



## PRODUCT SPECIFICATION

### MONO LCD MODULE MODEL: G1903A0SGW6B-A0 Ver:1.1

< ◇ > Preliminary Specification

< ◆ > Finally Specification

CUSTOMER'S APPROVAL	
CUSTOMER :	
SIGNATURE:	DATE:

APPROVED BY	PM REVIEWED	PD REVIEWED	PREPARED By



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## 1.Features

The features of LCD are as follows

- \* Display mode : STN/Blue, Transmissive/Negative
- \* IC : ST7920-0F(Chinese Traditional/Simplified,Japanese&Korean)
- \* Interface Input Data : 8 Bit
- \* Driving Method : 1/32Duty, 1/5Bias
- \* Viewing Direction : 6 O'clock
- \* Backlight : LED Unit (White)
- \*Sample NO :

## 2.MECHANICAL SPECIFICATIONS

Item	Specification	Unit
Module Size	116(W) x 37(H) x 13.9MAX(T)	mm
Viewing Area	85 (W) x 18.6 (H)	mm
Activity Area	80.6(W) x15.96(H)	mm
Number of Dots	192 X 32 Dots	-
Dot Size	0.38(W) x 0.46(H)	mm
Dot Pitch	0.42(W) x 0.5(H)	mm

## 3. ELECTRICAL SPECIFICATIONS

### 3-1 ABSOLUTR MAZIMUM RATINGS (Ta = 25 °C)

Item	Symbol	Standard Value			Unit
		Min.	Typ.	Max.	
Supply Voltage For Logic	$V_{DD} - V_{SS}$	-0.3	-	5.5	V
Supply Voltage For LCD Drive	$V_{OP} = V_0 - V_{SS}$	-0.3	-	7	V
Input Voltage	$V_{in}$	-0.3	-	$V_{DD} + 0.3$	V
Operating Temp.	$T_{op}$	-20	-	+70	°C
Storage Temp.	$T_{st}$	-30	-	+80	°C

\*. NOTE: The response time will be extremely slow when the operating temperature is around -20°C, and the back ground will become darker at high temperature operating.

**3-2 ELECTRICAL CHARACTERISTICS**

Item		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Logic supply Voltage		$V_{DD} - V_{SS}$	$T_a = 25\text{ }^\circ\text{C}$	4.7	5	5.3	V
LCD Drive		$V_{OP}=V_0-V_{SS}$		4.2	4.5	4.8	V
Input Voltage	"H" Level	$V_{IH}$	$V_{DD}=3V \pm 10\%$	0.7 $V_{DD}$	-	$V_{DD}$	V
	"L" Level	$V_{IL}$		-0.3	-	0.6	V
Frame Frequency		$f_{FLM}$	$V_{DD} = 5V$	-	183	-	Hz
Current Consumption		$I_{DD}$	$V_{DD} = 5V$	-	1.8	-	mA

**3-3. BACKLIGHT****3-3-1. Absolute Maximum Ratings**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Current	IF	$T_a = 25\text{ }^\circ\text{C}$	-	30	40	mA
Reverse Voltage	VR		-	-	5	V
Power Dissipation	PD		-	-	140	mW

**3-3-2. Electrical-optical Characteristics**

Item	Symbol	Condition	Min.		Typ.		Max.		Unit
Forward Voltage	VF	IF=30mA $T_a = 25\text{ }^\circ\text{C}$	2.9		3.2		3.5		V
Average Luminous Intensity	Iv	IF=30mA $T_a = 25\text{ }^\circ\text{C}$	-		300		-		cd/m <sup>2</sup>
Colour Coordinates	-	IF=30mA $T_a = 25\text{ }^\circ\text{C}$	X	Y	X	Y	X	Y	-
			-	-	0.28	0.28	-	-	

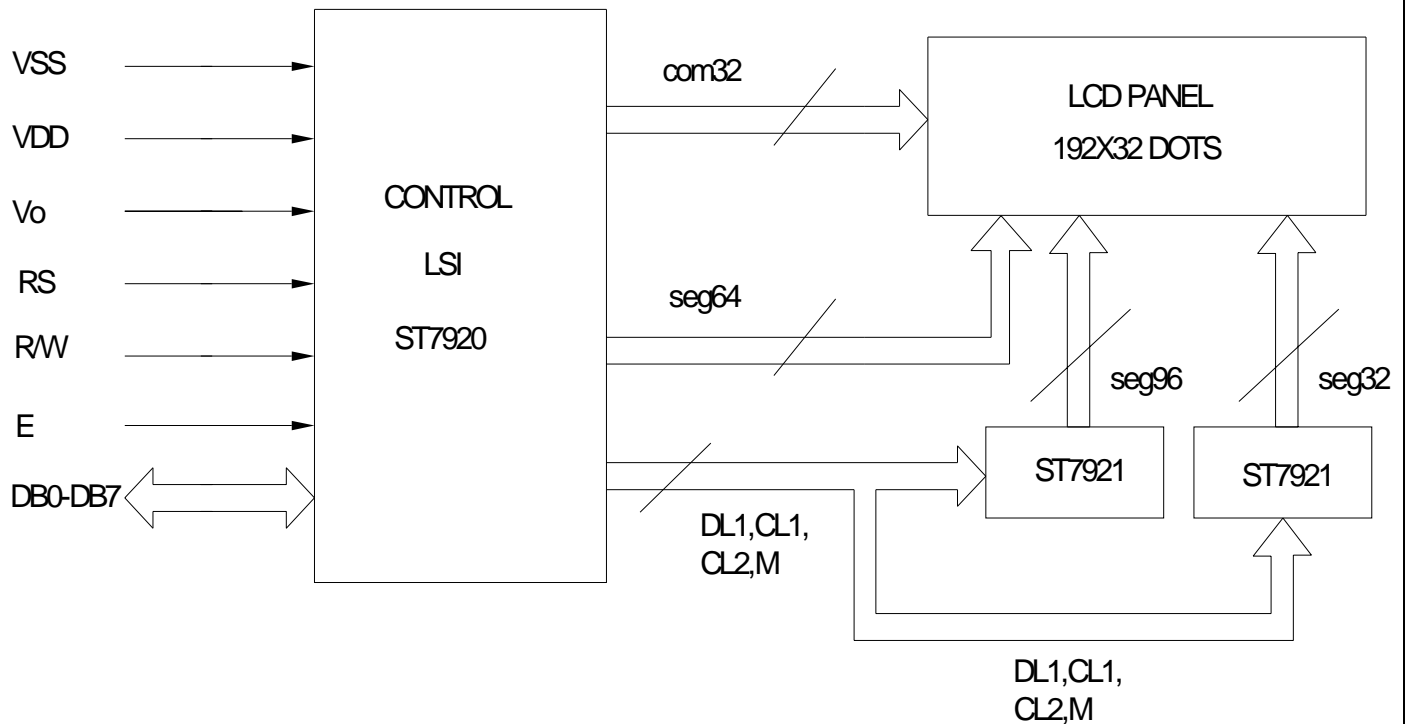
The brightness is measured without LCD panel

## 4. TERMINAL FUNCTIONS AND BLOCK DIAGRAM

### 4-1. INTERFACE PIN FUNCTION DESCRIPTION

Pin No.	Pin Name	Function
1	VSS	Power Ground (0V)
2	Vdd	Logic power supply voltage(+5V)
3	V0	LCD drive voltage
4	RS	A signal for selecting registers.
5	R/W	A signal for selecting registers.
6	E	Enable signal
7~14	DB0-DB7	Data bus
15	A	Backlight (+5V)
16	K	Backlight (0V)

