☆New product

■ COLOR TFT-LCD MODULES

◆ **Features**

- High picture quality and high contrast thanks to the TFT active matrix drive system
- Compact module with a highly effective area ratio (active area/outline dimensions) using high-density packaging technology.
- Multi-system type, applicable to both the NTSC system and the PAL system (Note), is also available.

<AV I> <Advanced LCD> FULL COLOR [Dual Mode Transflective Display]

Display size (cm) [″]	Model No.	Input signal system	Number of pixels*1	Dot format H × V (dot)	Active area H × V (mm)	Overall dimensions*3 W × H × D (TYP.) (mm)	Back-light	Video interface (Input video signal)	Remarks
5 [2]	LQ020A8FR23	NTSC/PAL	41 066	560 × 220 (Delta)	40.6 × 30.5	52.1 × 42.85 × 2.2	–	External*2 (TFT specific analog RGB)	Transmissive/reflective mode selectable, high resolution

<AV II> For Portable TV/ Camcorder Monitor / Amusement equipment FULL COLOR

Display size (cm) [″]	Model No.	Input signal system	Number of pixels*1	Dot format H × V (dot)	Active area H × V (mm)	Overall dimensions*3 W × H × D (TYP.) (mm)	Back-light	Video interface (Input video signal)	Remarks
8.8 [3.5]	LQ035A3FR37	NTSC/PAL	61 600	840 × 220 (Delta)	72.2 × 50.4	85.0 × 63.3 × 2.2	—	External*2 (TFT specific analog RGB)	ACF-COG
14 [5.6]	LQ056A3CH01	NTSC	74 880	320 × RGB × 234 (Stripe)	114.2 × 83.5	140.0 × 102.7 × 17.0	Built-in	Composite	DC/AC converter is not built in, ACF-COG
	☆ LQ056A3AG01	NTSC/PAL				140.0 × 102.7 × 20.0		Built-in (Analog RGB)	All in one, wide viewing angle, long life backlight
16 [6.4]	LQ064V1DS11	Digital RGB	307 200	640 × RGB × 480 (Stripe)	130.6 × 97.0	178.8 × 126.8 × 12.0		6-bit digital	
18 [7]	☆ LQ070T3AG02	NTSC/PAL	112 320	480 × RGB × 234 (Stripe)	155.5 × 87.7	176.5 × 107.5 × 19.0		Built-in (Analog RGB)	All in one, wide viewing angle, wide screen, long life backlight

<AV III> Extended Temperature Range Type FULL COLOR

- Extended temperature range designed for versatile application.
- Operating temperature: –30 to +85 °C, Storage temperature: –30 to +85 °C
  (LQ064A5CG01, LQ095Y5DR01: Storage temperature: –40 to +95 °C)

(LQ038Q5DR01/LQ042B5DG01/LQ049B5DG01/LQ095Y5DR01: 262 144 colors)

Display size (cm) [″]	Model No.	Input signal system	Number of pixels*1	Dot format H × V (dot)	Active area H × V (mm)	Overall dimensions*3 W × H × D (TYP.) (mm)	Back-light	Video interface (Input video signal)	Remarks
9.8 [3.8]	LQ038Q5DR01	6-bit digital RGB	76 800	320 × RGB × 240	78.7 × 53.6	117.6 × 69.55 × 13.45	Built-in	6-bit digital	
10.7 [4.2]	☆ LQ042B5DG01		38 400	400 × RGB × 96	104.4 × 25.1	123.0 × 35.3 × 7.5			1DIN, high brightness, wide viewing angle
	☆ LQ042B5GR01	NTSC/PAL	48 000	320 × RGB × 150	96.0 × 45.0	114.0 × 60.0 × 14.1		External*2 (TFT specific analog RGB)	Aspect ratio 2:1, high brightness, wide viewing angle
12.5 [4.9]	LQ049B5DG01	6-bit digital RGB	30 720	320 × RGB × 96	120.0 × 36.0	142.0 × 54.0 × 13.0		6-bit digital	Center display for RV, high brightness, wide viewing angle
15 [5.8]	☆ LQ058T5GR03	NTSC/PAL	93 600	400 × RGB × 234	127.2 × 71.8	145.0 × 89.2 × 7.7		External*2 (TFT specific analog RGB)	Wide screen, low reflection, thin
16 [6.4]	LQ064A5CG01	NTSC	112 320	480 × RGB × 234 (Stripe)	129.6 × 97.6	153.0 × 122.0 × 21.0		Composite	Built-in DC/AC converter for backlight drive
16 [6.5]	LQ065T5GG02	NTSC/PAL			142.6 × 80.7	158.5 × 95.5 × 8.5		External*2 (TFT specific analog RGB)	Thin, ACF-COG, wide screen
	☆ LQ065T5GG03		93 600	400 × RGB × 234	143.4 × 79.3	157.2 × 89.7 × 13.5			High brightness, wide viewing angle, thin, lightweight, wide screen
	LQ065T9BR51		96 000	400 × RGB × 240	143.4 × 79.3	155.0 × 89.2 × 12.5		Built-in (TFT specific analog RGB)	Advanced TFT, switchable transmissive/ reflective type
18 [7]	LQ070T5GG02		112 320	480 × RGB × 234	154.1 × 87.0	169.5 × 103.1 × 13.6		External*2 (TFT specific analog RGB)	Wide screen, wide viewing angle
20 [8]	LQ080T5GG01				176.4 × 99.22	193.3 × 116.5 × 8.8			Wide screen, thin, narrow frame
24 [9.5]	☆ LQ095Y5DR01	6-bit digital RGB	384 000	800 × RGB × 480	206.4 × 123.8	229.0 × 149.0 × 13.9		6-bit digital	High resolution, high brightness, wide viewing angle, wide screen

