

**wiseview™** is the new vision of TFT-LCD



**wise  
view™**

**SAMSUNG TFT-LCD**



Notebook



LCD Monitor



Mobile Phone



LCD TV

**SAMSUNG DIGITall**  
everyone's invited™



**wise  
view™**

**SAMSUNG TFT-LCD**



# Better Vision through SAMSUNG TFT-LCD "wiseview™"

People using Portable PC or TFT-LCD Monitor would like to know the source(company) of TFT-LCD Module as it becomes one of the core components in both Portable PC and TFT-LCD Monitor.

We, SAMSUNG, as a No.1 supplier are willing to reveal our name to end-users of TFT-LCD in the world. SAMSUNG's TFT-LCD Brand Logo "Wiseview™" would be together with Intel's Micro Processor, Microsoft's O/S in the portable PC applications, and TCO99 certification in the TFT-LCD Monitor applications.

The meaning of "wiseview™" is

- W** orldbest product as the best selling in the world
- i** ntelligent circuit design with state-of-the-art technologies
- S** lim & Simple mechanical structure for easy design-in
- e** ye-catcher with best visual qualities.

It is also SAMSUNG's promise to provide best product and best service to our customers.



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# PVA Technology

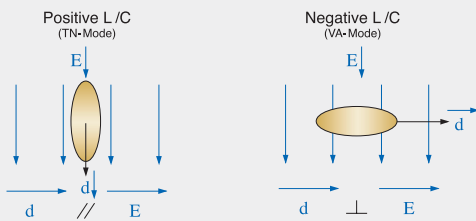


- Fast Response for Moving Picture
- Accurate Color Performance
- Ultra-High Contrast Ratio
- Wide Viewing Angle Performance

## What is PVA Mode? (Plus Viewing Angle) ● ● ●

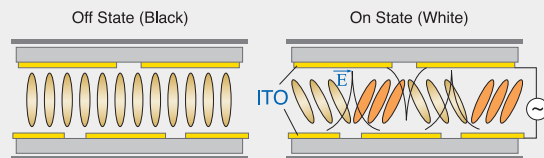
### ■ Higher Transmittance than other W/A technologies

- 20% higher than S-IPS means 20% brighter screen
- 72% color gamut, s-RGB color, gray level linearity



### ■ Rubbing-less Process

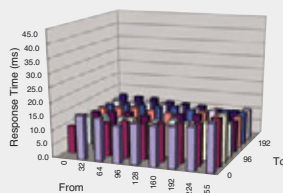
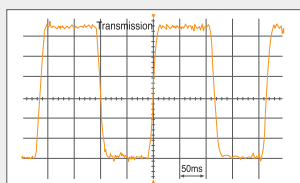
- Vertical Alignment without rubbing process
  - : Easy orientation control than IPS
- Wider process margin
  - : Less mura defects related to LC orientation



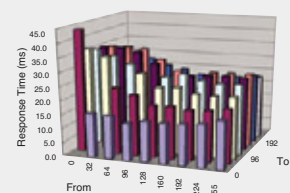
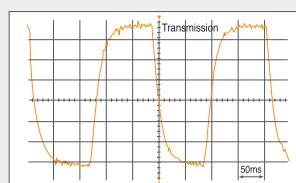
## Fast Response for Moving Picture (DCC Driving) ● ● ●



with DCC



without DCC



► DCC : Dynamic Capacitance Compensation.

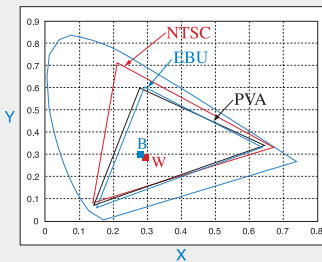
## Accurate Color Performance ●●●

### ■ Supporting for 100% EBU Color Space

- 72% color gamut with EBU color standard
- Precise color balance among RGB
- True black performance & Paper-like white color
- Apply to all of Samsung LCD-TV products as a Standard

