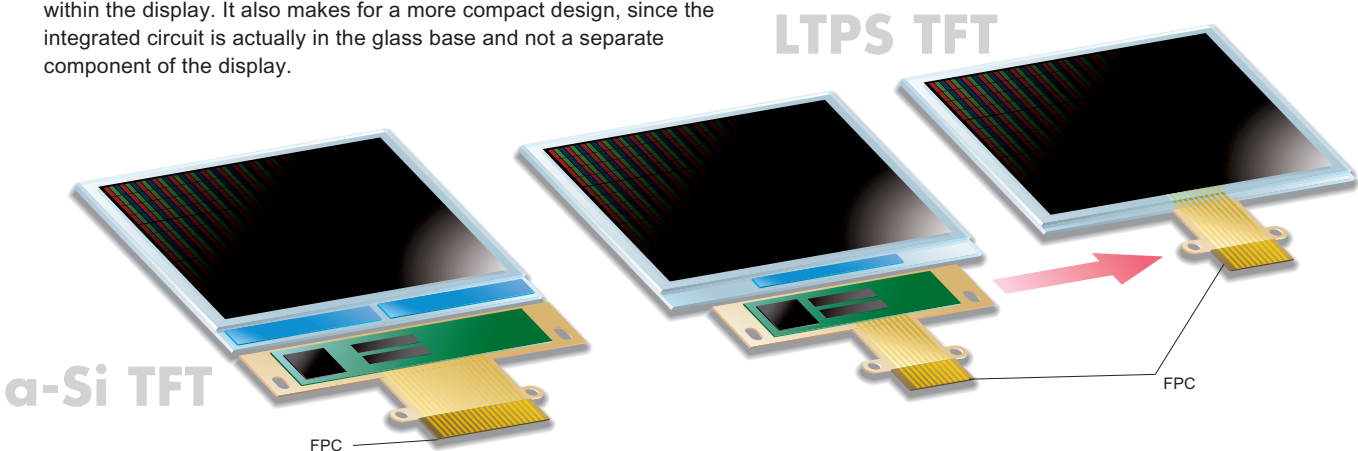
## The LTPS advantage -- Higher pixel density for a better image

Displays using LTPS allow for a higher pixel density than a-Si displays, because LTPS technology can minimize the size of the TFT element. The end result is a clearer, sharper image free of noticeable pixelation which manifests itself as jagged edges in contrasting areas of an image.



## The LTPS advantage – Compact and reliable

Another advantage of LTPS is that it is possible to integrate the electrical circuit with the glass base, eliminating the need for an external circuit board. This greatly increases reliability as there are fewer failure points within the display. It also makes for a more compact design, since the integrated circuit is actually in the glass base and not a separate component of the display.







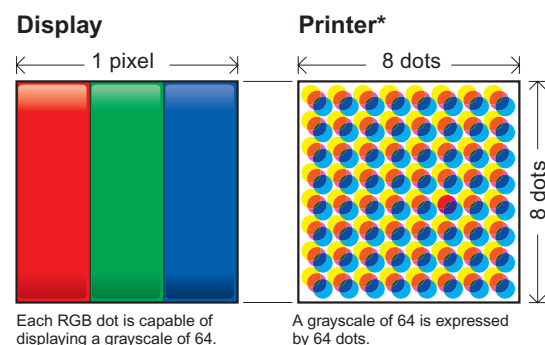
# Epson Photo Fine for Unsurpassed LCD Performance

Epson Photo Fine takes display performance to new heights by refining basic LTPS and TFT technology. What's more, Epson is the leader in research and development in this area with the promise of even greater improvements in the upcoming years.

*Epson Photo Fine*

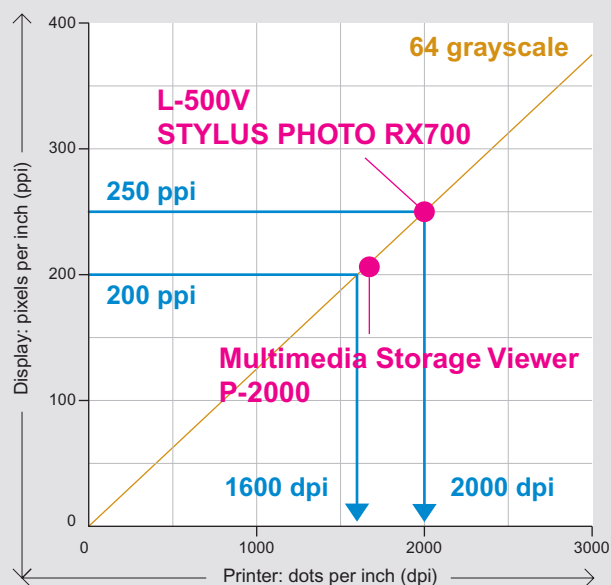
## LCD image quality similar to high resolution printers\*