(Note) MBK-PAL system is adopted as PAL. The LCD panel has 234 scanning lines, and displays a picture of 273 virtual scanning lines. (Video-signals are deleted for certain intervals)

COLOR TFT-LCD MODULE

☆New product

LQ020A8FR23

LQ035A3FR37

<OA> HR-TFT <Super Mobile LCD> for Personal Digital Assistant 262 144 colors

● Instead of the conventional backlight located behind the panel in transmissive-type LCDs used in notebook computers, the High-Reflection Thin-Film Transistor (HR-TFT) Super Mobile LCD uses reflected external light to achieve a clear display when subjected to direct sunlight. Therefore, it realizes a super-thin and lightweight design with substantially reduced power consumption.

Display size (cm) [″]	Model No.	Input signal system	Number of pixels*1	Dot format H × V (dot)	Active area H × V (mm)	Overall dimensions*3 W × H × D (TYP.) (mm)	Front light, touch panel	Video interface (Input video signal)	Remarks
8.9 [3.5]	☆ LQ035Q2DD54	6 bit digital RGB	76 800	240 × RGB × 320	53.6 × 71.5	68.0 × 85.0 × 5.0	Yes	External*2 (CMOS 6 bit)	<Super mobile LCD> HR-TFT, low power consumption, portrait type
9.8 [3.9]	LQ039Q2DS54			320 × RGB × 240 (Stripe)	79.2 × 58.3	104.5 × 79.6 × 6.45			Thin & lightweight, low power consumption, ACF-COG

<FA: High Brightness> for Measuring Instruments / Banking Terminals

Display size (cm) [″]	Model No.	Number of pixels*1	Dot format H × V (dot)	Active area H × V (mm)	Color	Overall dimensions*3 W × H × D (TYP.) (mm)	Backlight	Video interface (Input video signal)	Remarks
14.5 [5.7]	LQ057Q3DC02	76 800	320 × RGB × 240 (Stripe)	115.2 × 86.4	262 144	144.0 × 104.6 × 13.0	Built-in	CMOS (6 bit)	High brightness, wide viewing angle, long life backlight, for FA / POS / ATM / instrumentation / medical equipment
16 [6.4]	LQ64D343	307 200	640 × RGB × 480 (Stripe)	130.6 × 97.0		175.0 × 126.5 × 12.0			High brightness, wide viewing angle, long life backlight
21 [8.4]	LQ084V1DG21			170.9 × 129.6		216.0 × 152.4 × 12.0			High brightness, wide viewing angle, long life backlight, size with 7-inch rack, for FA/POS/ATM
26 [10.4]	☆ LQ104V1DG51			211.2 × 158.4		246.5 × 179.4 × 15.0		CMOS (6 bit digital)	Shrink model, high brightness, long life backlight, easily replaceable B/L
	LQ104V1DG11					265.0 × 195.0 × 11.0		CMOS (6 bit)	High brightness, wide viewing angle, long life backlight, easily replaceable B/L
	LQ10D368					246.5 × 179.4 × 10.5			High brightness, wide viewing angle, long life backlight
31 [12.1]	LQ121S1DG11	480 000	800 × RGB × 600 (Stripe)	246.0 × 184.5		290.0 × 225.0 × 13.2 (MAX.)			For indoor use*4, High brightness, wide viewing angle, long life backlight, easily replaceable B/L
	LQ121S1DG31					276.0 × 209.0 × 14.0 (MAX.)			For indoor use*4, Shrink model, high brightness, wide viewing angle, long life backlight, easily replaceable B/L
38 [15.0]	LQ150V1DG11/12	307 200	640 × RGB × 480	305.2 × 228.9		346.6 × 261.6 × 21.1			High brightness, wide viewing angle

