PC CALCULATOR

Features:

12 Digits Calculator.

Tax Calculation.

PC Key Mode.

Send calculation result to your PC.

Driver for Windows 98/2000/ME/XP.

Operating Voltage : 3V

Key Define

7	8	9	÷	PC/CAL	SEND	C	
4	5	6	×	+/−	MRC ◄	% ▲ RATE SET	
1	2	3	−	TAX+ RATE	M+ ➜	► BS	
0	●	=	+ Enter	TAX−	M− ▼	00	AC ON

Minimum System Requirements:

Operating System : Pre-installed Windows 98/Me/2000/XP

Computer: IBM PC/AT or compatible with built-in USB port

- Other system requirements are those required to run Windows 98/Me/2000/XP.
- Proper operation may not be possible under certain system configurations.
- Operation under Windows 3.1/95 is not supported.
- Operation is not guaranteed under other Windows 98/Me/2000/XP that was updated from another version.

CAL Mode and PC Key Mode:

This calculator has two modes: a CAL mode and a PC Key mode.

The CAL mode is entered automatically whenever the calculator is not connected to a computer with the USB cable . If the calculator is in the PC Key mode when it is not connected , pressing any key causes it to enter the CAL mode.

While the calculator is connected to a computer with the USB cable, pressing the PC/CAL key toggles between the CAL mode and PC Key mode.

CAL Mode

- The calculator performs normal calculator operations.
- You can send calculation results (display contents) to a computer.

PC Key Mode

- Pressing a calculator key causes the corresponding code (0 to 9, • , − , Enter , BS , ← → ↑ ↓) to the connected computer . This causes corresponding value input or cursor movement on the computer screen.
- The calculators display shows "-----------" while it is in the PC Key mode.

Example Calculations .

Press the **AC** key to start a new calculation.

4 − 6 =	4 [−] 6 [=]	−2.
(1 + 2) ÷ 3 × 4 − 5.5 =	1 [+] 2 [÷] 3 [×] 4 [−] 5.5 [=]	−1.5
999999999999 + 1 =	999999999999 [+] 1 [=]	E 1.00000000000
	[AC]	⌐‾‾⌐ ‾ 0.
		Overflow error 1 trillion digit
2 × (−3) = −6	2 [×] 3 [+/−] [=]	−6.
Constant Calculations		
12 + 23 =	23 [+] [+] 12 [=]	K 35.
45 + 23 =	45 [=]	K 68.
78 + 23 =	78 [=]	K 101.
7 − 5 =	5 [−] [−] 7 [=]	K 2.
2 − 5 =	2 [=]	K −3.
2 × 12 =	12 [×] [×] 2 [=]	K 24.
4 × 12 =	4 [=]	K 48.
45 ÷ 9 =	9 [÷] [÷] 45 [=]	K 5.
72 ÷ 9 =	72 [=]	K 8.
Percent Calculations		
Find 5% of 100.	100 [×] 5 [%]	5.
Increase 100 by 5%.	100 [×] 5 [%] [+]	105.
Reduce 500 by 20%.	500 [×] 20 [%] [−]	400.
Find what percent 30 is of 60.	30 [÷] 60 [%]	50% →50.
Find what percent increase 12 is of 10.	12 [−] 10 [%]	20% →20.
Find the selling price and profit amount of an item costing $120 when the desired margin is 25% of the selling price.	120 [+] 25 [%] [−]	Selling Price → 160. Profit → 40.
Independent Memory		
80 × 9 = 720	[MRC] [MRC] *1 80 [×] 9 [M+] *2	M 720.
−) 50 × 6 = 300	50 [×] 6 [M−] *3	M 300.
20 × 3 = 60	20 [×] 3 [M+] *2	M 60.
TOTAL) 480	[MRC] *4	480.

*1 Clears independent memory.
*2 Adds value to independent memory.
*3 Deducts value from independent memory.
*4 Displays value stored in independent memory.

Editing Example		
× 2 + 3 → ○ 2 + 4 = 6	2 [+] 3 [C] 4 [=]	6.
× 2 + ... → ○ 2 − 7 = −5	2 [+] [−] 7 [=]	−5.
× 122 → ○ 123	122 [►] 3	123.

Tax Calculations

Be sure to press the **AC** key before beginning tax calculations.

Tax Calculation Types
There are two types of tax calculation: **price-less-tax** and **price-plus-tax**. This calculator can perform both types of tax calculation.