### ■ ACC (Accurate Color Capture) Technology is Applied

- Constant Color temperature with Gray Levels
- Compatible s-RGB feature



ACC ON



ACC OFF

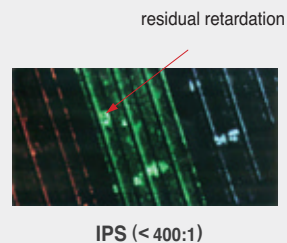
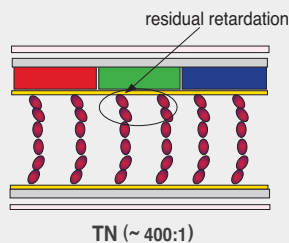
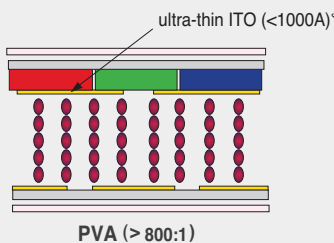
## Ultra-High Contrast Ratio ●●●

### ■ Flat surface geometry

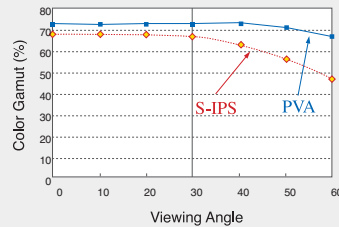
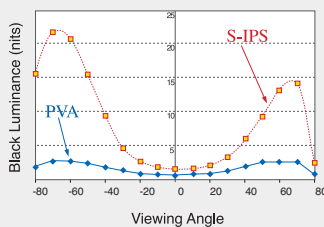
- Ultra-thin patterned ITO, No protrusions (vs. MVA)
- Perfect vertical alignment without pretilt
- No local LC disorientation

### ■ Extremely high contrast (>800:1)

- VA mode : No residual retardation in black state
- Column spacer technology : No light leakage near spacer



## Wide viewing Angle Performance ●●●



# Monitor Application



*With continuous and intensive investment on R&D for next generation products, Samsung has been preparing to meet customers' various and sophisticated needs.*

*With Samsung's advanced wide viewing, lower power consumption and EMI free technology, Samsung TFT-LCD will guarantee sharper, brighter, and more vivid graphic image for its high-end LCD monitor, professional workstation, LCD TV, Multi-Media monitor applications.*

Features	Model	15"		17"		
		LTM150XH	LTM150XO	LTM170E6	LTM170E8	LTM170EX
Resolution		XGA	XGA	SXGA	SXGA	SXGA
Aspect Ratio		4 : 3	4 : 3	5 : 4	5 : 4	5 : 4
Number of Pixels		1,024 × 768	1,024 × 768	1,280 × 1,024	1,280 × 1,024	1,280 × 1,024
Active Area (mm)		304.1 × 228.1	304.1 × 228.1	337.9 × 270.3	337.9 × 270.3	337.9 × 270.3
Pixel Pitch (mm)		0.297	0.297	0.264	0.264	0.264
Mode		TN	TN	PVA	PVA	TN
Number of Colors		16.2M	16.2M	16.7M	16.7M	16.2M
Contrast Ratio		300 : 1	450 : 1	600 : 1	1000 : 1	500 : 1
Brightness (cd/m <sup>2</sup> )		250 / 300	250	250	250	270
Response Time (at 25 °C)		< 25 ms	< 16 ms	< 25 ms	< 20 ms	< 13ms
Color Gamut		65%	60%	71%	71%	71%
Viewing Angle (U/D/L/R)		65 / 65 / 50 / 60	50 / 60 / 65 / 65	89 / 89 / 89 / 89	89 / 89 / 89 / 89	75 / 60 / 75 / 75
Interface		LVDS / TTL	LVDS	LVDS 2Ch	LVDS 2Ch	LVDS 2Ch
Supply Voltage (V)		3.3	3.3	5	5	5
Backlight		4 CCFL	2 CCFL	4 CCFL	4 CCFL	4 CCFL
Outline Dimension (mm)		331.6 × 254.8 × 12.5	326.5 × 253.5 × 12.0	358.5 × 296.5 × 17.5	354.9 × 290.3 × 13.3	354.9 × 290.3 × 13.3
Weight (g)		1,350	1,150	2,100	1,700	1,700
Production		Now	1Q. '04	Now	Now	Now