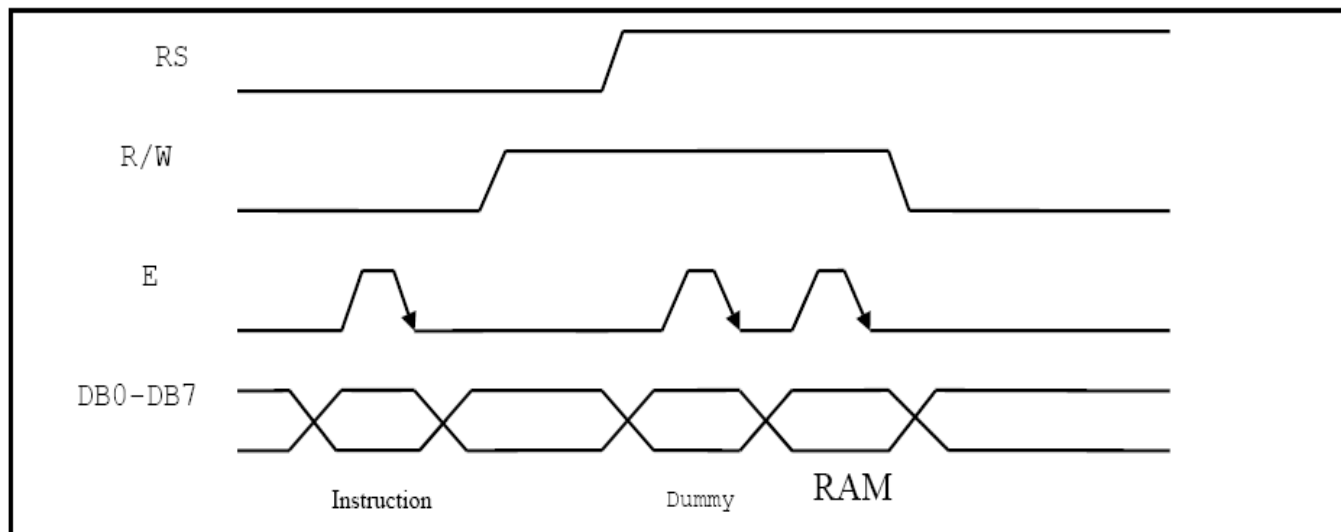
### 4-2. BLOCK DIAGRAM



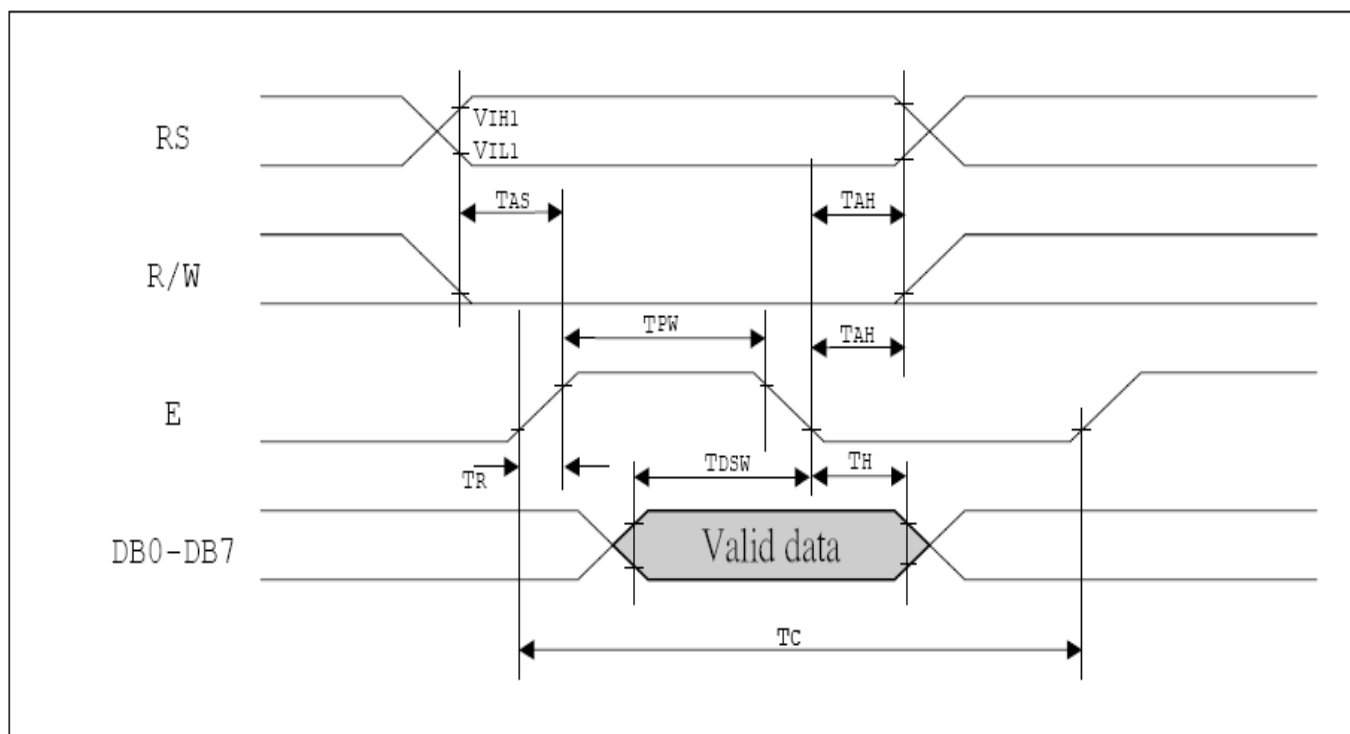
## 5.TIMING CHARACTERISTICS

### 5-1 System bus read/write character(for Parallel interface)

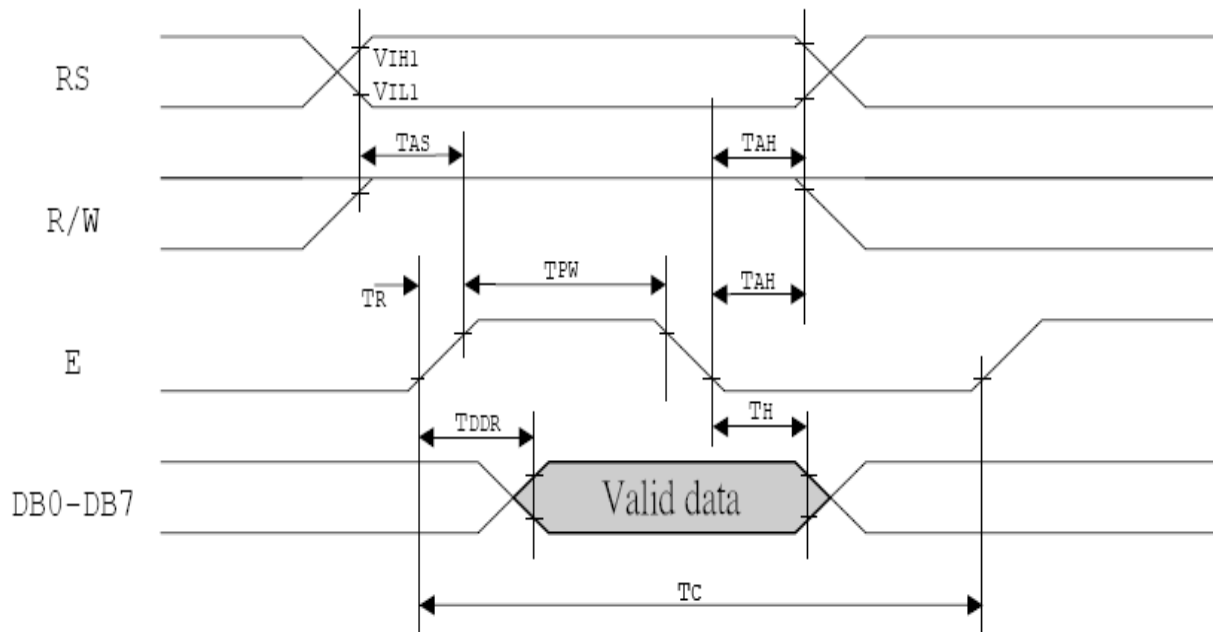
#### 5-1-1 8 bit interface



Timing Diagram of 8-bit Parallel Bus Mode Data Transfer

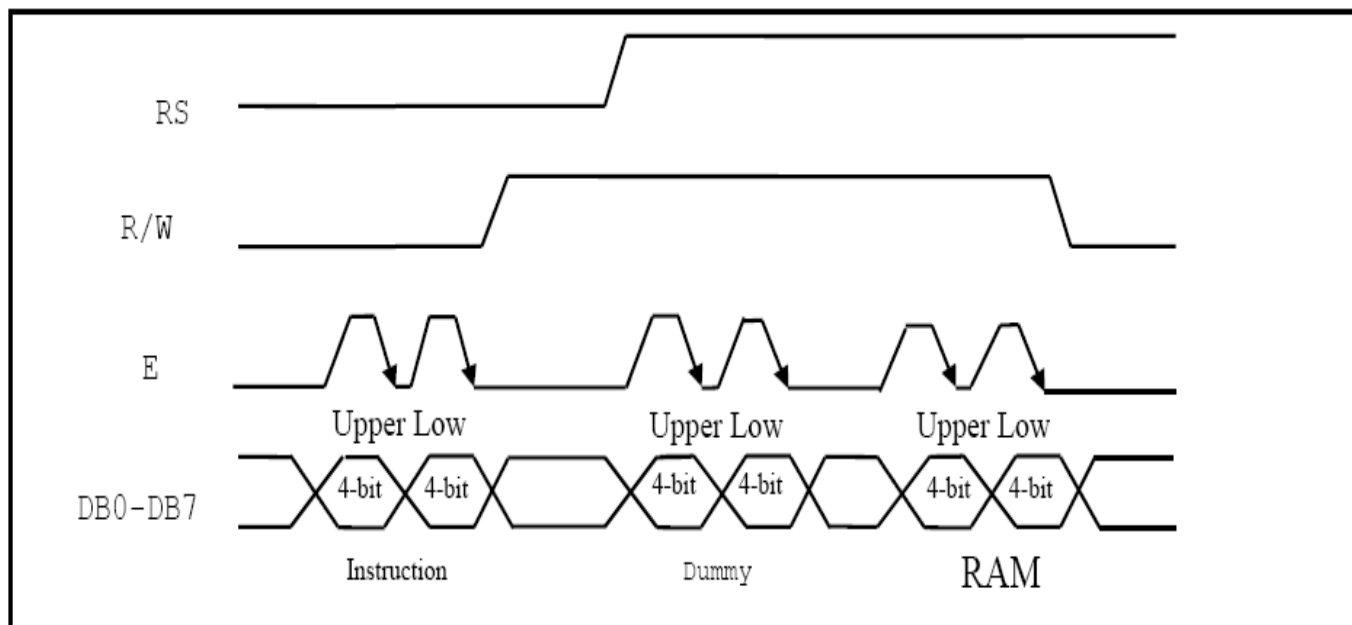


8- Bit write data to ST7920



**8- Bit Read data from ST7920**

**5-1-2 4 bit interface**



**Timing Diagram of 4-bit Parallel Bus Mode Data Transfer**



## 6.INSTRUCTION SET

6-1 ST7920 offers basic instruction set and extended instruction set :

Instruction set 1: (RE=0: basic instruction)