Setting a Tax Rate
You must use the following procedure to set a tax rate before you can perform tax calculations.
Example: Tax rate = 5%

AC		**0.**
RATE SET [%]	**TAX**	%
(about two seconds)		**0.**

Current rate setting

5	**TAX**	%
(You can input a value up to 6 digits long.)		**5.**
RATE SET [%]	**TAX**	%
(Stores rate and completes operation.)		**5.**

- If you make a mistake while inputting a rate, press [C] and then set the correct rate.
- You can check the currently set rate at any time by pressing **AC** and then [RATE TAX+].

AC [RATE TAX+]	**TAX**	%
		5.

For rates of 1 or greater, you can input up to six digits. For rates less than 1 you can input up to 12 digits, including 0 for the integer digit and leading zeros (through only six significant digits, counted from the left and starting with the first non-zero digit, can be specified).
Example: 0.123456, 0.0123456, 0.00000012345

Tax Calculation Examples (Tax Rate = 5%)

1. Original cost = $150
Calculate the price-plus-tax.
(Price-plus-tax)

AC 150 [RATE TAX+]	**TAX+**	**157.5**

(Tax)

[RATE TAX+]	**TAX**	**7.5**

- In the above example, each time you press [RATE TAX+], the display switches between the price-plus-tax and the tax amount.

2. Original costs = $3.00, $5.00, $8.00
Calculate the total cost, price-plus-tax, and tax amount.
(Total cost)

AC 3 **+** 5 **+** 8 **=**	**=**	**16.**

(Total price-plus-tax)

[RATE TAX+]	**TAX+**	**16.8**

(Total tax)

[RATE TAX+]	**TAX**	**0.8**

3. Price-plus-tax = $100
Calculate price-less-tax and tax amount.
(Price-less-tax)

AC 100 [TAX−]	**TAX−**	**95.238095239**

(Tax)

[TAX−]	**TAX**	**4.7619047619**

- In the above example, each time you press [TAX−], the display switches between the price-less-tax and the tax amount.

4. Taxable item = $30.00
Non-taxable item = $20.00
Calculate price-plus-tax for taxable item and total of taxable and non-taxable items.
(Price-plus-tax Value of Taxable Item)

AC 30 [RATE TAX+]	**TAX+**	**31.5**

(Total of Taxable Item + Non-Taxable Item)

+ 20 **=**	**=**	**51.5**

First, calculate the price-plus-tax value of the taxable item, and then add the non-taxable item.
(Price-plus-tax Value of Taxable Item)

AC [MRC] [MRC] 30 [RATE TAX+] [M+]	**M**	**31.5**

(Total of Taxable Item + Non-Taxable Item)

20 [M+]	**M**	**20.**
[MRC]	**M**	**51.5**

Connecting to a Computer:

Use the USB cable that comes with the calculator to connect it to your computer.

Connect the USB cable to your computer's USB port.

● Make sure you connect directly to the computer's USB port. Proper operation may not be possible if you connect to a daisy chained USB device , USB port , etc.

What to do next ….

After you connect the calculator to your computer the first time. You need to install the USB driver installer. Follow the instructions displayed by the installer to install the driver.

Important!

Never disconnect the USB cable while a calculator key operation is in progress.

If you experience problems with data transfer between the calculator and computer , try disconnecting and then reconnecting the USB cable.

Sending Data to a Computer

CAL Mode

In the CAL mode , you can send calculation results (display content) to the connected computer by pressing the **SEND** button.

● The calculation result send operation takes some time to complete. Calculator keys are disabled while the send operation is in progress.

● You can send values only. 3-digit separator marks, indicators (M,=,etc.) are not sent.

● You cannot perform a send operation while the E (error) indicator is on the calculator display.

● You cannot perform a send operation while tax rate setting screen is on the display.

● The **SEND** key is disable when the calculator is not connected to a computer.

● Pressing a computer keyboard key while a calculation result send operation is in progress can cause the computer input or its code to be inserted the calculation result.

PC Key Mode

This mode changes the calculator into a numeric keypad like the one shown nearby. Pressing a key sends the corresponding code to the computer . All other calculator keys are disabled in this mode.

● Holding down the BS , ◆➔♠♥ or Enter key causes the key's function to be repeated. Other keys do not repeat when held down.