●LTM190E1



LTM240W1

	19.0"		20.1"	21.3"	24"
LTM170EU (BTN)	LTM190E1	LTM190E4	LTM201U1	LTM213U4	LTM240W1
SXGA	SXGA	SXGA	UXGA	UXGA	Wide UXGA
5 : 4	5 : 4	5 : 4	4 : 3	4 : 3	16 : 10
1,280 × 1,024	1,280 × 1,024	1,280 × 1,024	1,600 × 1,200	1,600 × 1,200	1,920 × 1,200
337.9 × 270.3	376.3 × 301.1	376.3 × 301.1	408.0 × 306.0	432.0 × 324.0	518.4 × 324.0
0.264	0.294	0.294	0.256	0.270	0.270
TN	PVA	PVA	PVA	PVA	PVA
16.2M	16.7M	16.7M	16.7M	16.7M	16.7M
500 : 1	500 : 1	1000 : 1	700 : 1	600 : 1	500 : 1
300	250	250	300	250	270
< 13ms	< 25ms	< 20ms	< 16ms	< 25ms	< 30ms
71%	71%	71%	72%	71%	71%
75 / 60 / 75 / 75	85 / 85 / 85 / 85	89 / 89 / 89 / 89	89 / 89 / 89 / 89	89 / 89 / 89 / 89	85 / 85 / 85 / 85
LVDS 2Ch	LVDS 2Ch	LVDS 2Ch	LVDS 2Ch	LVDS 2Ch	LVDS 2Ch
5	5	5	5	5	5
4 CCFL	4 CCFL	4 CCFL	6 CCFL	6 CCFL	6 CCFL
358.5 × 296.5 × 17.5	404.2 × 330.0 × 20.0	396.0 × 324.0 × 17.8	432.0 × 331.4 × 25.0	462.0 × 361.0 × 25.0	569.1 × 368.4 × 32.0
2,100	2,700	2,650	3,200	3,950	5,650
Now	Now	Now	3Q. '04	Now	Now

# Note PC (Standard) Application



*By meeting demand for further portability, Samsung has been maintaining #1 position for a long time in terms of volume and technology. Standard products such as 12.1", 14.1", 15.0" (4:3 aspect ratio) are most suitable for mobile environment. Apparently, Samsung's leading technologies are creating wider gap with its competitors and satisfying market needs for lighter, slimmer and brighter. For visualized and mobile world, Samsung will consistently make an effort to develop more innovative and reliable products.*

Features	Model	12.1"	14.1"		
		LTN121XJ	LTN141XJ	*LTN141XA	*LTN141XB
Resolution		XGA	XGA	XGA	XGA
Aspect Ratio		4 : 3	4 : 3	4 : 3	4 : 3
Number of Pixels		1,024 × 768	1,024 × 768	1,024 × 768	1,024 × 768
Active Area (mm)		245.8 × 184.3	285.7 × 214.3	285.7 × 214.3	285.7 × 214.3
Pixel Pitch (mm)		0.240	0.279	0.279	0.279
Number of Colors		262K	262K	262K	262K
Contrast Ratio		250 : 1	250 : 1	250 : 1	300 : 1
Brightness (cd/m <sup>2</sup> )		150	160	150	175
Response Time (at 25° C)		45 ms	45 ms	45 ms	25 ms
Viewing Angle (U/D/L/R)		20 / 40 / 45 / 45	20 / 40 / 45 / 45	15 / 30 / 45 / 45	20 / 40 / 45 / 45
Interface		LVDS (1ch)	LVDS (1ch)	LVDS (1ch)	LVDS (1ch)
Supply Voltage (V)		3.3	3.3	3.3	3.3
Backlight		1 CCFL	1 CCFL	1 CCFL	1 CCFL
Outline Dimension (mm)		261.0 × 199.0 × 4.7	298.5 × 226.5 × 5.2	299.0 × 228.0 × 5.2	299.0 × 228.0 × 5.2
Weight (g)		270	390	400	420
Production		Now	Now	Now	Now