Epson products utilizing Epson Photo Fine technology are capable of displaying up to 250 pixels per inch (ppi). This produces images equivalent in quality to prints from a 2000 dpi color printer. Each pixel is capable of reproducing an RGB image with a grayscale of 64. Similar quality in a color printer requires 64 dots (8 dots x 8 dots). This super-high density pixel arrangement is more than twice that of other products on the market and can be easily seen in side-by-side comparisons with similar products from our competitors.



\*A 3-color binary printer with a grayscale of 64.

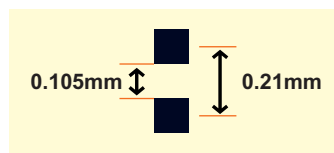
Correlation Between Pixel Density and Printer\* Resolution



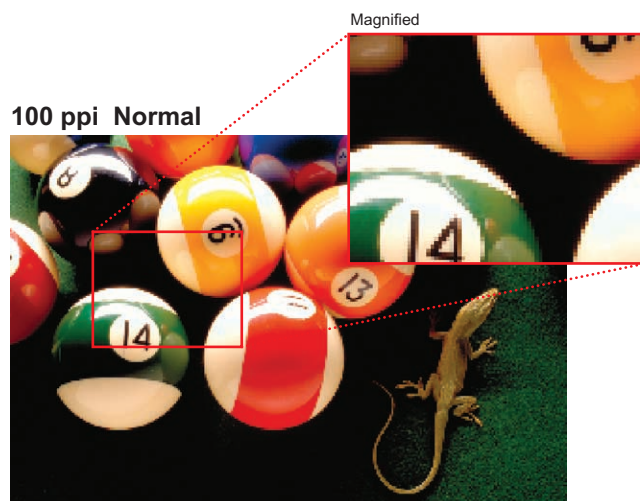
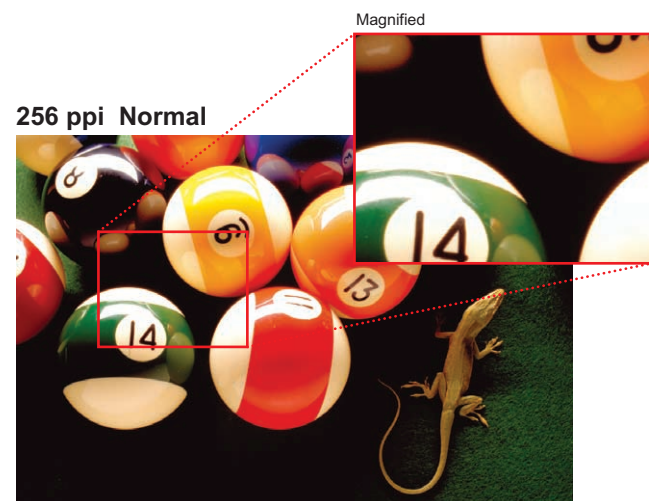
## Screen resolution designed for the naked eye

Epson engineers have designed Epson Photo Fine displays to overcome the distracting effects of pixelation caused when the human eye is able to distinguish individual pixels. The super-high density of Epson Photo Fine technology allows for up to 256 pixels per inch (ppi), making individual pixels virtually indistinguishable from one another when viewing the display at a distance of 35 cm and for a person with normal eyesight.