7	8	9	÷	PC/CAL	SEND	C	
4	5	6	×	+/−	MRC ◄	% ▲ RATE SET	
1	2	3	−	TAX+ RATE	M+ ➡	▶ BS	
0	●	=	+ Enter	TAX−	M− ▼	00	AC ON

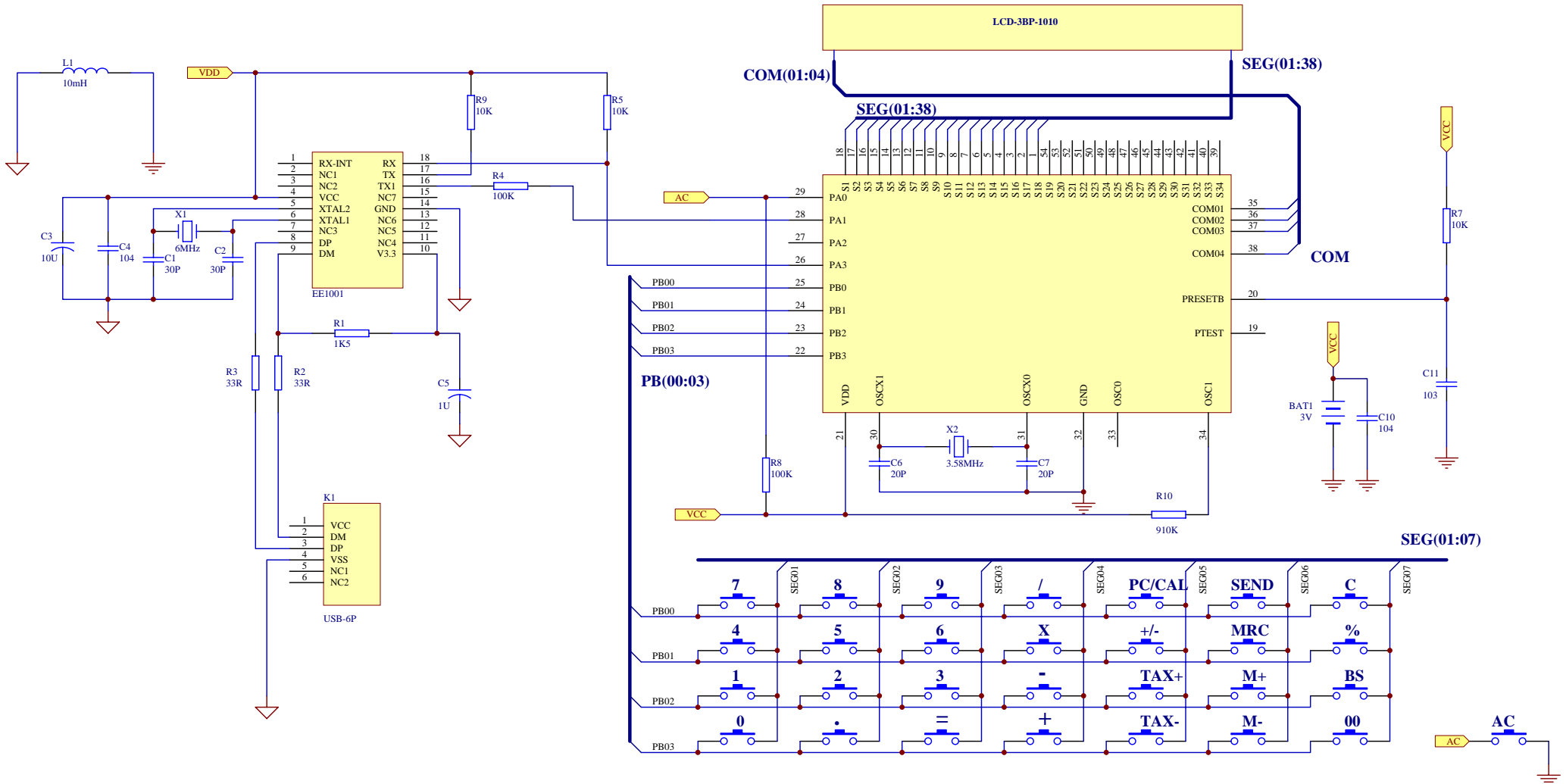* Red color is key that user could press in PC Key Mode.

Important !

● When operating the calculator while it is connected to a computer , make sure you depress keys carefully and completely.