●LTN141XB



●LTN141XA

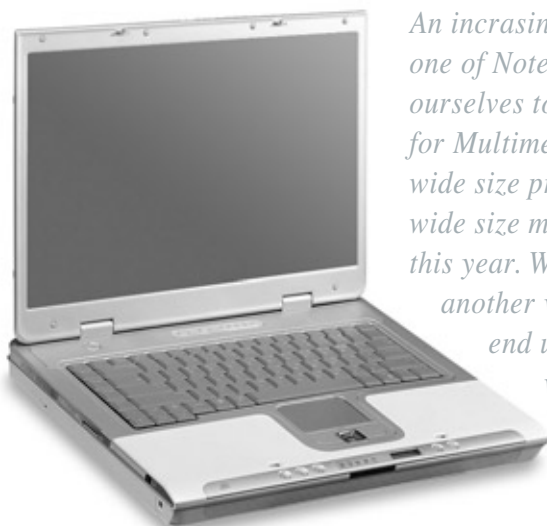


●LTN150U4

15.0"

*LTN141P4	*LTN150XN	*LTN150XC	*LTN150XG	*LTN150PG	*LTN150U4
SXGA+	XGA	XGA	XGA	SXGA+	UXGA
4 : 3	4 : 3	4 : 3	4 : 3	4 : 3	4 : 3
1,400 × 1,050	1,024 × 768	1,024 × 768	1,024 × 768	1,400 × 1,050	1,600 × 1,200
285.7 × 214.3	304.1 × 228.0	304.1 × 228.0	304.1 × 228.0	304.5 × 228.4	304.0 × 228.0
0.204	0.297	0.297	0.297	0.218	0.190
262K	262K	262K	262K	262K	262K
300 : 1	400 : 1	300 : 1	300 : 1	300 : 1	300 : 1
175	320	220	180	180	180
25 ms	25 ms	25 ms	25 ms	25 ms	25 ms
20 / 40 / 45 / 45	65 / 65 / 55 / 65	15 / 30 / 45 / 45	20 / 40 / 45 / 45	45 / 45 / 60 / 60	45 / 45 / 60 / 60
LVDS (2ch)	LVDS (1ch)	LVDS (1ch)	LVDS (1ch)	LVDS (2ch)	LVDS (2ch)
3.3	3.3	3.3	3.3	3.3	3.3
1 CCFL	2 CCFL	1 CCFL	1 CCFL	1 CCFL	1 CCFL
299.0 × 228.0 × 5.2	317.8 × 242.6 × 10.0	317.8 × 242.5 × 6.0	317.8 × 242.5 × 6.5	317.8 × 242.5 × 6.5	317.8 × 242.5 × 6.5
420	835	550	585	600	600
Now	2Q. '04	Now	Now	Now	Now

# Note PC (Wide) Application



*An increasing demand for Multimedia and desktop replacement is one of Notebook market trends in 2004. We have been devoting ourselves to meeting these demands and developing right products for Multimedia and desktop replacement. Our proudly represented wide size products such as 14.0" W, 15.4" W and 17.0" W are shaping wide size market which will be taking 30~40% Market share within this year. We are confident that our wide size products will create another value for our customers by giving a chance to attract end users. Our leading technologies for wide notebook are well prepared for growing market demand and continue to strengthen our #1 position.*

Features	Model	14.0"	15.4"	
		LTN140W	LTN154X1	LTN154P1
Resolution		WXGA	WXGA	WSXGA+
Aspect Ratio		15 : 9	16 : 10	16 : 10
Number of Pixels		1,280 × 768	1,280 × 800	1,680 × 1,050
Active Area (mm)		305.3 × 183.2	331.2 × 207.0	331.2 × 207.0
Pixel Pitch (mm)		0.238	0.259	0.197
Number of Colors		262K	262K	262K
Contrast Ratio		300 : 1	300 : 1	300 : 1
Brightness (cd/m <sup>2</sup> )		185	185	185
Response Time (at 25° C)		25 ms	35 ms	35 ms
Viewing Angle (U/D/L/R)		15 / 30 / 45 / 45	50 / 50 / 65 / 65	50 / 50 / 65 / 65
Interface		LVDS (1ch)	LVDS (1ch)	LVDS (2ch)
Supply Voltage (V)		3.3	3.3	3.3
Backlight		1 CCFL	1 CCFL	1 CCFL
Outline Dimension (mm)		317.3 × 199.0 × 5.2	344.5 × 222.5 × 6.5	344.5 × 222.5 × 6.5
Weight (g)		400	585	610
Production		2Q. '04	Now	Now