*1 Pixel means a set of each RGB dot. Figures may be rounded up if necessary. (Timing rates of input video signal sampling are different for each dot.)
*2 Device specific external video interface IC is available.
*3 Excluding FPC for connection and other excessing parts.
*4 Direct exposure to strong extraneous light (e.g. sunlight) may affect the quality of the display. Please contact SHARP before using the unit in a product intended for use under such conditions.
(Note) Please note that for production improvement, the specifications are subject to change without prior notice.

COLOR TFT-LCD MODULE

☆New product
★Under development

<Desktop PCs/Monitors>

Display size (cm) [″]	Model No.	Number of pixels*1	Dot format H × V (dot)	Active area H × V (mm)	Color	Overall dimensions*2 W × H × D (TYP.) (mm)	Backlight	Video interface (Input video signal)	Remarks
38 [15]	☆ LQ150X1DW11	768 432	1 024 × RGB × 768	304.1 × 228.1	16.7 million	340.0 × 264.0 × 21.1	Built-in	CMOS (8-bit digital)	ASV, wide viewing angle, high brightness, fast response time
	★ LQ150X1MW01					340.0 × 264.0 × 42.5		Built-in Analog RGB Digital DVI-D	All in one, ASV, wide viewing angle, high brightness, fast response time
41 [16]	LQ160E1LG01	1 310 720	1 280 × RGB × 1 024 (Stripe)	317.8 × 254.2		357.0 × 282.0 × 20.5		2 ch. LVDS*3 (8-bit digital)	ASV, wide viewing angle, high brightness
	★ LQ160E1MG11					357.0 × 282.0 × 36.7		Built-in Analog RGB Digital DVI-D	All in one (Built-in Analog I/F, Digital I/F, and Backlight inverter)
46 [18.1]	☆ LQ181E1LW31			359.0 × 287.2		389.0 × 317.2 × 27.5		2 ch. LVDS*3 (8-bit) digital	ASV, high resolution (SXGA), high brightness, wide viewing angle, fast response time, side mount type
51 [20.1]	★ LQ201U1LW01	1 920 000	1 600 × RGB × 1 200	408.0 × 306.0		436.0 × 355.0 × 27.5			High resolution (UXGA), ASV, wide viewing angle, high brightness, fast response time, side mount type

*1 Pixel means a set of each RGB dot. Figures may be rounded up if necessary. (Timing rates of input video signal sampling are different for each dot.)
*2 Excluding FPC for connection and other excessing parts.
*3 LVDS (Low Voltage Differential Signaling) interface used for this model.
(Note) Please note that for production improvement, the specifications are subject to change without prior notice.

LQ160E1MG11

LQ181E1LW31

☆New product

<For cellular phones and PDAs>

Development of new LCDs for next-generation cellular phones: GF color and PF color LCDs

GF color

<Glass Fine color LCD>

G for "Green*", "Grade-up", "Glass" Display

*** The Energy & Space saving Display**

"GF color" is the name of Glass LCDs

PF color

<Plastic Fine color LCD>

P for "Pure", "Parallax Free", "Plastic" Display

"PF color" is the name of Plastic LCDs

With the fine color technology enabling a remarkable improvement in display quality, most suitable for mobile applications such as cellular phones and PDAs

* "GF color" and "PF color" are Sharp's new names for Color STN-LCD Module and Color Plastic LCD Module.

◆ Features of GF color and PF color LCDs

(1) Color reproduction (Color area), 2 times greater than before	Transmissive mode: 10/Reflective mode: 25 (Conventional product 5/14)
(2) High contrast, 2.5 times greater than before	Transmissive mode 25:1/Reflective mode 16:1 (Conventional product 10:1/16:1)
(3) Can display 65 536 colors, 256 times greater than before	65 536 colors (Conventional product 256 colors)
(4) High brightness, 3 times greater than before	25 cd/m^2 (Conventional product 8 cd/m^2)
(5) Conversion to plastic	PF color LCDs are equivalent to GF color LCDs in capability.

