



S1D13xxx Product Comparison

July 2002

DESCRIPTION

The S1D13xxx family of products offers operating system independent display solutions for embedded markets, such as Mobile Communications, Hand-Held PCs, Office Automation, and other embedded devices.

Support for the most popular RISC processors, in addition to all LCD panel types, provides the OEM with complete flexibility. EPSON innovative features such as EPSON Independent Simultaneous Display, SwivelView™, 2D Acceleration, "Picture-In-Picture Plus", integrated USB Client, Digital Camera Interface, and Power Saving technology combine to provide an ideal display solution for a wide variety of applications.

FEATURES

	S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05		S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05																						
Memory Interface												CPU Interface																																	
16-bit EDO-DRAM or FPM-DRAM												CPU Write Buffer	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√														
• 512k byte	√	√	√	-	-	-	-	-	-	-	-	CPU Interfaces																																	
• 2M byte	√	√	√	-	-	-	-	-	-	-	-	• Epson S1C33	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√														
Embedded SRAM												• Hitachi SH-3	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√														
• 40k byte	-	-	-	√	-	-	-	-	-	-	-	• Hitachi SH-4	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√												
• 80k byte	-	-	-	-	√	√	√	-	-	-	-	• MIPS/ISA	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√											
• 112k byte	-	-	-	-	-	-	-	-	-	√	-	• Motorola Dragonball	√	√	√	√ ³	√ ³	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√										
• 160k byte	-	-	-	-	-	-	-	-	-	-	√	• Motorola MC68000	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√						
• 256k byte	-	-	-	-	-	-	-	-	-	-	√	• Motorola MC68030	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√					
Embedded SDRAM												• Motorola PowerPC MPC82x	-	√	√	√ ³	√ ³	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√						
• 1280k byte	-	-	-	-	-	-	-	√	-	-	-	• Motorola REDCAP2	-	-	-	-	-	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√						
Display Support												• MPU with programmable READY	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
4/8-bit monochrome passive LCD	√	√	√	√	√	√	√	√	√	√	√	• MPU with no READY	-	-	-	-	-	√	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√								
4/8/16-bit color passive LCD	√	√	√	√	√	√	√	√	√	√	√	• NEC MIPS VR41xx	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√						
9/12/18-bit active matrix TFT/D-TFD	√	√	√	√ ¹	√ ¹	√	√	√	√	√	√	• PC Card	-	√	√	-	-	√ ³	√ ³	√	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³							
2x9/2x12 active matrix TFT/D-TFD	-	-	-	-	-	-	-	√	-	-	-	• Philips MIPS PR31500/PR31700	√	√	√	√ ³	√ ³	√ ³	√ ³	√ ³	√	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³					
18-bit 'Direct' HR-TFT	-	-	-	-	√	√	-	√	√	√	√	• StrongARM (PC Card)	-	√	√	-	-	√ ³	√ ³	√	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³					
18-bit 'Direct' D-TFD	-	-	-	-	√	√	-	-	-	-	-	• Toshiba TX39xx	√	√	√	√ ³	√ ³	√ ³	√ ³	√	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³	√ ³				
CRT	√ ²	√	√	-	-	-	√	-	-	-	-	Display Modes																																	
TV (NTSC and PAL)	-	-	√	-	-	-	√	-	-	-	-	Up to 16 gray shades on mono passive panels	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√				
Single-panel, single drive passive	√	√	√	√	√	√	√	√	√	√	√	Up to 64 gray shades on mono passive panels ³	-	-	√	-	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√					
Dual-panel, dual drive passive	√	√	√	√	-	-	√	-	-	-	-	Up to 256 colors on color passive panels	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√				
Example Resolutions												Up to 4096 colors on color passive panels	√	√	√	-	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Max. color depth at 160x160 (bpp)	16	16	16	8	8	16	16	16	16	16	16	Up to 64k colors on color passive panels ⁴	-	-	√	-	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√					
Max. color depth at 160x160 (2 pages) (bpp)	16	16	16	4	8	8	8	16	16	16	16	Up to 256 colors on TFT/D-TFD panels	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		
Max. color depth at 240x160 (bpp)	16	16	16	8	8	16	16	16	16	16	16	Up to 64k colors on TFT/D-TFD panels	√	√	√	-	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Max. color depth at 320x240 (bpp)	16	16	16	4	8	8	8	16	8	16	16	Up to 64k colors on D-TFD panels	-	-	-	-	-	√	√	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Max. color depth at 320x320 (bpp)	16	16	16	2	4	4	4	16	8	8	16	Up to 64k colors on HR-TFT panels	-	-	-	-	-	√	√	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Max. color depth at 640x240 (bpp)	16	16	16	2	4	4	4	16	4	8	8																																		
Max. color depth at 640x480 (bpp)	16	16	16	1	2	2	2	16	2	4	4																																		
Max. color depth at 800x600 (bpp)	16	16	16	-	-	1	1	16	1	2	4																																		
Max. color depth at 1024x768 (bpp)	-	-	-	-	-	-	-	8	-	-	2																																		