Minimum Screen Resolution Needed to Eliminate Pixelation

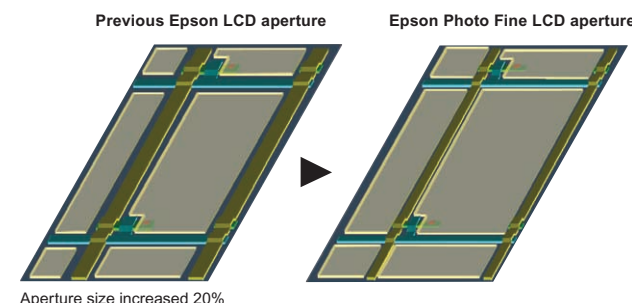


Research has shown that a person with "normal" eyesight cannot distinguish individual pixels whose centers are 0.21 mm apart and at a gap of 0.105 mm. This resolution threshold is equivalent to 242 pixels per inch (ppi).



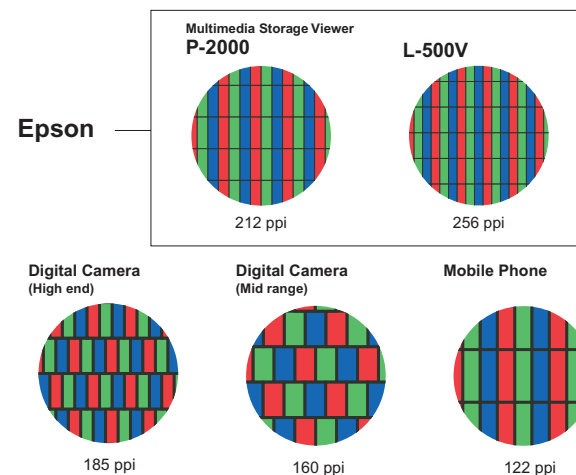
## High precision manufacturing techniques for a brighter image

Thanks to Epson's original High Precision Processing Technology, Epson Photo Fine displays are wonderfully bright, greatly aiding the composing, focusing, and viewing of images. The key to our bright screens is our increased aperture size in the base of the LCD. By reducing the size of the integrated circuit and wiring width embedded in the display, Epson has been able increase brightness by up to 20% in Epson Photo Fine LCDs.



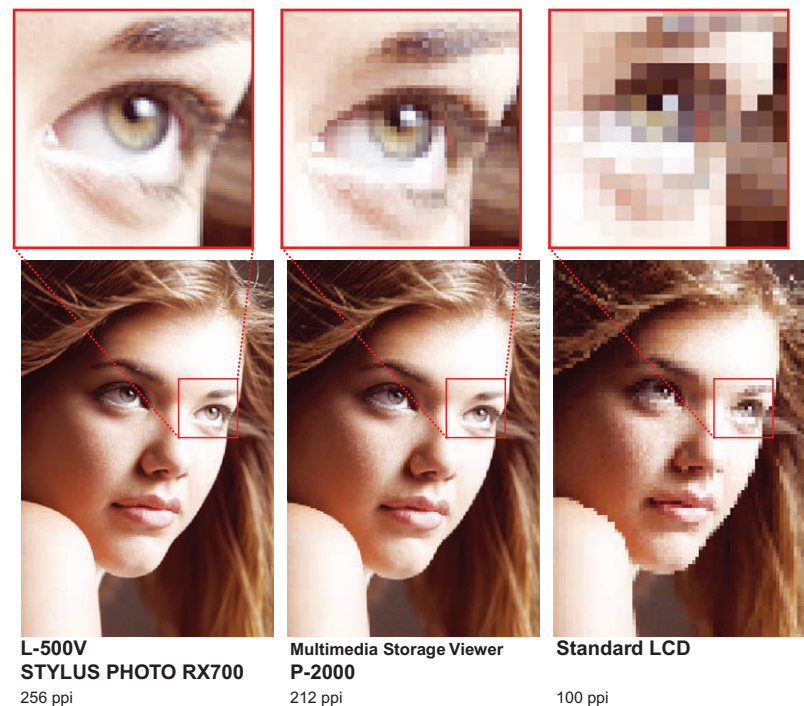
## Epson Photo Fine technology minimizes pixel size

Epson Photo Fine displays are based on LTPS TFT display technology, yielding high density screen resolutions of 212 ppi and more. The vastly improved screen resolution allows for smoother, more realistic images than even our high end competitors can lay claim to. The illustration on the right shows the difference between Epson displays and similar products from our competition.



## Epson Photo Fine LCDs mark a new standard of excellence

With the advent of Epson Photo Fine technology, Epson has once again raised the standard of digital imaging technology. The 212 ppi screen resolution of the Multimedia Storage Viewer P-2000 and 256 ppi resolution of the L-500V provide for superior image reproduction and the finest detail even when viewed close up. The photographs below show how Epson Photo Fine technology produces superbly detailed images even when magnified.