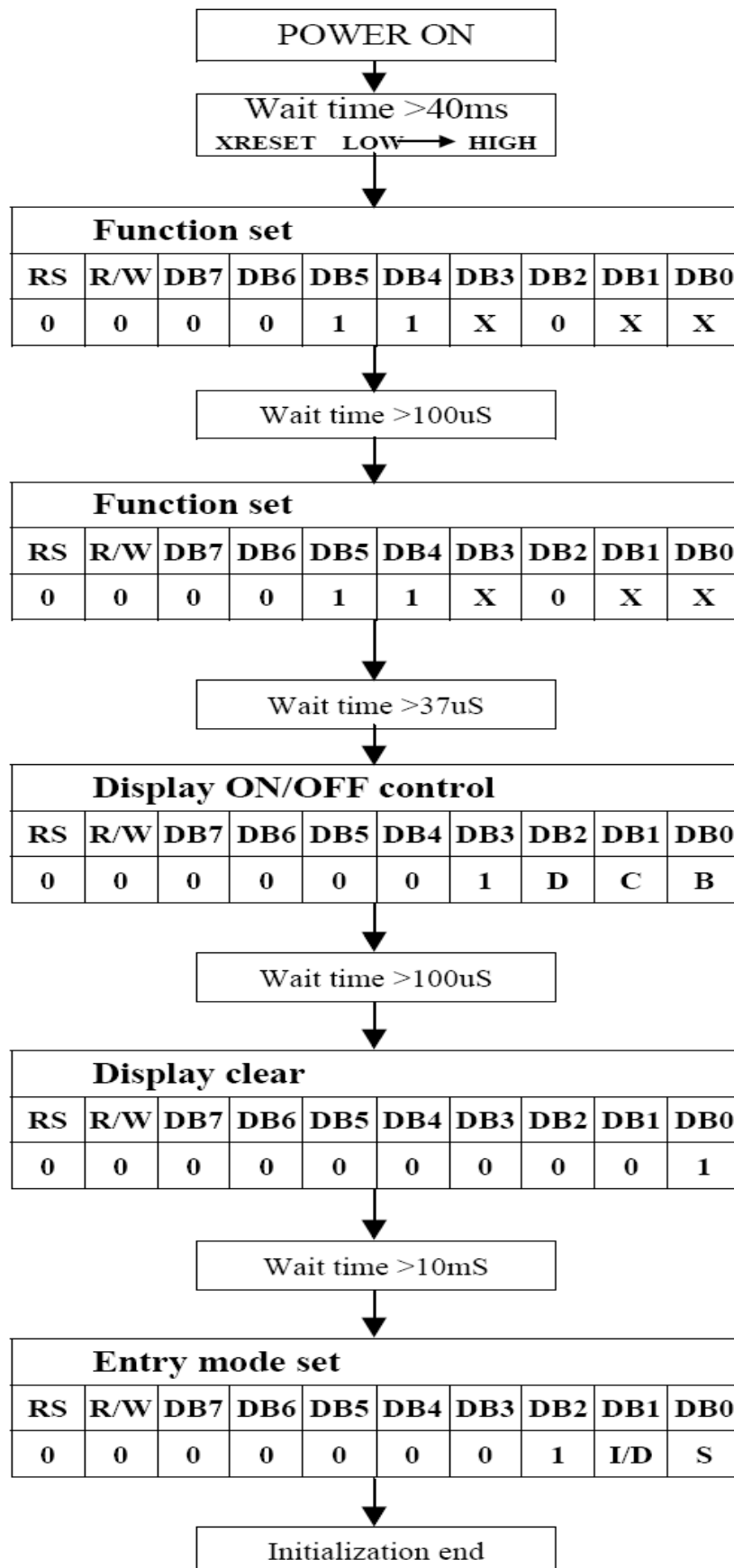
Ins	code										Description	Exec time (540KHZ)
	RS	RW	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0		
CLEAR	0	0	0	0	0	0	0	0	0	1	Fill DDRAM with "20H", and set DDRAM address counter (AC) to "00H"	1.6 ms
HOME	0	0	0	0	0	0	0	0	0	1 X	Set DDRAM address counter (AC) to "00H", and put cursor to origin ; the content of DDRAM are not changed	72us
ENTRY MODE	0	0	0	0	0	0	0	0	1	I/D S	Set cursor position and display shift when doing write or read operation	72us
DISPLAY ON/OFF	0	0	0	0	0	0	1	D	C	B	D=1: display ON C=1: cursor ON B=1: blink ON	72 us
CURSOR DISPLAY CONTROL	0	0	0	0	0	1	S/C	R/L	X	X	Cursor position and display shift control ; the content of DDRAM are not changed	72 us
FUNCTION SET	0	0	0	0	1	DL	X	0 RE	X	X	DL=1 8-BIT interface DL=0 4-BIT interface <u>RE=1: extended instruction</u> <u>RE=0: basic instruction</u>	72 us
SET CGRAM ADDR.	0	0	0	1	AC5	AC4	AC3	AC2	AC1	AC0	Set CGRAM address to address counter (AC) <u>Make sure that in extended instruction SR=0 (scroll or RAM address select)</u>	72 us
SET DDRAM ADDR.	0	0	1	0 AC6	AC5	AC4	AC3	AC2	AC1	AC0	Set DDRAM address to address counter (AC) AC6 is fixed to 0	72 us
READ BUSY FLAG (BF) & ADDR.	0	1	BF	AC6	AC5	AC4	AC3	AC2	AC1	AC0	Read busy flag (BF) for completion of internal operation, also Read out the value of address counter (AC)	0 us
WRITE RAM	1	0	D7	D6	D5	D4	D3	D2	D1	D0	Write data to internal RAM (DDRAM/CGRAM/IRAM/GDRAM)	72 us
READ RAM	1	1	D7	D6	D5	D4	D3	D2	D1	D0	Read data from internal RAM (DDRAM/CGRAM/IRAM/GDRAM)	72 us

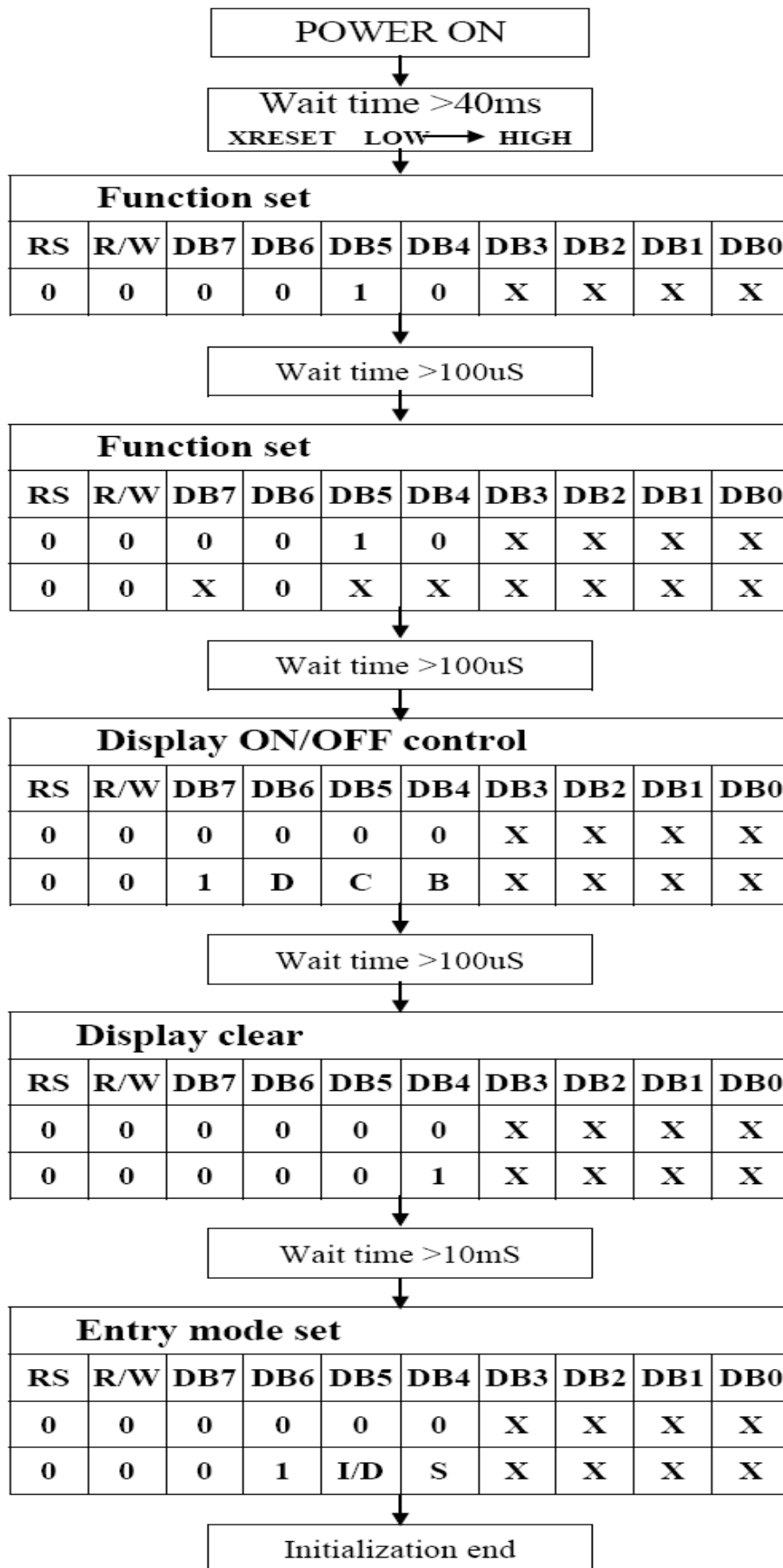
**Instruction set 2: (RE=1: extended instruction)**