LTN170WA



LTN154PI

17.0"			
LTN154U1	LTN170WA	LTN170WX	LTN170WP
WUXGA	WXGA+	WXGA+	WSXGA
16 : 10	16 : 10	16 : 10	16 : 10
1,920 × 1,200	1,440 × 900	1,440 × 900	1,680 × 1,050
331.2 × 207.0	367.2 × 229.5	367.2 × 229.5	365.4 × 228.3
0.173	0.255	0.255	0.218
262K	262K	262K	262K
300 : 1	300 : 1	350 : 1	500 : 1
175	170	170	160
35 ms	31 ms	31 ms	25 ms
50 / 50 / 65 / 65	45 / 50 / 60 / 60	45 / 50 / 60 / 60	80 / 80 / 80 / 80
LVDS (2ch)	LVDS (2ch)	LVDS (2ch)	LVDS (2ch)
3.3	3.3	3.3	3.3
1 CCFL	1 CCFL	1 CCFL	1 CCFL
344.5 × 222.5 × 6.5	382.2 × 244.5 × 6.2	382.2 × 244.5 × 6.7	382.2 × 244.5 × 6.8
635	750	800	800
Now	2Q. '04	2Q. '04	2Q. '04

# LCD-TV Application



*With its world first 40" WXGA development, Samsung plans to offer a variety of TFT-LCDs for TVs, including 15", 17" and over 20" models. Samsung has also greatly improved the viewing angle, brightness and response time for TV application. We'll maintain the top share of the world market for LCD-TV in the future. Everyone will enjoy the Digital Broadcasting for HDTV with Samsung's LCD-TV panel.*

	15"	17"			19"	20"	23"
Features \ Model	LTM150XH-L06	LTM170W1	LTA170WP	LTA170W2	LTA190W1	LTA200V1	LTA230W1
Resolution	XGA	Wide XGA	Wide XGA	Wide XGA	Wide XGA	VGA	Wide XGA
Aspect Ratio	4 : 3	15 : 9	15 : 9	15 : 9	15 : 9	4 : 3	16 : 9
Number of Pixels	1,024 × 768	1,280 × 768	1,280 × 768	1,280 × 768	1,280 × 768	640 × 480	1,366 × 768
Pixel Pitch (mm)	0.297	0.289	0.289	0.290	0.323	0.635	0.381
Active Area (mm)	304.0 × 228.0	370.6 × 222.3	370.6 × 222.3	370.6 × 222.3	412.8 × 247.7	406.1 × 304.6	508.2 × 285.7
Mode	TN	TN	PVA	PVA	PVA	PVA	PVA
Number of Colors	16 M	16 M	16 M	16.7 M	16.7 M	16.2 M	16.7 M
Color Gamut	65%	65%	70%	72%	72%	72%	72%
Contrast Ratio	400 : 1	450 : 1	600 : 1	800 : 1	800 : 1	600 : 1	800 : 1
Brightness (cd/m <sup>2</sup> )	450	450	450	450	500	500	500
Response Time (at 25 °C)	< 25 ms	< 25 ms	< 25 ms	8 ms	8 ms	< 25 ms	8 ms
Viewing Angle (U/D/L/R)	60 / 50 / 65 / 65	65 / 55 / 70 / 70	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85
Interface	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS
Supply Voltage (V)	3.3	3.3	5	5	5	5	5
Backlight	4 CCFL	4 CCFL	8 CCFL	4 CCFL (U-Lamp)	6 CCFL (U-Lamp)	12 CCFL	6 CCFL (U-Lamp)
Outline Dimension (mm)	331.6 × 255.5 × 12.5	404.0 × 258.0 × 16.2	401.7 × 249.0 × 26.5	400.0 × 254.0 × 28.0	448.0 × 282.0 × 23.0	444.0 × 344.5 × 43.5	546.0 × 320.0 × 25.5
Weight (g)	1,350	1,800	1,300	TBD	TBD	3,200	3,000
Production	Now	Now	Now	2Q. '04	3Q. '04	2Q. '04	2Q. '04