# See the Epson Photo Fine Difference for Yourself

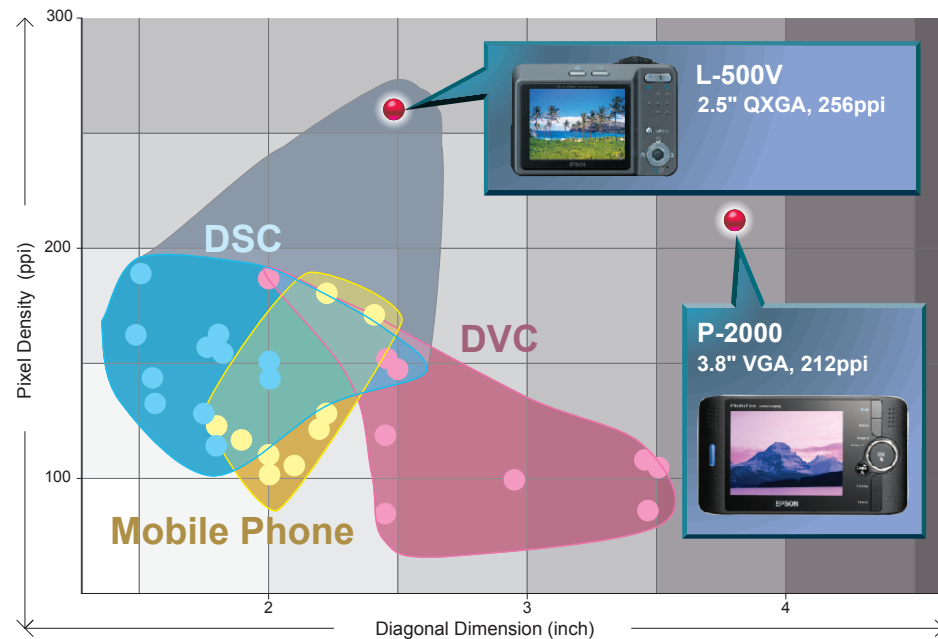
Epson Photo Fine displays are in a class by themselves. Featuring superb brightness and the highest pixel density among competing products, you can see for yourself why Epson Photo Fine displays are the clear choice for both amateurs and professionals alike.



Epson Photo Fine

## Epson Photo Fine LCDs lead the way

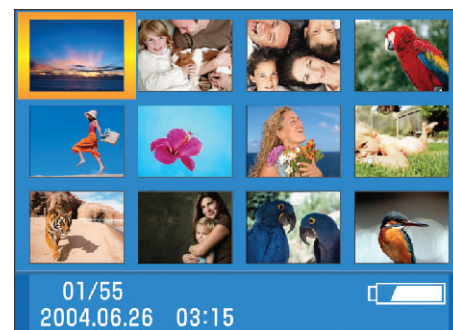
Compared to other displays found in similar products, Epson Photo Fine displays lead the competition, both in terms of pixel density and image size. The graph on the right shows the clear advantage enjoyed by Epson Photo Fine displays. The new L-500V digital camera with its 2.5", 256 ppi QXGA display and the Multimedia Storage Viewer P-2000 with a 3.8" 212 ppi VGA are excellent examples of Epson's leading technology.



## Digital camera LCD comparison

LCDs found on most digital cameras are hard to view and can be almost useless in low light situations. Not so with Epson Photo Fine LCDs. Boasting a larger, brighter, and crisper image than other displays, Epson Photo Fine makes composing, focusing, and viewing your images easier than ever before. The crisp, razor-like reproduction also makes it easy to read on-screen help and settings menus. Furthermore, because Epson Photo Fine screens are larger and clearer than our competitors', they can display up to 12 thumbnail photos per screen.