● If screen save of the computer activates , you can terminate the screen save and restore normal operation by pressing the following calculator keys.

　CAL Mode : **SEND** key

　PC Key Mode : Any key that is enabled in the PC Key mode.

　Noted that you cannot recover from the computer's standby mode by pressing a calculator key.

● Certain computer system configurations assign letters to the number keys of the main keyboard. When inputting values with the calculator , be sure to enable number input for your main computer keyboard. Otherwise, pressing number keys on the calculator will input letters assigned to your computer keyboard number keys.

● Depending on the application you are using or the keyboard configuration of your computer, Pressing a calculator key may input a character that is different from that marked on the key. In some cases, for example , pressing the "." Key on the calculator inputs a comma instead of a decimal point.
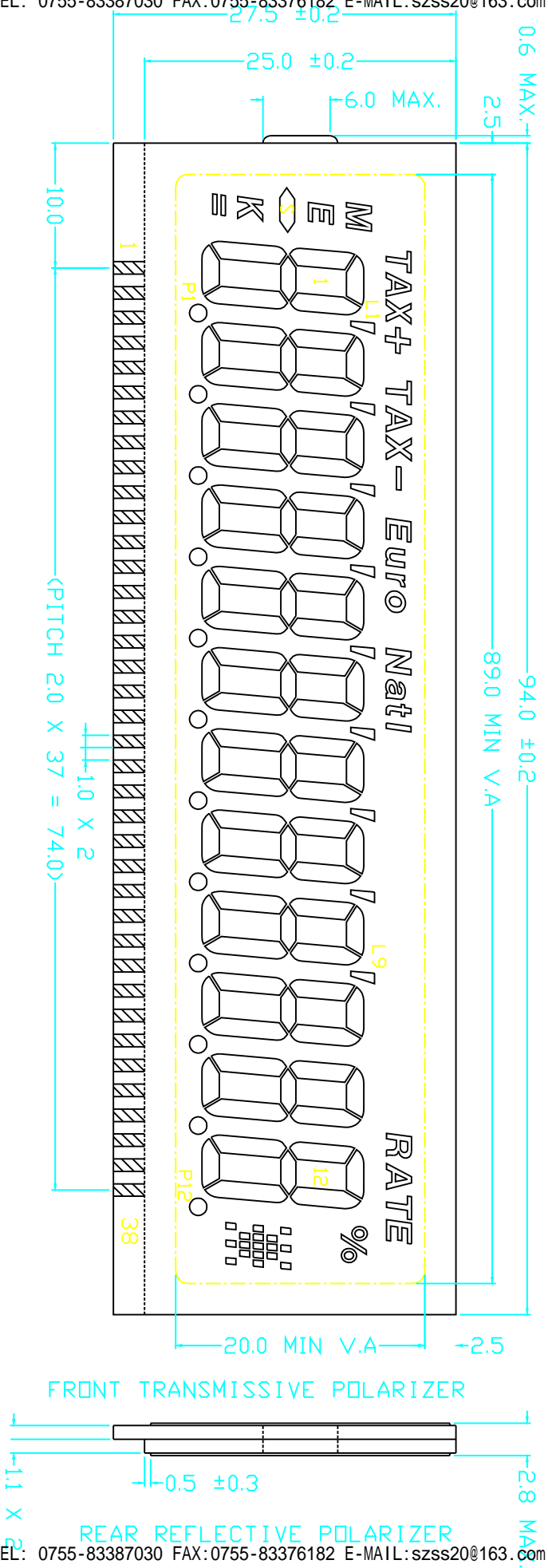
Auto Power OFF

The keyboard turns off automatically if you do not perform any operation for about five minutes. Press the **AC** key to restore power.

● Note that calculator draws power over the USB cable when connected to a computer, so power does not turn off automatically.