Inst.	code										description	Exec. time (540KHZ)
	RS	RW	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0		
STAND BY	0	0	0	0	0	0	0	0	0	1	Enter stand by mode, any other instruction can terminate (Com1..32 halted, only Com33 ICON can display)	72 us
SCROLL or RAM ADDR. SELECT	0	0	0	0	0	0	0	0	0	1	SR SR=1: enable vertical scroll position SR=0: enable IRAM address ( <b>extended instruction</b> ) SR=0: enable CGRAM address( <b>basic instruction</b> )	72 us
REVERSE	0	0	0	0	0	0	0	0	1	R1 R0	Select 1 out of 4 line ( in DDRAM) and decide whether to reverse the display by toggling this instruction <b>R1,R0 initial value is 00</b>	72 us
SLEEP	0	0	0	0	0	0	0	1	SL	X X	SL=1: leave sleep mode SL=0: enter sleep mode	72 us
EXTENDED FUNCTION SET	0	0	0	0	1	DL	X	1	RE	G 0	DL=1 8-BIT interface DL=0 4-BIT interface <b>RE=1: extended instruction set</b> <b>RE=0: basic instruction set</b> G=1 :graphic display ON G=0 :graphic display OFF	72 us
SET IRAM or SCROLL ADDR	0	0	0	1	AC5	AC4	AC3	AC2	AC1	AC0	SR=1: AC5~AC0 the address of vertical scroll SR=0: AC3~AC0 the address of ICON RAM	72 us
SET GRAPHIC RAM ADDR.	0	0	1	0	0	0	AC3	AC2	AC1	AC0	Set GDRAM address to address counter ( AC ) First set vertical address and the horizontal address by consecutive writing Vertical address range AC6...AC0 Horizontal address range AC3...AC0	72 us

**Note :**

1. Make sure that ST7920 is not in busy state by reading the busy flag before sending instruction or data. If use delay loop instead please make sure the delay time is enough. Please refer to the instruction execution time.
2. "RE" is the selection bit of basic and extended instruction set. Each time when altering the value of RE it will remain. There is no need to set RE every time when using the same group of instruction set.

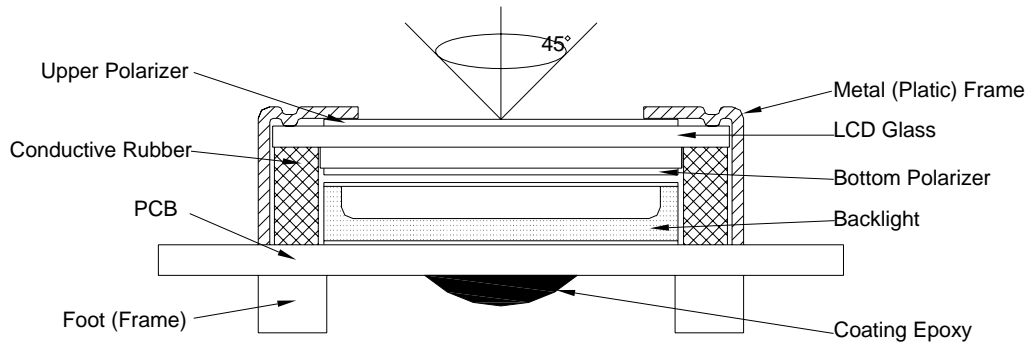
**6-2 8- bit Initialization sequence**

**6-3 4- bit Initialization sequence**

## 7.QUALITY SPECIFICATIONS

### 7 - 1. LCM Appearance and Electric inspection Condition

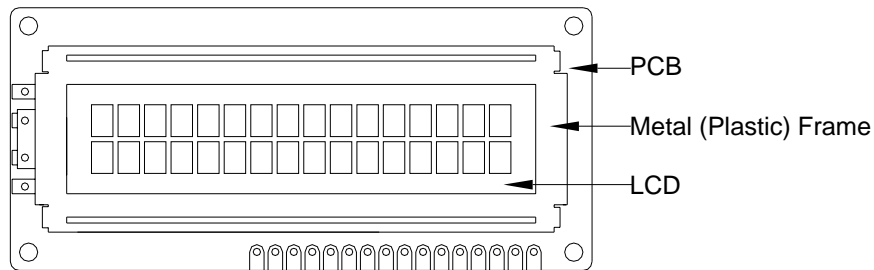
1. Inspection will be done by placing LCM 30cm away from inspector's eyeballs under normal illumination.



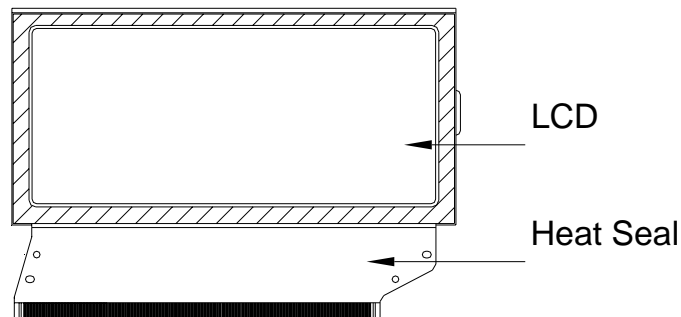
2. View Angle: with in 45° around perpendicular line.

### 7 - 2. Definition

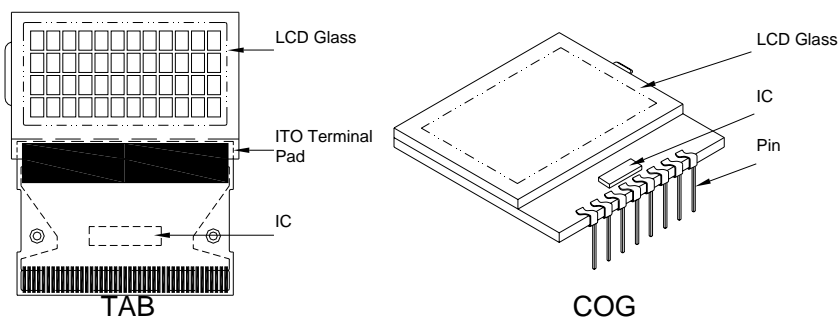
#### 1. COB



#### 2. Heat Seal



#### 3. TAB and COG



**7-3. Sampling Plan and Acceptance**

## 1. Sampling Plan

MIL - STD - 105E ( || ) ordinary single inspection is used.

## 2. Acceptance

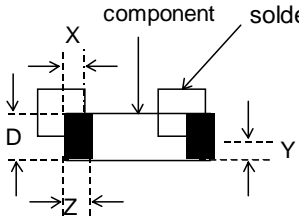
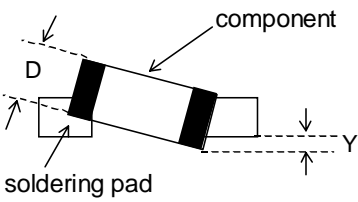
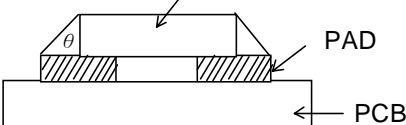
Major defect: AQL = 0.65%

Minor defect: AQL = 1.5%

**7-4. Criteria****1. COB**

Defect	Inspection Item	Inspection Standards	
Major	PCB copper flakes peeling off	Any copper flake in viewing Area should be greater than 1.0mm <sup>2</sup>	Reject
Major	Height of coating epoxy	Exceed the dimension of drawing	Reject
Major	Void or hole of coating epoxy	Expose bonding wire or IC	Reject
Major	PCB cutting defect	Exceed the dimension of drawing	Reject

**2. SMT**

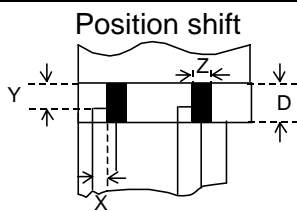
Defect	Inspection Item	Inspection Standards	
Minor	Component marking not readable		Reject
Minor	Component height	Exceed the dimension Of drawing	Reject
Major	Component solder defect (missing , extra, wrong component or wrong orientation)		Reject
Minor	Component position shift 	$X < 3/4Z$ $Y > 1/3D$	Reject Reject
Minor	Component tilt 	$Y > 1/3D$	Reject
Minor	Insufficient solder 	$\theta \leq 20^\circ$	Reject

**3. Metal (Plastic) Frame**

Defect	Inspection Item	Inspection Standards	
Major	Crack / breakage	Anywhere	
		W	L
		$w < 0.1\text{mm}$	Any
		$0.1 \leq w < 0.2\text{mm}$	$L \leq 5.0\text{mm}$
		$0.2 \leq w < 0.3\text{mm}$	$L \leq 3.0\text{mm}$
		$w \geq 0.3\text{mm}$	Any
		Acceptable of Scratch	
		Ignore	
		2	
		1	
		0	
		Note : 1. Above criteria applicable to scratch lines with distance greater than 5mm. 2. Scratch on the back side of frame (not visible) can be ignored .	
			Acceptable of Dents / Pricks
		$\Phi \leq 1.0\text{mm}$	2
		$1.0 < \Phi \leq 1.5\text{mm}$	1
		$1.5\text{mm} < \Phi$	0
		Note : 1. Above criteria applicable to any two dents / pricks with distance greater than 5mm 2. Dent / prick on the back side of frame (not visible) can be ignored	
Minor	Frame Deformation	Exceed the dimension of drawing	
Minor	Metal Frame Oxidation	Any rust	

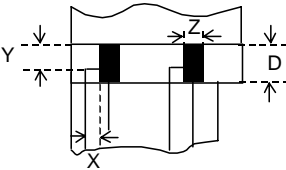
**4. Flexible Film Connector (FFC)**

Defect	Inspection Item	Inspection Standards	
Minor	Tilted soldering	Within the angle $+5^\circ$	Acceptable
Minor	Uneven solder joint /bump		Reject
		Expose the conductive line	Reject
		$\Phi > 1.0\text{mm}$	Reject
		$Y > 1/3D$	Reject
		$X > 1/2Z$	Reject

