DATASHEET

3/15/2013

Fema Part Number

GM320240V-57-TTX2NLW	
Description	5.7" Full Color TFT Display
	320x240 Resolution
	Brightness = 450 nits (Typical)
	Optional Resistive and Projected Capacitive Touch Panel Available

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1. BASIC SPECIFICATION

1.1 Mechanical specifications

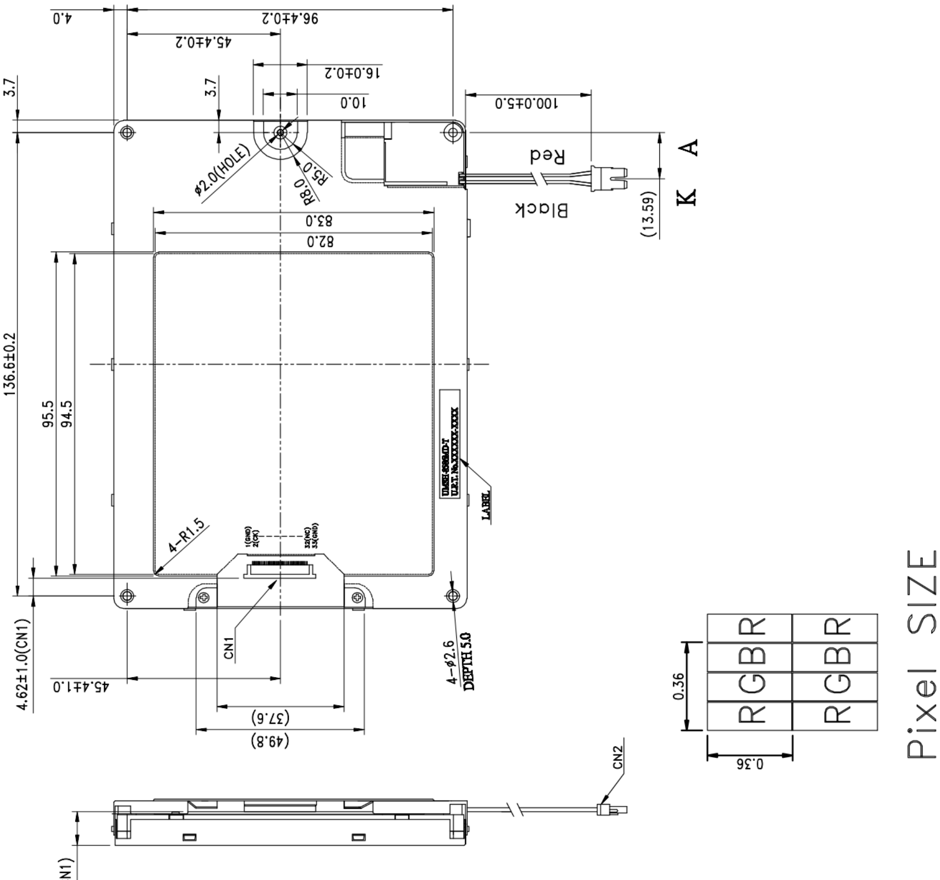
Items	Nominal Dimension	Unit
Active screen size	5.7” diagonal	-
Dot Matrix	320 x RGB x 240	Pixel
Module Size (W x H x T)	144.0 x 104.6 x 13.55	mm.
Active Area (W x H)	115.2 x 86.4	mm.
Dot Pitch (W x H)	0.36 x 0.36	mm.
Color depth	262K	color
Interface	Parallel 18bit	-
Driving IC Package	COG	-
Module weight	199 (Typ)	g