LTA460H1-L01



LTA320W1



LTA260W1

26"		32"		40"		42"	46"
LTA260W1	LTA260W2	LTA320W1	LTA320W2	LTA400W1	LTA400W2	LTA420W1	LTA460H1-L01
Wide XGA	Wide XGA	Wide XGA	Wide XGA	Wide XGA	Wide XGA	Wide XGA	Wide UXGA
15 : 9	16 : 9	15 : 9	16 : 9	15 : 9	16 : 9	16 : 9	16 : 9
1,280 × 768	1,366 × 768	1,280 × 768	1,366 × 768	1,280 × 768	1,366 × 768	1,366 × 768	1,920 × 1,080
0.443	0.443	0.537	0.510	0.681	0.648	0.681	0.530
566.4 × 339.8	575.8 × 323.7	687.4 × 412.4	676.6 × 392.2	871.7 × 523.0	885.2 × 497.7	930.0 × 523.0	1,018.1 × 572.7
PVA	PVA	PVA	PVA	PVA	PVA	PVA	PVA
16.7 M	16.7 M	16.7 M	16.7 M	16.7 M	16.7 M	16.7 M	16.7 M
72%	72%	72%	72%	72%	72%	72%	72%
500 : 1	800 : 1	500 : 1	700 : 1	500 : 1	1,000 : 1	800 : 1	600 : 1
450	500	450	450	450	500	450	450
< 16 ms	8 ms	< 16 ms	8 ms	< 16 ms	8 ms	12 ms	8 ms
85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85	85 / 85 / 85 / 85
LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	LVDS	2 ch LVDS
5	5	5	5	5	5	5	5
16 CCFL	8 CCFL (U-Lamp)	16 CCFL	16 CCFL	20 CCFL	20 CCFL	20 CCFL	40 CCFL
627.0 × 389.0 × 49.0	626.0 × 373.0 × 51.0	745.0 × 462.0 × 53.0	760.0 × 450.0 × 50.0	933.0 × 576.0 × 53.0	952.0 × 557.0 × 46.0	992.0 × 578.0 × 45.0	1,083.0 × 627.0 × 54.0
8,000	6,500	11,500	10,500	17,000	17,000	14,500	17,000
Now	2Q. '04	Now	2Q. '04	Now	3Q. '04	Now	Now

# Mobile Application



*Starting with 2.04" TFT-LCD development, which supports Internet and moving picture contents for mobile phone, Samsung is trying to bring various types of small and medium TFT-LCDs ranging from 0.99" to 10.4" into the market. Now, advanced Small & medium TFT-LCD visual display from Samsung is used for PDA applications, Internet Appliances, Gaming devices, and others. You can expect the reliability, clarity and quality from Samsung Small & medium TFT-LCDs.*

Features	Model	1.6"	1.7"	1.8"		1.9"	2.0"	
		LTS160Q1-SF1	LTS170S1-HF1	LTS180S7-HF1	LTS180S3-HF1	LTS190Q1-HE1	LTS200S2-HF1	LTS200Q2-HF1
Resolution (Pixels)		492 × 240 (RGB Delta)	128 × 144	128 × 160	128 × 160	176 × 220 (QCIF+)	128 × 160	176 × 220 (QCIF+)
Display Mode		TMR	TMR	TMR	TMR	Transflective	TMR	TMR
Display Colors		262K	65K	4,096	65K	262K	262K / 65K	262K / 65K
Interface		6 bit RGB	8 bit CPU	8 bit CPU	16 bit CPU	9/16/18 bit CPU	9 / 16 bit CPU	8 / 16 / 18 bit RGB / CPU
Brightness (cd/m <sup>2</sup> )		220	150	180	150	180	170	170
Contrast Ratio		150 : 1	200 : 1	300 : 1	200 : 1	250 : 1	200 : 1	300 : 1
Reflectance (%)		2	2	2	2	9	2	2
Panel Power Consumption (mW)		TBD	10	10	10	10	10	10
B/L Unit Power Consumption (mW)		90	150	150	150	200	150	200
Light Source		2 LEDs	3 LEDs	3 LEDs	3 LEDs	4 LEDs	3 LEDs	4 LEDs
Active Area (mm × mm)		32.3 × 24.5	28.0 × 31.5	28.0 × 35.0	28.0 × 35.0	30.1 × 37.6	32.2 × 40.3	31.7 × 39.6
Module Outline Area (mm × mm)		41.2 × 36.9	34.0 × 43.2	33.9 × 48.2	33.9 × 46.7	36.1 × 49.5	38.2 × 52.9	38.5 × 52.8
Thickness (mm)		2.7	3.0	3.1	3.0	3.4	3.3	3.1
Mass Production Status		2Q. '04	Now	Now	Now	3Q. '04	Now	2Q. '04
Main Application		Digital Still Camera	Mobile Phone	Mobile Phone	Mobile Phone	Mobile Phone	Mobile Phone	Mobile Phone