LCD-3BP-1010

COM(01:04)

SEG(01:38)

SEG(01:38)

L1 10mH		VDD

R9 10K

R5 10K

R4 100K

AC

1	RX-INT	RX	18
2	NC1	TX	17
3	NC2	TX1	16
4	VCC	NC7	15
5	XTAL2	GND	14
6	XTAL1	NC6	13
7	NC3	NC5	12
8	DP	NC4	11
9	DM	V3.3	10

EE1001

X1 6MHz

C3 10U C4 104 C1 30P C2 30P

R3 33R R2 33R

R1 1K5

C5 1U

K1

1	VCC
2	DM
3	DP
4	VSS
5	NC1
6	NC2

USB-6P

S1...S34 COM01 COM02 COM03 COM04

PA0	29
PA1	28
PA2	27
PA3	26
PB0	25
PB1	24
PB2	23
PB3	22

PB00 PB01 PB02 PB03

PB(00:03)

35 COM01
36 COM02
37 COM03
38 COM04

COM

PRESETB 20
PTEST 19

VCC

BAT1 3V C10 104

R7 10K

C11 103

VDD OSCX1 OSCX0 GND OSC0 OSC1
21 30 31 32 33 34

R8 100K

C6 20P X2 3.58MHz C7 20P

R10 910K

VCC

SEG(01:07)

	SEG01		SEG02		SEG03		SEG04		SEG05		SEG06		SEG07
PB00	7		8		9		/		PC/CAL		SEND		C
PB01	4		5		6		X		+/-		MRC		%
PB02	1		2		3		-		TAX+		M+		BS
PB03	0		.		=		+		TAX-		M-		00

AC

Title			
Size B	Number		Revision
Date:			Sheet of
File:			

CHARACTERISTICS :
1) OPERATING VOLTAGE : 3.0 V
2) OPERATING TEMPERATURE : 0°C TO 50°C
3) STORAGE TEMPERATURE : -10°C TO 60°C
4) DRIVING METHOD : 1/4 DUTY, 1/3 BIAS
5) DISPLAY TYPE : REFLECTIVE(POSITIVE)/TN
6) VIEWING DIRECTION : 6 O'CLOCK
7) CONNECTOR: ZEBRA

DESCRIPTION
INITIALS
CHECKED
DATE

DRAWN BY:
CHECKED BY:
APPROVED BY:
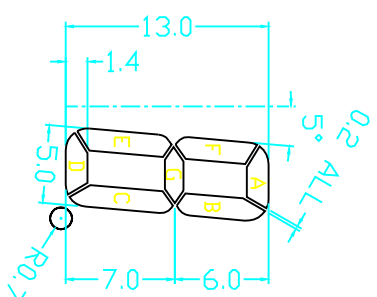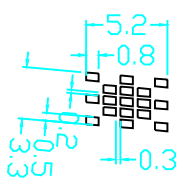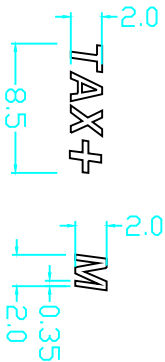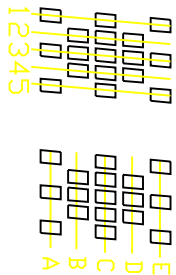
DATE:
DATE:
DATE:

UNLESS OTHERISE SPECIFIED
DIMENSIONS ARE IN INCHES MILLIMETERS
TOLERANCES: ANGLES ±1°
.XX" ±.02"
OR .XXX" ±.005"
0.Xmm ±0.5mm
0.XXmm ±0.13mm

SCALE:
DRAWING NO.:
TITLE:
SHEET NO.:
REV NO.:
REVISION
A

27.5 ±0.2
25.0 ±0.2
6.0 MAX.
0.6 MAX.
2.5
10.0
94.0 ±0.2
89.0 MIN V.A
(PITCH 2.0 X 37 = 74.0)
1.0 X 2
20.0 MIN V.A
2.5

TAX+ TAX- Euro Natl
RATE
%
M E K =
L11
P1
L9
P12
1
38
12
1

12345
A B C D E

TAX+
8.5
2.0

M
2.0
0.35
2.0

5.2
0.8
0.2
0.5
3.3
0.3

13.0
1.4
5.0
7.0
6.0
0.2
5° ALL
R0.7
A F G B E C D

FRONT TRANSMISSIVE POLARIZER
REAR REFLECTIVE POLARIZER
1.1 X 2
0.5 ±0.3
2.8 MAX

LCD display panel markings: **TAX+ TAX– Euro Natl**, **M**, **E**, **K**, **=**, **RATE**, **%**

Pin assignment table (pins 1–19):