**5. Screw**

Defect	Inspection Item	Inspection Standards	
Major	Screw missing/loosen		Reject
Minor	Screw oxidation	Any rust	Reject
Minor	Screw deformation	Difficult to accept screw driver	Reject

**6. Heatseal 、TCP 、FPC**

Defect	Inspection Item	Inspection Standards	
Major	Scratch expose conductive layer		Reject
Minor	HS Hole $\Phi = \frac{L+W}{2}$	$\Phi > 0.5\text{mm}$	Reject
Major	Adhesion strength	Less than the specification	Reject
Minor	Position shift 	$Y > 1/3D$	Reject
		$X > 1/2Z$	Reject
Major	Conductive line break		Reject

**7. LED Backing Protective Film and Others**

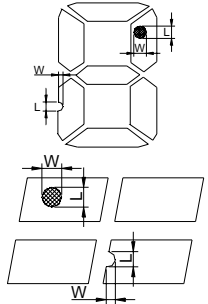
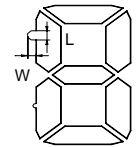
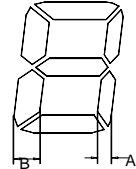
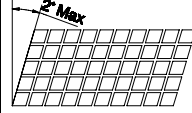
Defect	Inspection Item	Inspection Standards	
Minor	LED dirty, prick	Acceptable number of units	
		$\Phi \leq 0.10\text{mm}$	Ignore
		$0.10 < \Phi \leq 0.15\text{mm}$	2
		$0.15 < \Phi \leq 0.2\text{mm}$	1
		$\Phi > 0.2\text{mm}$	0
The distance between any two spots should be $\geq 5\text{mm}$ Any spot/dot/void outside of viewing area is acceptable			
Minor	Protective film tilt	Not fully cover LCD	Reject
Major	COG coating	Not fully cover ITO circuit	Reject

**8. Electric Inspection**

Defect	Inspection Item	Inspection Standards	
Major	Short		Reject
Major	Open		Reject



## 9. Inspection Specification of LCD

Defect	Inspect Item	Inspection Standards				
		W	$W \leq 0.03$	$0.03 < W \leq 0.05$	$W > 0.05$	
Minor	Linear Defect * Glass Scratch * Polarizer Scratch * Fiber and Linear material	L	$L < 5$	$L < 3$	Any	
		ACC. NO.	1	1	Reject	
		Note	L is the length and W is the width of the defect			
Minor	Black Spot and Polarizer Pricked * Foreign material between glass and polarizer or glass and glass * Polarizer hole or protuberance by external force	$\Phi$	$\Phi \leq 0.1$	$0.1 < \Phi \leq 0.15$	$0.15 < \Phi \leq 0.2$	$\Phi > 0.2$
		ACC. NO.	3EA / 100mm <sup>2</sup>	2	1	0
		Note	$\Phi$ is the average diameter of the defect. Distance between two defects > 10mm.			
Minor	White Spot and Bubble in polarizer * Unobvious transparent foreign material between glass and glass or glass and polarizer * Air protuberance between polarizer and glass	$\Phi$	$\Phi \leq 0.3$	$0.3 < \Phi \leq 0.5$	$0.5 < \Phi$	
		ACC. NO.	3EA / 100mm <sup>2</sup>	1	0	
		Note	$\Phi$ is the average diameter of the defect. Distance between two defects > 10mm.			
Minor	Segment Defect 	$\Phi$	$\Phi \leq 0.10$	$0.10 < \Phi \leq 0.20$	$0.20 < \Phi \leq 0.25$	$\Phi > 0.25$
		ACC. NO.	3EA / 100mm <sup>2</sup>	2	1	0
		Note	W is more than 1/2 segment width			Reject
			$\Phi = \frac{L + W}{2}$ Distance between two defect is 10mm			
Minor	Protuberant Segment  $\Phi = (L + W) / 2$	$\Phi$	$\Phi \leq 0.10$	$0.10 < \Phi \leq 0.20$	$0.20 < \Phi \leq 0.25$	$\Phi > 0.25$
		W	Glue	$W \leq 1/2$ Seg $W < 0.2$	$W \leq 1/2$ Seg $W < 0.2$	Ignore
		ACC. NO.	3EA / 100mm <sup>2</sup>	2	1	0
Minor	Assembly Mis-alignment  	1. Segment				
		B	$B \leq 0.4\text{mm}$	$0.4 < B \leq 1.0\text{mm}$	$B > 1.0\text{mm}$	
		B-A	$B-A < 1/2B$	$B-A < 0.2$	$B-A < 0.25$	
		Judge	Acceptable	Acceptable	Acceptable	
		2. Dot Matrix				
		Deformation > 2°			Reject	
Minor	Stain on LCD Panel Surface	Accept when stains can be wiped lightly with a soft cloth or a similar one. Otherwise, judged according to the above items: "Black spot" and "White Spot"				

### 8.CHARACTER GENERATOR ROM (ST7920-0F)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
A1A0	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	詭	A8A0	頂	項	須	頤	頓	預	頰	頤	頤	頰	頰	頰	頰	頰	食			
A1B0	誤	說	說	說	說	說	說	說	說	說	說	說	說	說	說	說	A8B0	飢	飯	飲	餽	餽	餽	餽	餽	餽	餽	餽	餽	餽	餽	饒			
A1C0	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	A8C0	饗	飲	饗	饗	饗	饗	饗	饗	饗	饗	饗	饗	饗	饗	饗	饗		
A1D0	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	諜	A8D0	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟		
A1E0	訂	認	討	讓	讓	讓	讓	讓	讓	讓	讓	讓	讓	讓	讓	讓	A8E0	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟	駟		
A1F0	試	詩	話	誕	詢	該	詳	語	誤	誘	說	請	諸	諾	調	談	A8F0	變	鬼	魁	魏	魏	魏	魏	魏	魏	魏	魏	魏	魏	魏	魏	魏		
A2A0	謂	謝	謬	譚	譚	譚	譚	譚	譚	譚	譚	譚	譚	譚	譚	譚	A9A0	鯉	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪	鮪		
A2B0	貞	負	財	貢	貨	販	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	A9B0	鮑	鮮	鳥	鳩	鳳	鳴	鷓	鴉	鴉	鴉	鴉	鴉	鴉	鴉	鴉	鴉		
A2C0	費	貼	賀	賀	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	A9C0	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	鵠	
A2D0	賜	賞	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	A9D0	麟	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	麥	
A2E0	責	賢	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	賈	A9E0	默	黛	點	點	點	點	點	點	點	點	點	點	點	點	點	點	點	
A2F0	贊	赤	赦	赫	走	赴	趙	起	趁	超	越	趙	趙	趙	趙	趙	A9F0	龍	糞																
A3A0	距	跟	跡	跨	路	跳	踐	踊	踏	蹄	蹈	躡	躡	躡	躡	躡	AAA0																		
A3B0	車	軌	軍	軒	軟	軸	輕	較	載	輔	輦	輦	輦	輦	輦	輦	AAB0																		
A3C0	輸	輿	輿	輿	輿	輿	輿	輿	輿	輿	輿	輿	輿	輿	輿	輿	AAC0																		
A3D0	較	輔	輯	輸	輿	辛	辜	辭	辦	辦	辦	辦	辦	辦	辦	辦	AAD0	一																	
A3E0	計	入	達	迤	迂	迄	迅	過	迎	運	近	返	這	進	遠	連	AAE0																		
A3F0	迟	迦	途	迪	迫	迭	述	迷	追	退	适	逃	逢	逆	選		AAF0	.	!	?	,	'	"												
A4A0	透	逐	通	途	逗	這	通	逝	速	造	逢	連	達	達	達	達	ABA0																		
A4B0	逸	逼	遁	遂	渥	遇	遊	運	遍	過	道	達	達	達	達	達	ABB0																		
A4C0	遜	遠	溯	遙	適	適	適	適	適	適	適	適	適	適	適	適	ABC0																		
A4D0	還	邊	邑	邛	邢	邢	邢	邢	邢	邢	邢	邢	邢	邢	邢	邢	ABD0																		
A4E0	郁	郊	郎	邨	邨	邨	邨	邨	邨	邨	邨	邨	邨	邨	邨	邨	ABE0																		
A4F0	鄂	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	鄒	ABF0	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	
A5A0	酪	酬	醇	酷	酸	醇	醇	醇	醇	醇	醇	醇	醇	醇	醇	醇	ACA0	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
A5B0	采	积	释	里	重	野	量	釐	金	釘	釜	針	鈞	鈞	鈞	鈞	ACB0	*	+	-	<	>	=	\	\$	%	@	!	"	#	\$	%			
A5C0	斜	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	ACC0	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4			
A5D0	銑	銘	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	ACD0	5	6	7	8	9	:	;	<	=	>	?	@	A	B	C	D		
A5E0	錢	錦	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	鈔	ACE0	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
A5F0	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	鎗	ACF0	U	V	W	X	Y	Z	[	\	]	^	_	'	a	b	c	d		
A6A0	料	鈕	錢	鐵	鈴	銀	鎖	借	鍵	鐘	鎮	鏡	長	長	門	閃	ADA0	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t		
A6B0	閨	閉	開	閨	閉	閨	閉	閨	閉	閨	閉	閨	閉	閨	閉	閨	ADB0	u	v	w	x	y	z	{		}	~	¢	£	↵	〒				
A6C0	閨	閉	開	閨	閉	閨	閉	閨	閉	閨	閉	閨	閉	閨	閉	閨	ADC0	\																	
A6D0	聞	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	閨	ADD0																		
A6E0	附	際	陸	陳	降	限	陸	院	陣	除	陷	險	陪	陰	陳	陵	ADE0																		
A6F0	陶	陸	險	陽	隅	降	限	隊	階	隨	隱	隔	隗	隙	際	障	ADF0																		
A7A0	隱	隣	隨	隗	隗	隗	隗	隗	隗	隗	隗	隗	隗	隗	隗	隗	AEA0																		
A7B0	雕	雖	雙	雞	雞	雞	雞	雞	雞	雞	雞	雞	雞	雞	雞	雞	AEB0																		
A7C0	需	震	靈	霍	霜	霞	霧	露	青	靖	靜	非	面	革	靴																				
A7D0	斬	靴	靴	靴	靴	靴	靴	靴	靴	靴	靴	靴	靴	靴	靴	靴																			
A7E0	響	頁	頂	項	順	須	預	項	頻	頻	頻	頻	頻	頻	頻																				
A7F0	穎	頻	穎	穎	穎	穎	穎	穎	穎	穎	穎	穎	穎	穎	穎																				