▶ TMR: Transmissive with Micro Reflectance

▶ The specifications represents the main model of each product and are subject to change without prior notice



●3.5" Transflective



●2.2" Transflective

	2.12"	2.22"	2.8"	3.5"	5.0"	7.0"	10.0"(15.9)	10.4"(4.3)
LTS200Q4-HC1	LTS212Q1-HF1	LTS222Q1-HF1	LTS280Q1-PE1	LTS350Q2-PE2	LTS500Q1-GF3	LTS700W1-CF2	LTA100W1-T02	LTA104S1-L01
240 × 320 (QVGA)	176 × 208 (Symbian OS)	240 × 320 (QVGA)	240 × 320 (QVGA)	240 × 320 (QVGA)	320 × 240 (QVGA)	480 × 234 (WQVGA)	800 × 480 (WVGA)	800 × 600 (SVGA)
TMR	TMR	TMR	Transflective	Transflective	Transmissive	Transmissive	Transmissive	Transmissive
262K	65K	262K	262K	262K	262K	262K	262K	262K
6 bit RGB, 8 bit CPU	16 bit RGB	16/18 bit RGB, 9/16/18 bit CPU	18 bit RGB	18 bit RGB	Analog RGB	Analog RGB+TTL	TTL	LVDS
150	150	180	150 (w/o TSP) / 120 (w TSP)	70 (w TSP)	400	450	350	350
250 : 1	200 : 1	250 : 1	150:1 (BL on) / 6:1 (BL off)	60:1 (BL on) / 8:1 (BL off)	200 : 1	150 : 1	300 : 1	200 : 1
2	2	2	7	7	-	-	-	-
10	10	15	40	40	300	3,700	1,000	1,000
150	150	200	300	360	2,400	-	4,100	6,000
3 LEDs	3 LEDs	4 LEDs	6 LEDs	6 LEDs	1 CCFL	1 CCFL	1 CCFL	2 CCFL
30.6 × 40.8	34.8 × 41.2	33.8 × 45.1	43.2 × 57.6	53.6 × 71.5	101.8 × 76.4	154.1 × 86.6	217.2 × 130.3	211.2 × 158.4
37.0 × 53.1	41.1 × 54.1	42.2 × 58.0	52.9 × 71.7	64.3 × 57.1	130.4 × 93.9	166.0 × 100.0	235.0 × 145.8	226.0 × 177.8
2.9	4.5	3.2	4.2 (w/o TSP), 4.8 (w TSP)	4.3 (w TSP)	7.1	6.6	6.3	10.5
2Q. '04	2Q. '04	2Q. '04	2Q. '04	Now	Now	2Q. '04	Now	Now
Mobile Phone	Mobile Phone	Mobile Phone	Smart Phone	PDA	AV	AV	AV	AV

# Mobile (Dual) Application



*As sub display of mobile phone becomes an industry standard, TFT-LCD for sub display is getting popular with its brightness and vividness.*

*With Samsung dual TFT-LCD, you can better enjoy caller's ID photo service, viewfinder for camera phone and decorating sub display with colorful and vivid pictures.*

*In addition, powerful Samsung dual TFT-LCD will inspire you with creative solutions.*

	1.52"	0.99"	1.8"	1.17"	1.9"	1.06"
Model	LTS152SA-H1G		LTS180SH-H1I		LTS190QA-H1F	
Resolution (Pixels)	128 × 128	96 × 64	128 × 160	96 × 96	176 × 220	128 × 96
Display Mode	TMR	TMR	TMR	TMR	TMR	TMR
Display Colors	262K / 65k	262K / 65k	262K / 65k	262K / 65k	262K	65K
Interface	8 / 9 / 16 bit CPU (1 chip)		8 / 9 / 16 bit CPU (1 chip)		9 bit CPU	8 bit CPU
Brightness (cd/m <sup>2</sup> )	150	100	150	100	150	80
Contrast Ratio	200 : 1	100 : 1	200 : 1	100 : 1	200 : 1	100 : 1
Reflectance (%)	2	2	2	2	2	7
Panel Power Consumption (mW)	10	5	10	5	12	6
B/L Unit Power Consumption (mW)	150		150		200	
Light Source	3 LEDs		3 LEDs		4 LEDs	
Active Area (mm × mm)	27.3 × 27.3	21.0 × 14.0	28.0 × 35.0	21.0 × 21.0	30.1 × 37.6	21.5 × 16.1
Module Outline Area (mm × mm)	33.4 × 42.0		33.4 × 47.9		36.1 × 62.7	
Thickness (mm)	4.9		4.6		4.1	
Mass Production Status	1Q. '04		Now		2Q. '04	
Main Application	Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone	