✦ Specification

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Pixel pitch H × V (mm)	Active Area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms) (TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption*12 (mW) (TYP.)	Overall dimensions W × H × D (mm)	Weight (g)
4.2 [1.6]	LM016LC1S07	96 × 3 × 128*2	0.261 × 0.261	25.0 × 33.4	*1 *5	25/13*7	440	8	1.2	35.8 × 49.0 × 5.35	9.4
4.9 [1.9]	☆ LM019LC1Sxx	120 × 3 × 160*3	0.252 × 0.24	30.2 × 38.4	*1 *5 *6	25/16*8	350*9	25	2.5	40.4 × 53.7 × 5.15*10	14
	☆ LM019LC1Sxxx	128 × 3 × 160*4	0.24 × 0.24	30.7 × 38.4						40.4 × 53.7 × 5.55*11	

*1 GF color, Transflective, White LED backlight
*2 Number of pixels: 12 288
*3 Number of pixels: 19 200
*4 Number of pixels: 20 480
*5 256-color display
*6 65 536-color display
*7 Transmissive mode 25; Reflective mode 13
*8 Transmissive mode 25; Reflective mode 16
*9 Fast response is possible
*10 Module with 256-color display
*11 Module with 65 536-color display
*12 When waiting

GF color LCD Module

<Notebook PC>

[Color STN-LCD Modules]

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Pixel pitch H × V (mm)	Active area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms)(TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption (mW) (TYP.)	Overall dimensions*1 W × H × D (mm)	Weight (g)
31 [12.1]	LM121SS1T53*6	800 × 3 × 600*4	0.3075 × 0.3075	246.0 × 184.5	*5, Transmissive, 1CCFT(E)*2	40	150	80	3 560	275 × 202.5 × 7	450
33 [13]	LM130SS1T611*6		0.33 × 0.33	264.0 × 198.0		50		100	4 040	295 × 218 × 7.5	550

<Amusement>

[Color STN-LCD Module]

● Optimized moving-image display all-in-one type with built-in power supply, interface and inverter circuitry

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Dot pitch H × V (mm)	Active area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms) (TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption (mW) (TYP.)	Overall dimensions*1 W × H × D (mm)	Weight (g)
18 [7.2]	LM072QCAT50	320 × 3 × 240*3	0.501 × 0.375	160.3 × 89.98	*5, Transmissive, 1CCFT(E)*2, *7	30	65*8	250*8	6 120	198.5 (212.5) × 127.2 × 29.5	480

*1 Width and height are typical values. Depth is a maximum value.
*2 (E): Edge-light type backlight system employed
( ) values: Including mounting tabs
*3 Number of pixels: 76 800
*4 Number of pixels: 480 000
*5 Triple Super Twisted Nematic
*6 HP-A (High performance addressing)
*7 With grayscale display controller (4096 colors)
*8 Ta = 40°C
(Note) Please refer to the latest relevant specification sheets before using any of these devices.

LM130SS1T611

☆New product

<Handheld PC>
[Black & White LCD Module]

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Dot pitch H × V (mm)	Active area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms)(TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption (mW) (TYP.)	Overall dimensions*1 W × H × D (mm)	Weight (g)
9.6 [3.8]	LM038QB1R10	320 × 240	0.24 × 0.24	76.8 × 57.6	FSTN, Reflective	10	500	—	4.0	96.6 × 72.4 × 4.0	35

[Color STN-LCD Modules]

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Pixel pitch H × V (mm)	Active area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms) (TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption (mW) (TYP.)	Overall dimensions*1 W × H × D (mm)	Weight (g)
9.6 [3.8]	LM038QC1R10	320 × 3 × 240*3	0.24 × 0.24	76.8 × 57.6	Reflective	10	350	–	4.0	96.6 × 72.4 × 4.0	35
	☆ LM038QC1T10			76.8 × 57.6	*8, Transmissive, 1CCFT(E)*2	30	200	90	1 050	96.6 × 72.4 × 6.5	55
20.5 [8.1]	LM8M64	640 × 3 × 240*4	0.30 × 0.30	192.0 × 72.0		50	350	80	1 023	225.4 × 87.4 × 7	175
24 [9.4]	LM094YS1T64	800 × 3 × 480*6	0.255 × 0.255	204.0 × 122.4		30	450	100	3 168	236.8 × 142.3 × 8.5	305
25 [10]	LM100SS1T522	800 × 3 × 600*7		204.0 × 153.0		50	300		3 080	236.8 × 172.5 × 6.8	340