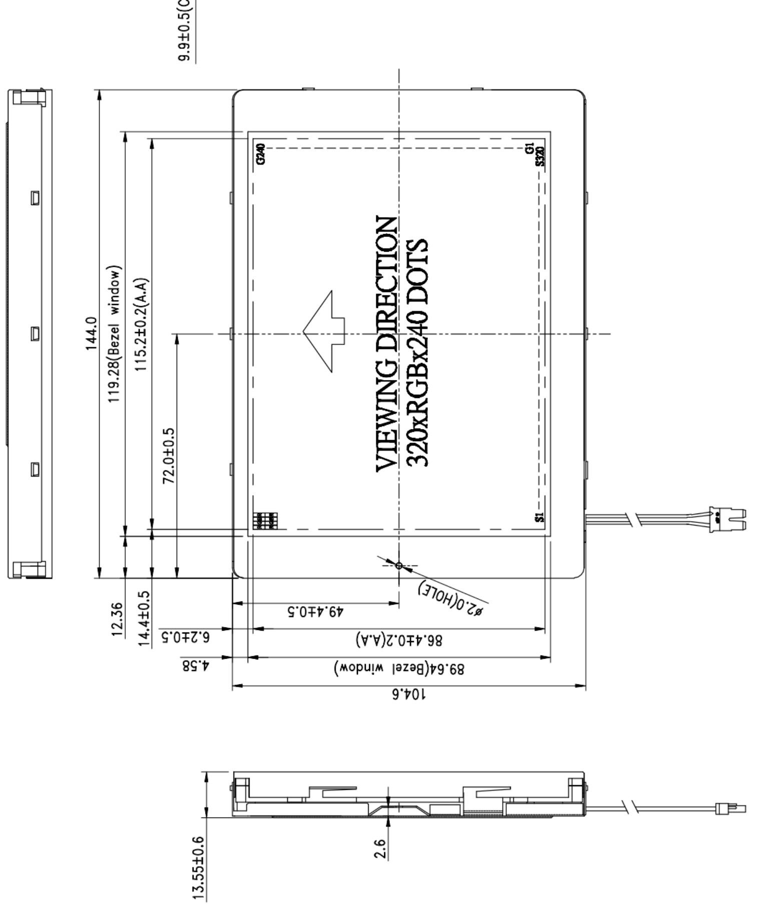
1.2 Display specification

Display	Descriptions	Note
LCD Type	a-Si TFT	-
LCD Mode	TN / Normal white	-
Polarizer Mode	Transmissive	-
Polarizer Surface	Normal	-
Pixel arrangement	RGB-stripe	
Backlight Type	LED	-
Viewing Direction(Gary inversion)	6 O'clock Direction	-

* Color tone is slightly changed by temperature and driving voltage.