▶ TMR: Transmissive with Micro Reflectance

▶ The specifications represents the main model of each product and are subject to change without prior notice





●1.8"+1.17" Dual

●1.52"+0.99" Dual

2.0"		1.17"		2.2"		1.2"		2.22"		1.06"	
LTS200QC-H1L		LTS220QA-H1N		LTS220QA-H1N		LTS220QA-H1N		LTS222QB-H1S		LTS222QB-H1S	
176 × 220	96 × 96	176 × 220	128 × 96	176 × 220	128 × 96	240 × 320	128 × 96	240 × 320	128 × 96	240 × 320	128 × 96
TMR	Transflective	TMR	Transflective	TMR	Transflective	TMR	TMR	TMR	TMR	TMR	TMR
262K / 65k	262K / 65k	262K / 65K	262K / 65K	262K / 65K	262K / 65K	262K	65k	262K	65k	262K	65k
16 / 18 bit CPU (1 chip)		16 / 18 bit CPU (1 chip)		16 / 18 bit CPU (1 chip)		18 bit RGB		18 bit RGB		8 bit CPU	
150	100	150	100	150	100	150	80	150	80	150	80
250 : 1	100 : 1	250 : 1	100 : 1	250 : 1	100 : 1	200 : 1	100 : 1	200 : 1	100 : 1	200 : 1	100 : 1
2	7	2	7	2	7	2	2	2	2	2	2
10	5	10	5	10	5	45	10	45	10	45	10
250		200		200		250		250		250	
5 LEDs		4 LEDs		4 LEDs		5 LEDs		5 LEDs		5 LEDs	
31.7 × 39.6	21.0 × 21.0	33.8 × 45.1	24.2 × 18.1	33.8 × 45.1	24.2 × 18.1	33.8 × 45.1	21.5 × 16.1	33.8 × 45.1	21.5 × 16.1	33.8 × 45.1	21.5 × 16.1
37.9 × 51.2		41.5 × 56.1		41.5 × 56.1		40.7 × 57.4		40.7 × 57.4		40.7 × 57.4	
4.7		4.7		4.7		5.0		5.0		5.0	
1Q. '04		1Q. '04		1Q. '04		2Q. '04		2Q. '04		2Q. '04	
Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone		Clam-shell Type Mobile Phone	

Want to buy a mobile phone?  
Make sure it has a **wiseview™** TFTLCD panel.



When you're shopping for a cell phone, a lot of brand names come to mind. But before you go out and buy one, consider this - a mobile phone display is just like your television or computer monitor. And the most advanced display technology on the market is TFTLCD. So the first thing you should decide is which brand of TFTLCD to ask for. And the most advanced TFTLCD out there is Wiseview™.

### **Wiseview. A Wise Choice.**

Wiseview is a trademark owned by Samsung Electronics Co.Ltd. [www.samsungTFTLCD.com](http://www.samsungTFTLCD.com)



**SAMSUNG TFT-LCD**





Want to buy an LCD TV?  
Make sure it has a **wiseview™** TFTLCD panel



When you're shopping for a TV, a lot of brand names come to mind. But before you go out and buy one, consider this - a television is essentially a display panel, just like your computer monitor or cell phone screen. And the most advanced display technology on the market is TFTLCD. So the first thing you should decide is which brand of TFTLCD to ask for. And the most advanced TFTLCD out there is Wiseview™.

### **Wiseview. A Wise Choice.**

Wiseview is a trademark owned by Samsung Electronics Co.Ltd. [www.samsungTFTLCD.com](http://www.samsungTFTLCD.com)



**SAMSUNG TFTLCD**





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