¹ S1D13704/S1D13705 9/12-bit only

² S1D13504 with external RAMDAC

³ Interface requires external logic

⁴ Using dithering



S1D13xxx Features

	S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05		S1D13504	S1D13505	S1D13506	S1D13704	S1D13705	S1D13706	S1D13708	S1D13806	S1D13A03	S1D13A04	S1D13A05	
Display Features												Miscellaneous												
2D BitBLT Engine	-	-	√	-	-	-	-	√	√	√	√	General Purpose IO Pins	√	√	√	√	√	√	√	√	√	√	√	√
Double Buffering/Multi-pages	√	√	√	√	√	√	√	√	√	√	√	USB Client, revision 1.1 compliant	-	-	-	-	-	-	-	-	-	√	√	√
Epson Independent Simultaneous Display	-	-	√	-	-	-	-	√	-	-	-	MediaPlug digital video camera interface	-	-	√	-	-	-	-	√	-	-	-	-
Hardware Cursor	-	√	√	-	-	-	-	√	-	-	-	Power Saving												
Ink Layer	-	√	√	-	-	-	√	√	-	-	-	• Software Initiated Power Save Mode	√	√	√	√	√	√	√	√	√	√	√	√
Picture-In-Picture Plus	-	-	-	-	√	√	-	√	√	√	√	• Hardware Power Save Mode	√	√	-	√	√	-	-	-	-	-	-	-
Pixel Doubling	-	-	-	-	-	-	-	-	√	√	√	Operating System Independent	√	√	√	√	√	√	√	√	√	√	√	√
Simultaneous Display on LCD and CRT	√	√	-	-	-	-	-	-	-	-	-	Operating Voltage												
Split Screen Support	√	√	-	√	√	√ ⁵	√ ⁵	-	√ ⁵	√ ⁵	√ ⁵	• from 2.7 volts to 5.5 volts	√	√	√	√ ⁶	√ ⁶	-	-	-	-	-	-	
SwivelView™												• from 3.0 volts to 3.6 volts	-	-	-	-	-	√ ⁷	√ ⁸	√ ⁸	√ ⁸	√ ⁸	√ ⁸	
• SwivelView 90° rotation	-	√	√	-	-	√	√	√	√	√	√	Package Size												
• SwivelView 180° rotation	-	-	√	-	-	√	√	√	√	√	√	• 80-pin QFP14	-	-	-	√	√	-	-	-	-	-	-	
• SwivelView 270° rotation	-	-	√	√	√	√	√	√	√	√	√	• 100-pin TQFP15	-	-	-	-	-	√	-	-	-	-	-	
Video Invert	-	-	-	√	√	√	√	-	√	√	√	• 104-pin CFLGA	-	-	-	-	-	√	-	-	-	-	-	
Virtual Display Support	√	√	√	√	√	-	-	√	-	-	-	• 120-pin PFBGA	-	-	-	-	-	-	√	-	-	-	-	
												• 121-pin PFBGA	-	-	-	-	-	-	-	√	√	√	√	
												• 128-pin QFP15	√	√	√	-	-	-	-	-	-	-	-	
												• 128-pin TQFP15	√	-	-	-	-	-	-	-	-	√	-	
												• 144-pin QFP20	√	-	-	-	-	-	-	-	-	-	-	
												• 220-pin PFBGA	√	-	-	-	-	-	√	-	-	-	-	

⁵ Using Picture-In-Picture Plus

⁶ Core voltage from 2.7 to 3.6V

⁷ Core voltage is 1.8V ± 10%

⁸ Core voltage is 2.0V ± 10% or 2.5V ± 10%

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