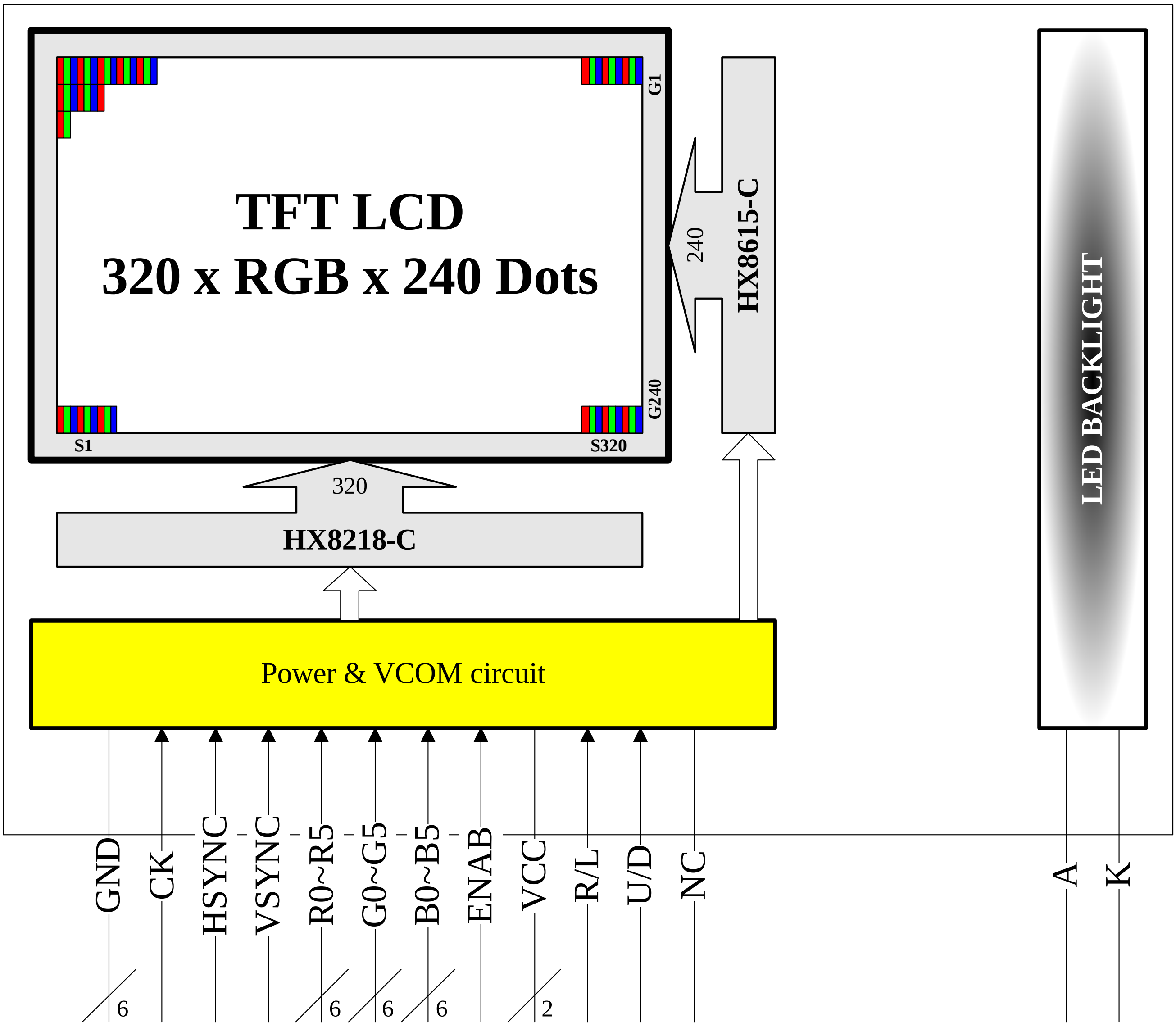
1.3 Outline dimension





Note:
1. LCD : TFT TRANSMISSIVE TYPE , NORMAL WHITE
2. CONNECTORS CN1 : 9637S-33A-TB(IRISO)
CN2 : BHSR-02VS-1(JST)
3. Top : -20°C~ 70°C, Tst: -30°C~ 80°C
4. TOLERANCE FOR NOT ASSIGNED : ±0.3mm
5. VIEWING DIRECTION(GRAY INVERSION) : 6 O'Clock
6. RoHS-COMPLIANT
7. CONSTANT CURRENT IF=60mA; VF=23.1V(TYP)

1.4 Block diagram:



1.5 Interface pin :

Pin No.	Pin Symbol	I/O	Description
1	GND	P	Ground. (0V)
2	CK	I	Clock signal for sampling each data signal.
3	Hsync	I	Horizontal synchronous signal (Negative)
4	Vsync	I	Vertical synchronous signal (Negative)
5	GND	P	Ground. (0V)
6-11	R0-R5	I	RED data signal.
12	GND	P	Ground. (0V)
13-18	G0-G5	I	GREEN data signal.
19	GND	I	Ground. (0V)
20-25	B0-B5	I	BLUE data signal.
26	GND	I	Ground. (0V)
27	ENAB	I	Signal to settle the horizontal display position (Positive).
28,29	VCC	P	+3.3V power supply.
30	R/L	I	Horizontal display mode select signal L: Normal, H: Left / Right reverse mode.
31	U/D	I	Vertical display mode select signal H: Normal, L: Up / Down reverse mode.
*32	NC	-	No connect.
33	GND	P	Ground. (0V)

*This pin doesn't support the V/Q mode as the NO.32 pin of SHARP spec.