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
B0A0					ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	B8A0	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			
B0B0	²	³	´	μ	¶	·	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	B8B0	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕				
B0C0	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	B8C0	nF	μF	μg	mg	kg	Hz	kHz	MHz	GHz	THz	μA	nA	μA	mA	kA	cal	kcal	pF	
B0D0	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	ˆ	B8D0	μm	mm	cm	km	m	mm	cm	m	mm	cm	m³	km³	%	%	Pa	kPa			
B0E0	è	é	ê	ë	í	ï	ñ	ò	ó	ô	õ	ö	÷	ø	ù	B8E0	MPa	GPa	rad	rad/s	rad/s²	ps	ns	μs	ms	pV	nV	μV	mV	kV	MV	pW			
B0F0	ú	û	ü	ā	À	á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	B8F0	nW	μW	mW	kW	MW	kΩ	MΩ	am	Bq	cc	cd	%	Co.	dB	Gy				
B1A0	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	ı	B9A0	ha	KM	kt	lm	ln	log	lx	mil	mol	pm	sr	Sv	wb	①	②				
B1B0	ō	œ	œ	š	š	ŧ	ŧ	ū	ž	ž	ž	ž	ž	ž	ž	B9B0	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱			
B1C0	ū	ú	û	ù	ā	á	â	ã	ä	å	æ	ç	è	é	ê	B9C0	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)			
B1D0	”	Á	É	Ĥ	İ	Ò	Ω	Α	Β	Γ	Δ	Ε	Ζ	Η	Θ	I	B9D0	20	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.		
B1E0	K	Λ	M	N	Β	Ο	Π	P	Σ	T	Υ	Φ	X	Ψ	Ω	Ï	B9E0	16.	17.	18.	19.	20.	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)		
B1F0	α	ε	η	ι	α	β	γ	δ	ε	ξ	η	θ	ι	κ	λ	B9F0	(1)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)	(u)	(v)	(w)	(x)	(y)	(z)				
B2A0	μ	ν	ξ	ο	π	ρ	ς	σ	τ	υ	φ	χ	ψ	ω	ι	BAA0	@	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ	ⓗ	ⓘ	ⓙ	ⓚ	ⓛ	ⓜ	ⓝ	ⓞ				
B2B0	ò	ó	ô	õ	ä	å	æ	ç	è	é	ê	ë	ì	í	î	BAB0	ⓐ	ⓑ	ⓒ	ⓓ	ⓔ	ⓕ	ⓖ	ⓗ	ⓘ	ⓙ	ⓚ	ⓛ	ⓜ	ⓝ	ⓞ	ⓟ			
B2C0	M	H	O	P	C	T	Y	Φ	X	Ц	Ч	Ш	Щ	Ъ	Ы	BAC0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
B2D0	Ь	Э	Ю	Я	а	б	в	г	д	е	ж	з	и	й	к	BAD0	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L			
B2E0	М	Н	О	П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	BAE0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
B2F0	Ь	Э	Ю	Я	ё	-	-	-	-	-	-	-	-	-	-	†	BAF0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
B3A0	‡	•	•	•	‰	”	”	”	”	”	”	”	”	”	”	BBA0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			
B3B0	€	°	°	°	°	°	°	°	°	°	°	°	°	°	°	BBB0	☾	☽	☼	☽	☼	☽	☼	☽	☼	☽	☼	☽	☼	☽	☼	☽			
B3C0	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	i	ii	iii	iv	BBC0	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
B3D0	v	vi	vii	viii	ix	x	←	↑	→	↓	↔	↕	↖	↗	↘	↙	BBD0	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲		
B3E0	⇒	⇌	∇	∂	∃	∇	∃	∏	∑	/	√	∞	∞	L	∠	BBE0	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲			
B3F0			∧	∨	∩	∪	∩	∪	∩	∪	∩	∪	∩	∪	∩	BBF0	♠	♥	♣	♠	♥	♣	♠	♥	♣	♠	♥	♣	♠	♥	♣	♠			
B4A0	≈	≅	≅	≅	≅	≅	≅	≅	≅	≅	≅	≅	≅	≅	≅	B4A0	○	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊			
B4B0	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	⊆	B4B0	Ⓛ	”	”	”	”	”	”	”	”	”	”	”	”	”	”	”			
B4C0	お	か	が	き	ぎ	く	く	け	げ	こ	さ	ざ	し	じ	す	B4C0																			
B4D0	ず	せ	ぜ	そ	た	だ	ち	っ	つ	つ	て	と	ど			B4D0																			
B4E0	な	に	ぬ	ね	の	は	ば	び	び	び	ふ	ふ	ふ	へ	べ	B4E0																			
B4F0	べ	ほ	ぼ	ま	み	む	め	も	や	や	ゆ	ゆ	よ	よ		B4F0																			
B5A0	ら	り	る	れ	ろ	わ	わ	め	ゑ	を	ん	”	”	”	”	B5A0																			
B5B0	ア	アイ	イ	ウ	エ	オ	カ	キ	ク	グ						B5B0																			
B5C0	ケ	ゲ	コ	ゴ	サ	ザ	シ	ジ	ス	セ	ソ	タ	ダ			B5C0	가	각	간	간	갈	갈	감	감	감	감	감	감	감	감	감	감	감		
B5D0	チ	チ	ツ	ツ	テ	ト	ナ	ニ	ヌ	ネ	ノ	ハ	ハ			B5D0	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈		
B5E0	パ	ピ	ピ	ピ	フ	フ	ヘ	ベ	ベ	ホ	ボ	マ	ミ	ム		B5E0	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	
B5F0	メ	モ	ヤ	ユ	ユ	ヨ	ラ	リ	ル	レ	ロ	ワ	フ		B5F0	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	갈	
B6A0	井	工	ヲ	ン	ウ	カ	ケ	一	、	、	、	、	、	、	、	B6A0																			
B6B0	夕	去	ろ	夕	夕	夕	夕	夕	夕	夕	夕	夕	夕	夕	夕	B6B0																			
B6C0	ム	Υ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B6C0																			
B6D0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B6D0																			
B6E0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B6E0																			
B6F0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B6F0																			
B7A0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B7A0																			
B7B0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B7B0																			
B7C0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B7C0																			
B7D0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B7D0																			
B7E0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B7E0																			
B7F0	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	ㄷ	B7F0																			

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
C0A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C0B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C0C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C0D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C0E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C0F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C1A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C1B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C1C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C1D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C1E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C1F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C2A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C2B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C2C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C2D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C2E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C2F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C3A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C3B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C3C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C3D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C3E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C3F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C4A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C4B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C4C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C4D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C4E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C4F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C5A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C5B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C5C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C5D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C5E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C5F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C6A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C6B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C6C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C6D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C6E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C6F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C7A0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C7B0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C7C0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C7D0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C7E0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C7F0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F