### Thumbnail View



Epson Photo Fine (256 ppi)



Competitor (112 ppi)

### Photograph

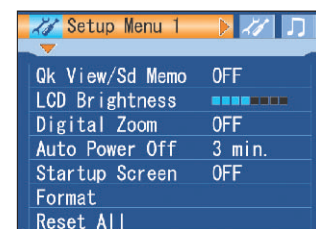


Epson Photo Fine (256 ppi)

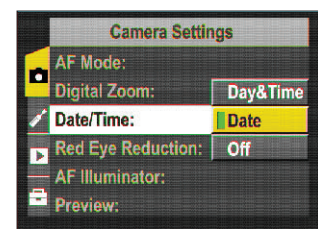


Competitor (112 ppi)

### Operation Menu



Epson Photo Fine (256 ppi)



Competitor (112 ppi)

## Photo viewer LCD comparison

What's the point in having a photo viewer if it can't display crisp clean images free of distracting pixelation? Epson photo viewers with Epson Photo Fine displays show a marked improvement in color reproduction and sharpness when compared with our nearest competitors. This makes them great for previewing and editing your shots, as well as sharing photos with friends and viewing smooth, clear movies.

### Photograph



Epson Photo Fine (212 ppi)



Competitor (114 ppi)

### Movie



Epson Photo Fine (212 ppi)



Competitor (114 ppi)

## Color printer LCD comparison

In our continuing efforts to improve our products, Epson is now providing Epson Photo Fine displays on selected color printers containing LCDs, starting with the EPSON STYLUS PHOTO RX700. This makes it easier than ever to preview and select your color images before printing, which in turn helps save on ink and paper costs. Epson Photo Fine technology also vastly improves readability of small on-screen type in help and settings menus.

### Operation Menu

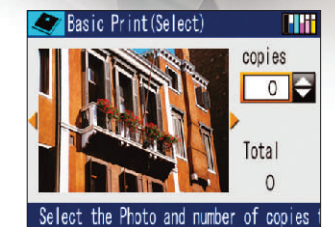


Previous Epson display  
SP RX600 color printer  
(Approx. 110 ppi)



New Epson Photo Fine display  
SP RX700 color printer  
(256 ppi)

### Photograph



Previous Epson display  
SP RX600 color printer  
(Approx. 110 ppi)



New Epson Photo Fine display  
SP RX700 color printer  
(256 ppi)



# The Many Benefits of Epson Photo Fine Technology

Help your customers get the most out of Epson Photo Fine products by pointing out the benefits of improved LCD brightness and quality. Shown below are a few of the many benefits of this remarkable technology.



*Epson Photo Fine*

## Easily share your pictures with others

The superb resolution and crisp sharpness of Epson Photo Fine products make it easy to share your photos with others. No more waiting for color prints in order to give others a chance to view your creations. With a resolution equal to that of a 2000 dpi color printer, you can share the full beauty of your images immediately. Additionally, both amateur and professional photographers will appreciate the ability to display images in high quality slide shows.



P-2000

L-500V

## Accurate preview of images before you print

Epson color printers equipped with Epson Photo Fine displays are ideal for selecting and previewing images before you print. The 256 ppi display reveals all nuances in color and sharpness that allow you to weed out undesirable images before you print, thus saving on ink and paper costs.



RX700

## Improve your digital camera shooting technique

On digital cameras equipped with Epson Photo Fine displays, composing and focusing have never been easier. The outstanding brightness and high resolution of Epson Photo Fine displays are a great plus for critical photographic applications and when shooting under adverse lighting conditions. Discover for yourself why discriminating professionals and serious amateur photographers rate Epson Photo Fine displays as the best on the market.



L-500V

## A more efficient way to view thumbnails

Epson Photo Fine products are the best and most efficient way to display your images as thumbnails. The large, high resolution displays show beautifully detailed thumbnails. This makes it easier to preview and select images than with other viewers, digital cameras, and color printers.



P-2000

L-500V

RX700

## Easy to read menus and settings screens

The high resolution of Epson Photo Fine displays make it easier to read the small print in menus and settings screens found on digital cameras, portable viewers, and color printers. What's more, Epson Photo Fine displays can contain more information due to their larger size.



P-2000

L-500V

RX700

## Watch your favorite home movies

The advanced LTPS technology inherent in Epson Photo Fine displays make them ideal for viewing home movies. Epson photo viewers and digital still cameras use Epson Photo Fine technology to reproduce smooth, lifelike movements in movies.



P-2000

L-500V



# What Professionals Say about Epson Photo Fine Technology



**Charlie Parisek**  
Charlie Parisek is a free-lance photographer in Japan. He specializes in studio photography and location work for corporations.