1	LED_K	P	Ground pin for backlight.
2	LED_A	P	Power supply input pin for backlight.

2. ELECTRICAL CHARACTERISTICS

2.1 Absolute Maximum Ratings

Items	Symbol	Min.	Max.	Unit
Power supply voltage	VCC	-0.3	7.0	V
Input voltage	Vin	-0.3	VCC+0.3	V
Operate temperature range	T_{OP}	-20	70	℃
Storage temperature range	T_{ST}	-30	80	℃

2.2 DC Characteristics

$T_a = 25^\circ C$

Items	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply voltage	V_{CC}	3.0	3.3	3.6	V	-
Input Voltage	V_{IL}	0	-	$0.3V_{CC}$	V	L level
	V_{IH}	$0.7V_{CC}$	-	V_{CC}	V	H level
Current consumption	I_{CC}	-	-	80	mA	Note 1

*Note1 :

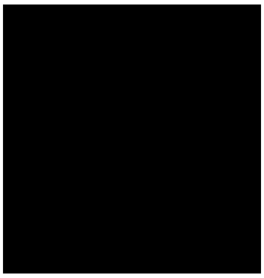
Measuring Condition:

Standard Value MAX.

Ta = 25℃

VCC -GND = 3.3V

Display Pattern



0 gray black pattern

2.2.1 Back-light Characteristics

PARAMETER	SYMBOL	MIN	TYP	MAX	Unit	Test Condition	NOTE
Supply Current	If	-	-	60	mA	Ta=25℃	-
Supply Voltage	Vf	-	23.1	-	V	Ta=25℃	-
Half-Life Time	Lf	-	50000	-	hrs	Ta=25℃	1

Note 1 : The “ Half-Life Time ”is defined as the module brightness decrease to 50% original brightness. Base on Ta 25±2℃ , 60±10% RH condition.