0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F							
E0A0	姿	威	娃	婁	娘	媼	媼	媼	媼	媼	媼	媼	媼	媼	媼	E8A0	朱	朴	机	朽	杀	杂	杈	杉	杏	材	村	杓	杖	杜	束							
E0B0	媒	媚	媛	媼	媼	媼	媼	媼	媼	媼	媼	媼	媼	媼	媼	E8B0	条	空	来	杨	杭	杯	杈	东	杷	松	板	极	枸	枇								
E0C0		字	存	孙	孜	孝	孟	孤	季	孤	孀	孀	孀	孀	孀	E8C0		析	枕	林	枚	果	杈	杓	杓	架	桡	柁	柁									
E0D0	安	客	宿	寤	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E8D0	某	柑	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡								
E0E0	宿	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E8E0	柿	格	栽	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡							
E0F0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E8F0	格	栽	栽	栽	栽	栽	栽	栽	栽	栽	栽	栽	栽	栽	栽	栽						
E1A0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E9A0	桥	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡						
E1B0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E9B0	棍	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡					
E1C0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E9C0		植	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡					
E1D0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E9D0	煤	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡					
E1E0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E9E0	槻	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡				
E1F0	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	寐	E9F0	樽	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡	桡				
E2A0	左	巧	巨	夙	夙	夙	夙	夙	夙	夙	夙	夙	夙	夙	夙	EAA0	爵	欠	武	武	武	武	武	武	武	武	武	武	武	武	武	武	武	武				
E2B0	布	帅	帆	师	希	帕	帖	帛	帝	帥	幣	干	平	年	并	EAB0	正	此	步	武	武	武	武	武	武	武	武	武	武	武	武	武	武	武				
E2C0		帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	帛	EAC0		殉	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊	殊			
E2D0	幹	幻	幼	幽	幾	庀	度	座	庫	庭	庵	席	康	庸	并	EAD0	每	毒	比	毕	昆	毛	壹	氏	民	气	氣	氣	氣	氣	氣	氣	氣	氣				
E2E0	庀	店	庚	府	庀	度	座	庫	庭	庵	席	康	庸	并	并	EAE0	汨	汀	汁	求	汉	汎	汐	汗	污	汝	江	池	汚	汤	汪	汰	沸	素				
E2F0	廉	廊	廓	廓	廓	廓	廓	廓	廓	廓	廓	廓	廓	廓	廓	EAF0	汲	汶	决	汽	沃	沈	沌	沒	沓	冲	沙	沒	沢	沫	河	沸	素					
E3A0	弃	弄	弊	式	式	弔	弔	弔	弔	弔	弔	弔	弔	弔	弔	EBA0	油	洽	沼	沿	况	泉	泊	泌	法	泡	波	泣	泥	注	泪	净	湮	渥	源	滴		
E3B0	弯	弱	張	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	強	
E3C0		彪	彪	彪	彪	彪	彪	彪	彪	彪	彪	彪	彪	彪	彪	彪	EBC0		浅	测	济	浏	浜	浦	浩	浪	淫	海	浸	涂	深	淳	渥	源	滴	滴		
E3D0	後	徐	徒	從	從	從	從	從	從	從	從	從	從	從	從	EBD0	消	涌	滾	涛	流	湮	液	涼	澁	漸	溪	渚	減	渠	滿	滂	滿	滴	滴			
E3E0	必	忌	忍	志	忘	忙	心	忠	快	念	忽	懷	恣	怒	恚	EBE0	淵	混	淺	添	清	湯	濟	涉	洪	漸	溪	渚	減	渠	滿	滂	滿	滴	滴			
E3F0	思	怠	急	性	怨	怪	怯	忌	恚	恚	恚	恚	恚	恚	恚	EBF0	渦	温	測	港	游	湊	湖	湘	灑	漣	漫	瀆	漸	滿	滂	滿	滴	滴	滴			
E4A0	恭	息	怡	惠	惡	悉	佛	悔	悟	悠	患	悅	愆	愆	愆	ECA0	準	溜	溝	溢	溪	溫	溶	灑	漣	漫	瀆	漸	滿	滂	滿	滴	滴	滴	滴			
E4B0	悶	悼	情	悼	驚	惑	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	愆	
E4C0		愁	愈	愉	意	愚	愛	感	愿	慈	愆	愆	愆	愆	愆	ECC0		潔	潘	潛	濕	潤	潮	潰	澗	澤	澗	澗	澗	澗	澗	澗	澗	澗	澗	澗	澗	
E4D0	慧	慨	慮	慰	慶	慈	憂	愆	愆	愆	愆	愆	愆	愆	愆	ECD0	濃	濟	濛	濡	濛	濛	濯	灑	灑	灑	灑	灑	灑	灑	灑	灑	灑	灑	灑	灑	灑	灑
E4E0	應	懷	徵	懷	懸	戈	戍	戍	戎	戎	戎	戎	戎	戎	戎	ECE0	燈	灰	靈	灸	灼	災	焚	無	焦	然	燒	煉	煎	煙	燻	燻	燻	燻	燻	燻	燻	
E4F0	戟	戰	戲	戰	戲	戴	戶	戶	戶	戶	戶	戶	戶	戶	戶	ECF0	烙	烟	燒	熱	烹	熔	熟	熱	燃	燈	燻	燻	燻	燻	燻	燻	燻	燻	燻	燻	燻	
E5A0	才	扎	打	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	EDA0	煩	煮	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	
E5B0	把	抑	投	抗	折	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	EDB0	爛	爪	爭	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	爨	
E5C0		抽	担	拉	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	EDC0		牛	牝	牟	牡	牢	牧	物	牲	特	牽	犀	犛	犬	犯	狀	猛	玄	現	瑪		
E5D0	拔	擇	括	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	扌	EDD0	狀	狂	狄	狐	狗	狙	狍	猓	猓	猓	猓	猓	猓	猓	猓	猓	猓	猓	猓	猓	猓	猓
E5E0	揆	挪	挫	振	挺	撓	撓	撓	撓	撓	撓	撓	撓	撓	撓	EDE0	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜	猜
E5F0	据	捲	捷	捺	捺	捺	捺	捺	捺	捺	捺	捺	捺	捺	捺	EDF0	率	玉	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳	玳
E6A0	控	推	掩	措	搨	搨	搨	搨	搨	搨	搨	搨	搨	搨	搨	EEA0	球	理	琉	琢	琳	琴	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	瑟	
E6B0	揮	援	搖	搨	搨	搨	搨	搨	搨	搨	搨	搨	搨	搨	搨	EEB0	瑤	璃	環	璽	瓜	瓢	瓣	瓦	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	
E6C0		撒	撕	撻	撻	撻	撻	撻	撻	撻	撻	撻	撻	撻	撻	EEC0		甜	生	產	產	甥	魁	用	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	甯	
E6D0	擢	攔	擬	攔	攔	攔	攔	攔	攔	攔	攔	攔	攔	攔	攔	EED0	旬	叮	画	界	畏	烟	畔	留	畜	畝	疇	瘠	瘠	瘠	瘠	瘠	瘠	瘠	瘠	瘠	瘠	
E6E0	敗	敘	教	敢	散	敦	敬	敦	敬	敦	敬	敦	敬	敦	敬	EEF0	峙	當	礙	幾	疆	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	疇	
E6F0	斐	斑	斗	料	斜	幹	斤	斥	斥	斥	斥	斥	斥	斥	斥	EFF0	的	盛	盟	盡	監	盤	虛	目	盲	直	相	盾	省	眉	看	瞿	予	砧	砧			
E7A0	施	放	旋	族	旗	无	既	日	易	昔	晉	晉	晉	晉	晉	EFA0	百	的	皆	皇	臯	皮	血	盃	盆	益	益	益	益	益	益	益	益	益	益	益		
E7B0	旺	昂	昂	昂	昌	明	昏	易	昔	晉	晉	晉	晉	晉	晉	EFB0	盤	的	皆	皇	臯	皮	血	盃	盆	益	益	益	益	益	益	益	益	益	益	益	益	
E7C0		昭	是	昼	显	晁	時	晁	晉	晉	晉	晉	晉	晉	晉	EFC0		具	真	眠	眺	眼	着	睡	督	睦	警	瞬	瞭	瞳	瞿	予	砧	砧	砧	砧		
E7D0	普	景	晴	晶	智	曉	暇	暑	暖	暗	曠	曠	曠	曠	曠	EFD0	矢	知	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	矧	
E7E0	曆	雲	曙	曜	曝	曠	曠	曠	曠	曠	曠	曠	曠	曠	曠	EFE0	砲	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破	破
E7F0	月	有	朋	朋	朋	朋	朋	朋	朋	朋	朋	朋	朋	朋	朋	EFF0	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確	確

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
F0A0	社	祗	祗	祗	祗	祗	祗	祗	祗	祗	祗	祗	祗	祗	祗	祗
F0B0	禁	禱	禱	禱	禱	禱	禱	禱	禱	禱	禱	禱	禱	禱	禱	禱
F0C0	私	秋	秋	秋	秋	秋	秋	秋	秋	秋	秋	秋	秋	秋	秋	秋
F0D0	程	稍	稍	稍	稍	稍	稍	稍	稍	稍	稍	稍	稍	稍	稍	稍
F0E0	穆	積	積	積	積	積	積	積	積	積	積	積	積	積	積	積
F0F0	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳	窳
F1A0	重	豎	豎	豎	豎	豎	豎	豎	豎	豎	豎	豎	豎	豎	豎	豎
F1B0	筴	筆	筆	筆	筆	筆	筆	筆	筆	筆	筆	筆	筆	筆	筆	筆
F1C0	算	管	管	管	管	管	管	管	管	管	管	管	管	管	管	管
F1D0	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩	籩
F1E0	粘	肅	肅	肅	肅	肅	肅	肅	肅	肅	肅	肅	肅	肅	肅	肅
F1F0	系	系	系	系	系	系	系	系	系	系	系	系	系	系	系	系
F2A0	紡	索	索	索	索	索	索	索	索	索	索	索	索	索	索	索
F2B0	絡	絢	絢	絢	絢	絢	絢	絢	絢	絢	絢	絢	絢	絢	絢	絢
F2C0	網	纒	纒	纒	纒	纒	纒	纒	纒	纒	纒	纒	纒	纒	纒	纒
F2D0	緬	緯	緯	緯	緯	緯	緯	緯	緯	緯	緯	緯	緯	緯	緯	緯
F2E0	織	繫	繫	繫	繫	繫	繫	繫	繫	繫	繫	繫	繫	繫	繫	繫
F2F0	緯	純	純	純	純	純	純	純	純	純	純	純	純	純	純	純
F3A0	繞	給	給	給	給	給	給	給	給	給	給	給	給	給	給	給
F3B0	繆	缶	缶	缶	缶	缶	缶	缶	缶	缶	缶	缶	缶	缶	缶	缶
F3C0	群	羣	羣	羣	羣	羣	羣	羣	羣	羣	羣	羣	羣	羣	羣	羣
F3D0	老	考	考	考	考	考	考	考	考	考	考	考	考	考	考	考
F3E0	聯	聖	聖	聖	聖	聖	聖	聖	聖	聖	聖	聖	聖	聖	聖	聖
F3F0	肌	肖	肖	肖	肖	肖	肖	肖	肖	肖	肖	肖	肖	肖	肖	肖
F4A0	胆	背	背	背	背	背	背	背	背	背	背	背	背	背	背	背
F4B0	脉	脊	脊	脊	脊	脊	脊	脊	脊	脊	脊	脊	脊	脊	脊	脊
F4C0	腫	腰	腰	腰	腰	腰	腰	腰	腰	腰	腰	腰	腰	腰	腰	腰
F4D0	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆	臆
F4E0	舌	舍	舍	舍	舍	舍	舍	舍	舍	舍	舍	舍	舍	舍	舍	舍
F4F0	艦	艮	艮	艮	艮	艮	艮	艮	艮	艮	艮	艮	艮	艮	艮	艮
F5A0	丙	忒	忒	忒	忒	忒	忒	忒	忒	忒	忒	忒	忒	忒	忒	忒
F5B0	苦	苧	苧	苧	苧	苧	苧	苧	苧	苧	苧	苧	苧	苧	苧	苧
F5C0	苟	荊	荊	荊	荊	荊	荊	荊	荊	荊	荊	荊	荊	荊	荊	荊
F5D0	莫	菜	菜	菜	菜	菜	菜	菜	菜	菜	菜	菜	菜	菜	菜	菜
F5E0	菜	萌	萌	萌	萌	萌	萌	萌	萌	萌	萌	萌	萌	萌	萌	萌
F5F0	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦
F6A0	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦	葦
F6B0	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞	蔞
F6C0	薛	薦	薦	薦	薦	薦	薦	薦	薦	薦	薦	薦	薦	薦	薦	薦
F6D0	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩	藩
F6E0	蚊	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤	蚤
F6F0	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰	蚰
F7A0	行	術	術	術	術	術	術	術	術	術	術	術	術	術	術	術
F7B0	被	袴	袴	袴	袴	袴	袴	袴	袴	袴	袴	袴	袴	袴	袴	袴
F7C0	裸	製	製	製	製	製	製	製	製	製	製	製	製	製	製	製
F7D0	規	視	視	視	視	視	視	視	視	視	視	視	視	視	視	視
F7E0	角	解	解	解	解	解	解	解	解	解	解	解	解	解	解	解
F7F0	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊	訊