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
COM1	COM1	/	/	/	E	1A	L1	M	TAX+	L2	3A	TAX	–	L4	5A	L5	6A	Euro	Natl
COM2	/	COM2	/	/	S	1F	1B	2F	2A	2B	3F	3B	4F	4B	5F	5B	6F	6B	6G
COM3	/	/	COM3	/	K	1G	1C	2G	2C	2D	3G	3C	4G	4C	5G	5C	6G	6C	6D
COM4	/	/	/	COM4	=	1E	1D	2E	2D	3E	3D	4E	4D	5E	5D	6E	6D	P5	6D

Pin assignment table (pins 20–38):

PIN	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
COM1	L6	7A	L7	/	=	1E	1D	P1	5-C	5-E	RATE	11A	%	3-E	1-E	1-C	2-D	3-D	4-D
COM2	6B	7F	7B	8F	8A	8B	9F	9B	10F	10A	10B	11F	11B	12F	12A	12B	2-C	3-C	4-C
COM3	6C	7G	7C	8E	8G	8C	9G	9C	10E	10G	10C	11G	11C	12E	12G	12C	2-B	3-B	4-B
COM4	P6	7E	7D	P7	8D	P8	9E	9D	P9	10D	P10	11E	11D	P11	12D	P12	1-A	3-A	5-A

DESCRIPTION | INITIALS | CHECKED | DATE

DRAWN BY: | DATE:
CHECKED BY: | DATE:
APPROVED BY: | DATE:

TITLE:
DRAWING NO.:
SCALE: | SHEET NO.:
REV NO. | REVISION | A

Bonding Diagram

Substrate connect to GND
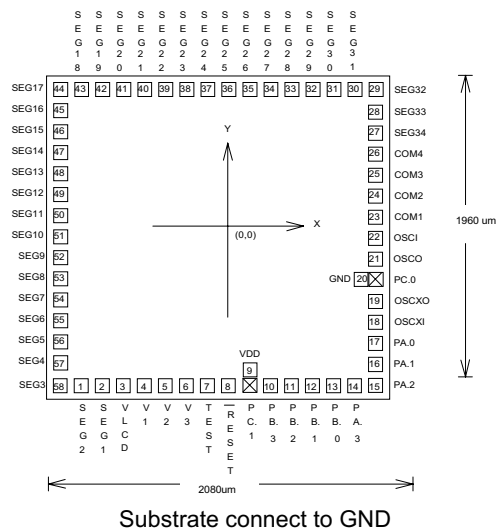
Pad No.	Designation	X(μm)	Y(μm)	Pad No.	Designation	X(μm)	Y(μm)
1	SEG2	-784	-854	29	SEG[32]	904	854
2	SEG1	-664	-854	30	SEG[31]	784	854
3	V**LCD**	-544	-854	31	SEG[30]	660	854
4	V1	-424	-854	32	SEG[29]	540	854
5	V2	-304	-854	33	SEG[28]	420	854
6	V3	-184	-854	34	SEG[27]	300	854
7	TEST	-64	-854	35	SEG[26]	180	854
8	$\overline{RESET}$	56	-854	36	SEG[25]	60	854
9	V**DD**	176	-758	37	SEG[24]	-60	854
bonding option	PC1	176	-854	38	SEG[23]	-180	854
10	PB3	304	-854	39	SEG[22]	-300	854
11	PB2	424	-854	40	SEG[21]	-420	854
12	PB1	544	-854	41	SEG[20]	-540	854
13	PB0	664	-854	42	SEG[19]	-660	854
14	PA3	784	-854	43	SEG[18]	-784	854
15	PA2	904	-854	44	SEG[17]	-904	854
16	PA1	916	-724	45	SEG[16]	-916	724
17	PA0	916	-604	46	SEG[15]	-916	600
18	OSCXI	916	-484	47	SEG[14]	-916	480
19	OSCXO	916	-364	48	SEG[13]	-916	360
20	GND	820	-236	49	SEG[12]	-916	240
bonding option	PC0	916	-236	50	SEG[11]	-916	120
21	OSCO	916	-116	51	SEG[10]	-916	0
22	OSCI	916	4	52	SEG[9]	-916	-120
23	COM1	916	124	53	SEG[8]	-916	-240
24	COM2	916	244	54	SEG[7]	-916	-360
25	COM3	916	364	55	SEG[6]	-916	-480
26	COM4	916	484	56	SEG[5]	-916	-600
27	SEG[34]	916	604	57	SEG[4]	-916	-724
28	SEG[33]	916	724	58	SEG[3]	-904	-854