* LM100SS1T523 (Non glare type of LM100SS1T522 is also available)

<FA / POS / Measuring Instrument / Others>
[Medium Size Black & White LCD Modules]

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Dot pitch H × V (mm)	Active area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms) (TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption (mW) (TYP.)	Overall dimensions*1 W × H × D (mm)	Weight (g)
14 [5.7]	LM32019P	320 × 240	0.36 × 0.36	115.2 × 86.4	FSTN, Transmissive, 1CCFT(E)*2	10	520	100	1 496	160 (166) × 109 × 7.5	160
	LM32019T				BSTN, Transmissive, 1CCFT(E)*2	6	400		1 182		

[Color STN-LCD Modules]

Display size (cm) [″]	Model No.	Dot format H × V (dot)	Pixel pitch H × V (mm)	Active area H × V (mm)	Panel type, panel mode, backlight type	Contrast ratio (TYP.)	Response time tr + td (ms) (TYP.)	Luminance (cd/m^2) (TYP.)	Power consumption (mW) (TYP.)	Overall dimensions*1 W × H × D (mm)	Weight (g)
12.6 [5.0]	☆ LM050QC1T01	320 × 3 × 240*3	0.315 × 0.315	100.8 × 75.6	*8, Transmissive, 1CCFT(E)*2	30	350	100	1 800	134 × 100 × 8.5	150
14.4 [5.7]	LM057QC1T01		0.36 × 0.36	115.2 × 86.4	*8, Transmissive, *9 1CCFT(E)*2	40	550	180	2 623	154.6 × 114.8 × 8.3	200
26 [10.4]	LM10V332	640 × 3 × 480*6	0.33 × 0.33	211.2 × 158.4	*8, Transmissive, 1CCFT(E)*2	50	300	160	3 910	264 × 193.6 × 8.5	450
31 [12.1]	LM12S49	800 × 3 × 600*7	0.3075 × 0.3075	246.0 × 184.5	*8, Transmissive, 2CCFT(E)*2	40		180	7 030	275 × 202.5 × 8.5	550

*1 Width and height are typical values. Depth is a maximum value.
*2 (E): Edge-light type backlight system employed
*3 Number of pixels: 76 800
*4 Number of pixels: 153 600
*5 Number of pixels: 307 200
*6 Number of pixels: 384 000
*7 Number of pixels: 480 000
*8 Triple Super Twisted Nematic
*9 Without touch panel
FSTN: Film Super Twisted Nematic
BSTN: Blue Super Twisted Nematic
( ) values: Including mounting tabs
(Note) Please refer to the latest relevant specification sheets before using any of these devices.

LM038QC1R10

LM057QC1T01

■ EL DISPLAY MODULES

Display size (cm) [″]	Parameter	Number of dots H × V (dot)	Dot pitch H × V (mm)	Active area H × V (mm)	Areal luminance (cd/m^2) TYP.	Supply voltage (V)	Power consumption (mW) (TYP.)	Operating temperature (°C)	Overall dimensions W × H × D (mm)	Weight (g)
12 [4.7]	LJ32H028 (High luminance)	320 × 240	0.30 × 0.30	95.9 × 71.9	110*5	+5, +12	5	–5 to +55*3	147 × 112 × 28	260
23 [8.9]	LJ64H034 (High luminance)	640 × 400		191.9 × 119.9	110*5		11	–5 to +55*3	246 × 175 × 19	450
	LJ089MB2S01				60				246 × 158 × 26	390
26 [10.3]	LJ44HM01 (High luminance)	448 × 128	0.56 × 0.56	250.7 × 71.6	220*4			–20 to +65*2	294 × 111 × 25	600
	LJ103LC2K01*1	224 × 2 × 128			72*4					
37 [14.4]	LJ64HM01 (High luminance)	640 × 128	0.56 × 0.56	358.3 × 71.6	220*4		14	–20 to +65*2	400 × 107 × 20	740
	LJ144LC2K01*1	320 × 2 × 128			72*4					780

* Please avoid using these products under dew condensed environment.
*1 RGY multi-color
*2 Survival temperature: -25 to +85 °C @ 10 minutes.
*3 Survival temperature: -20 to +65 °C.
*4 In case of frame frequency = 240 Hz
*5 In case of frame frequency = 120 Hz
(Note) Please refer to the latest relevant specification sheets before using any of these devices.

LJ089MB2S01

LJ144LC2K01