**An invaluable tool when on assignment that is both accurate and easy to use"**

"When on assignment, I need a quick, accurate way to preview my digital images. For this, I find the Epson Multimedia Storage Viewer P-2000 ideal. It's light weight makes it easy to carry in my photo bag and the image clarity is fantastic. I'm able to easily check my latest series of shots and decide whether not I've really captured the image. A great product that no pro should be without.



**Tetsuya Irisawa**  
Tetsuya Irisawa is a graphic designer living and working in Tokyo, Japan. He specializes in advertising, editorial, and web design.

**"The moment is everything to me when I shoot. That's why I need a digital camera that gives me a good preview of my composition when I shoot."**

"The most important things for a graphic designer are inspiration and passion. That's why I always carry my digital camera in order to capture a moment that strikes me as something I can use later in my design work. Until recently, the LCDs of most digital cameras left much to be desired in terms of actual color and ease of focus and composition. With the Epson L-500V equipped with a Epson Photo Fine LCD, I can see pretty much what I will see when I open the image on my computer, and the clear bright image makes it easier to compose and focus. This makes it easier to concentrate on capturing the actual moment. Not only that, but the 5M pixel resolution is more than adequate for my purposes."



**S.T.**  
Interview with an Epson user living in Tokyo, Japan.

**"Flowers are my passion and Epson printers allow me to easily express the beauty of what I see."**

"I'm serious about my hobby, which is photographing rare and beautiful flowers. When I see a specimen that I find particularly striking, I'll shoot maybe 10 or 15 shots of one flower. Naturally, I want to see my results immediately, but since I'm not a computer wiz, I use Epson's "all-in-one" STYLUS PHOTO RX700 to print directly from my digital camera. The large, built-in monitor of the printer makes it easy to view thumbnails and select which shots to print from the many photos I've taken. I've used other Epson printers for this task but the RX700 is a great improvement in terms of viewing thumbnails and final print quality. I also love the easy-to-read menus and settings display."

# Epson Photo Fine



## A Glossary of Epson Photo Fine Technical Terms

<b>Active Matrix</b>	A kind of Liquid Crystal Display where an active element is added to each pixel. A representative liquid crystal display using active matrix is Thin Film Transistor (TFT). TFT features a clear display screen and quick response speed because each pixel can be controlled individually.	<b>Pixel</b>	The smallest unit of a bitmap image. "Pixel" stands for Picture Element. This is used to determine color and position, and is not related to physical size.
<b>Aperture Ratio</b>	The ratio of the effective display area to a single pixel area on LCD.	<b>Screen display resolution</b>	Standards concerning the definition of display
<b>Driver (LCD driver)</b>	IC or LSI to drive liquid crystal display. Gate/source driver for TFT and segment/common driver for STN. By the input signal type, the drivers can also be classified into digital and analog.	<b>VGA</b>	Video Graphics Array 640 X RGB X 480 dot
<b>Epson Photo Fine</b>	Epson's trademark for its Low Temperature Poly Silicon LCD that realizes a true photo quality.	<b>SVGA</b>	Super Video Graphics Array 800 X RGB X 600 dot
<b>Low Temperature Poly Silicon (LTPS) TFT</b>	A kind of formula for making Thin Film Transistor that is an electrode for TFT liquid crystal display. This TFT is made of poly silicon while conventional TFTs used to be made of amorphous (noncrystal) silicon. High temperature (1,000°C or higher) is needed to form crystal silicon. However, since the glass used for liquid crystal panel melts at this temperature, silicon for formation at comparatively low temperatures was developed.	<b>XGA</b>	Extended Graphics Array 1,024 X RGB X 768 dot
<b>Passive Matrix</b>	A kind of Liquid Crystal Display, consisting of X and Y electrodes arranged in a lattice form that are turned on and off at appropriate timings to drive liquid crystals at intersections. A representative liquid crystal display using passive matrix technology is Super Twisted Nematic (STN).	<b>SXGA</b>	Super Extended Graphics Array 1,280 X RGB X 1,024 dot
		<b>SXGAP</b>	Super Extended Graphics Array Plus 1,400 X RGB X 1,050 dot
		<b>UXGA</b>	Ultra Extended Graphics Array 1,600 X RGB X 1,200 dot