**9. RELIABILITY**

NO.	Item	Condition	Criterion
1	High Temperature Operating	70°C , 96Hrs	No defect in cosmetic and operational function allowable.  Total current Consumption should be below double of initial value.
2	Low Temperature Operating	-20°C , 96Hrs	
3	High Humidity	50°C , 90%RH, 96Hrs	
4	High Temperature Storage	80°C , 96Hrs	
5	Low Temperature Storage	-30°C , 96Hrs	
6	Vibration	Random wave 10 ~ 100Hz Acceleration: 2g 2 Hrs per direction(X,Y,Z)	
7	Thermal Shock	-20°C to 25°C to 70°C (60Min) (5Min) (60Min) 16Cycles	
8	ESD Testing	Contract Discharge Voltage: +1 ~ 5kV and -1 ~ -5kV  Air Discharge Voltage: +1 ~ 8kV and -1 ~ -8kV	

Note: 1) Above conditions are suitable for our company standard products.

2) For restrict products, the test conditions listed as above must be revised.



## 10. HANDLING PRECAUTION

### (1) Mounting Method

The panel of the LCD Module consists of two thin glass plates with polarizers which easily get damaged since the Module is fixed by utilizing fitting holes in the printed circuit board. Extreme care should be taken when handling the LCD Modules.

### (2) Caution of LCD handling & cleaning

When cleaning the display surface, use soft cloth with solvent (recommended below) and wipe lightly.

- Isopropyl alcohol
- Ethyl alcohol
- Trichloro trifloro thane

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvent:

- Water
- Ketone
- Aromatics

### (3) Caution against static charge

The LCD Module use C-MOS LSI drivers, so we recommend that you connect any unused input terminal to VDD or VSS, do not input any signals before power is turned on. And ground your body, Work/assembly table. And assembly equipment to protect against static electricity.

### (4) Packaging

- Modules use LCD elements, and must be treated as such. Avoid intense shock and falls from a height.
- To prevent modules from degradation. Do not operate or store them exposed directly to sunshine or high temperature/humidity.

### (5) Caution for operation

- It is indispensable to drive LCD's within the specified voltage limit since the higher voltage than the limit shorten LCD life. An electrochemical reaction due to direct current causes LCD deterioration, Avoid the use of direct current drive.
- Response time will be extremely delayed at lower temperature than the operating temperature range and on the other hand at higher temperature LCD's show dark color in them. However those phenomena do not mean malfunction or out of order with LCD's. Which will come back in the specified operating temperature range.
- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.
- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit.

Usage under the relative condition of 40°C, 50%RH or less is reequired.

### (6) Storage

In the case of storing for a long period of time (for instance.) For years) for the purpose or replacement use, The following ways are recommended.

- Storage in a polyethylene bag with sealed so as not to enter fresh air outside in it, And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light is. Keeping temperature in the specified storage temperature range.
- Storing with no touch on polarizer surface by the anything else. (It is recommended to store them as they have been contained in the inner container at the time of delivery)

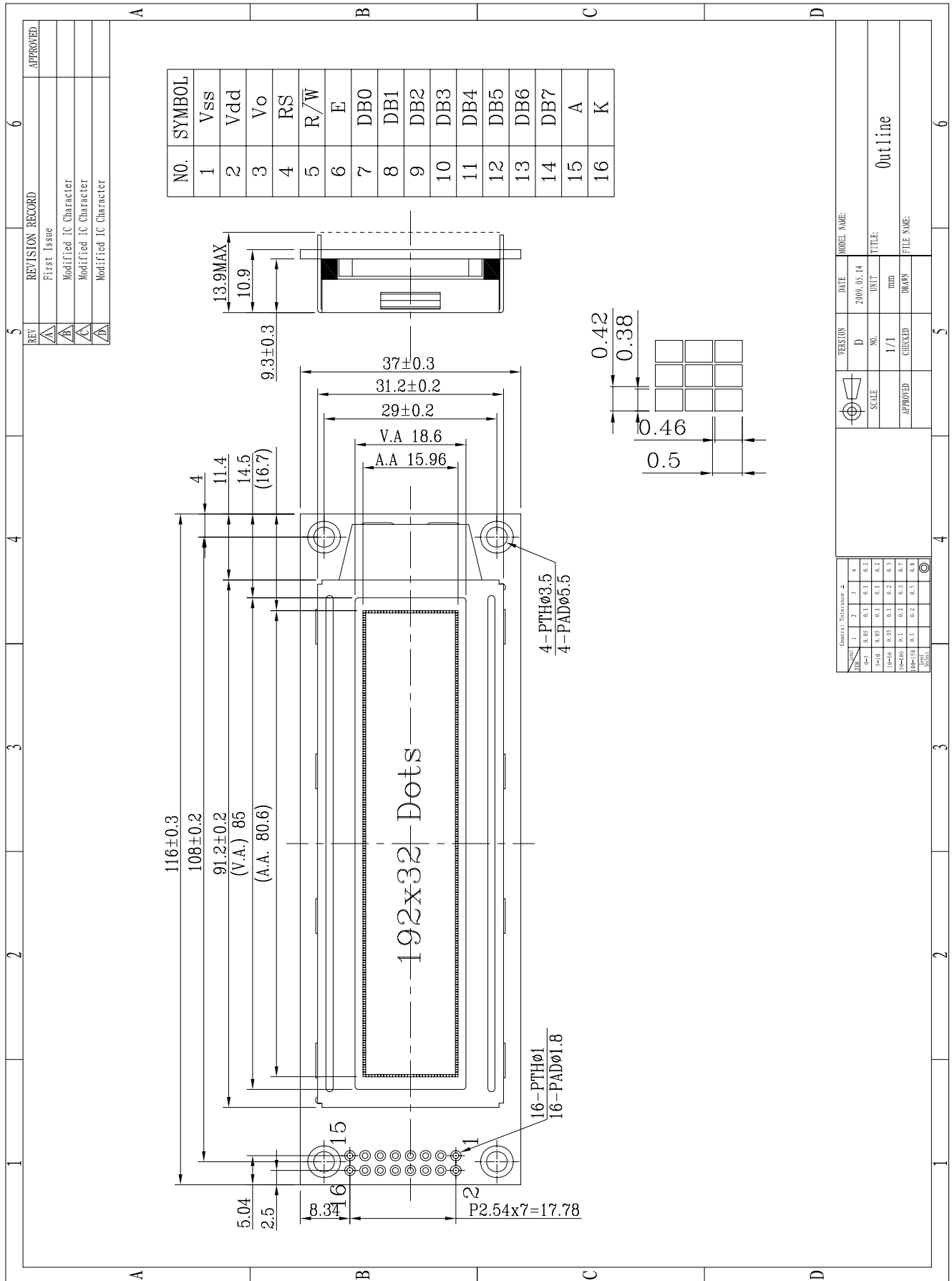
### (7) Safety

- It is recommendable to crash damaged or unnecessary LCD into pieces and wash off liquid crystal by using solvents such as acetone and ethanol.

Which should be burned up later.

- When any liquid crystal leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water.

# 11.OUTLINE DIMENSION



REV	REVISION RECORD	APPROVED
△	First Issue	
△	Modified IC Character	
△	Modified IC Character	
△	Modified IC Character	

VERSION	DATE	MODEL NAME
D	2009.05.14	

NO.	UNIT	TITLE
1/1	mm	Outline

APPROVED	CHECKED	DRAWN	FILE NAME

General Tolerance 4				
ITEM	1	2	3	4
SIZE	±0.1	±0.1	±0.1	±0.2
ANGLE	±0.5	±0.1	±0.1	±0.2
PLACEMENT	±0.05	±0.1	±0.2	±0.3
PERFORATION	±0.1	±0.1	±0.2	±0.2
PERFORATION	±0.1	±0.1	±0.2	±0.2
PERFORATION	±0.1	±0.1	±0.2	±0.2