2.3 AC Characteristics

Digital Parallel RGB interface

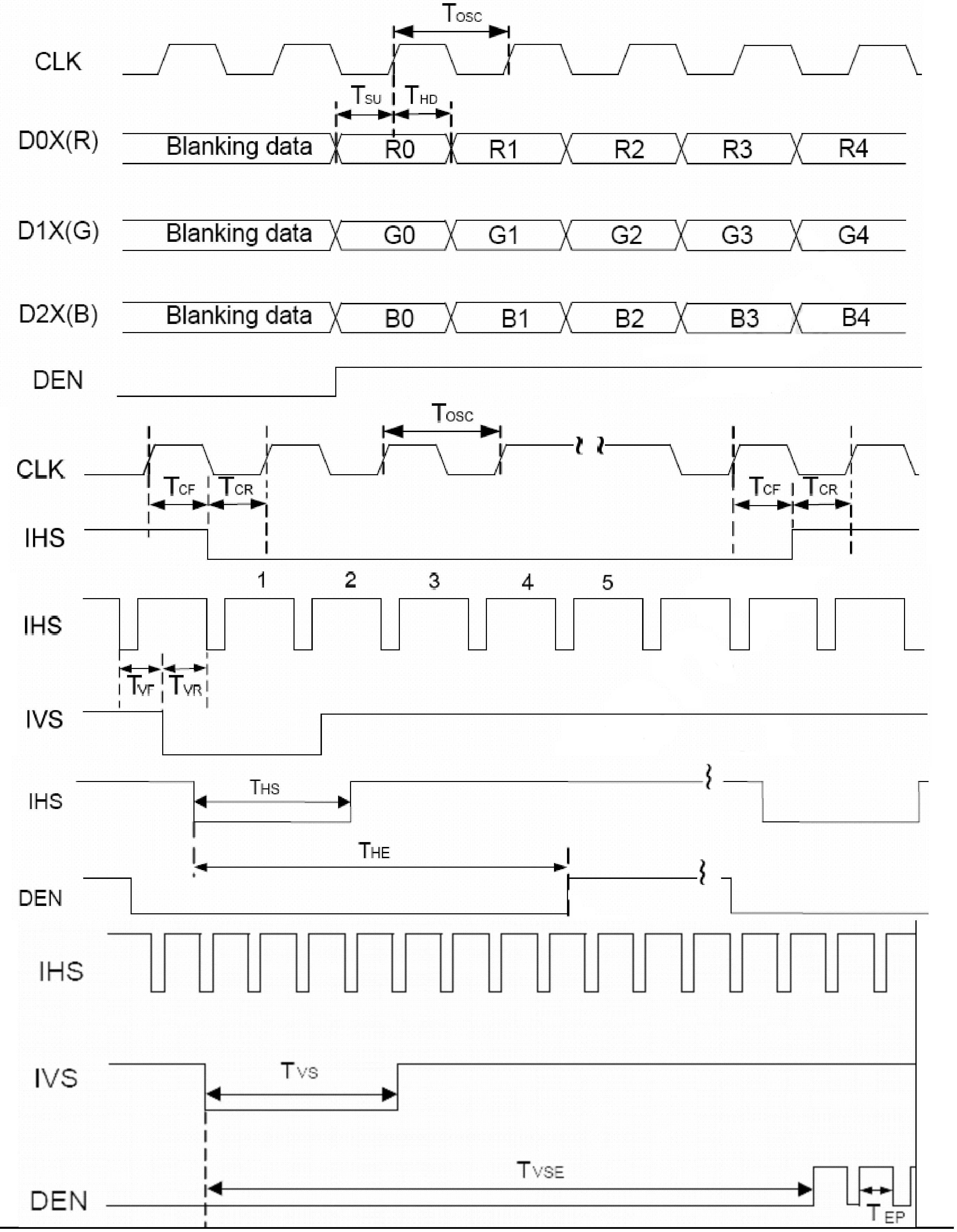
PARAMETER		Symbol	Spec.			Unit
			Min.	Typ.	Max.	
CLK period		T_{OSC}	-	156	-	ns
Data setup time		T_{SU}	12	-	-	ns
Data hold time		T_{HD}	12	-	-	ns
IHS period		T_{H}	-	408	-	T_{OSC}
IHS pulse width		T_{HS}	5	30	-	T_{OSC}
IHS setup time		T_{Cr}	12	-	-	ns
IHS hold time		T_{Cf}	12	-	-	ns
IVS pulse width		T_{VS}	1	3	5	T_{H}
IVS setup time		T_{Vr}	12	-	-	ns
IVS hold time		T_{Vf}	12	-	-	ns
IVS-DEN time	NTSC	T_{VSE}	-	18	-	T_{H}
	PAL	T_{VSE}	-	26	-	T_{H}
IHS-DEN time		T_{HE}	36	68	88	T_{OSC}
DEN pulse width		T_{EP}	-	320	-	T_{OSC}
IVS period	NTSC	-	-	262.5	-	T_{H}
	PAL	-	-	312.5	-	T_{H}

Note: When SYNC mode is used, 1st data start from 68th CLK after IHS falling.

Note：CLK = CK、IHS = Hsync、IVS = Vsync、DEN = ENAB

2.4 Interface Timing Chart

- Digital Parallel RGB



3. OPTICAL CHARACTERISTICS

3.1 Characteristics

Electrical and Optical Characteristics

No.	Item		symbol / temp.		Min.	Typ.	Max.	Unit	Note
1	Response Time		Tr	25 °C	-	15	30	ms	2
			Tf	25 °C	-	35	50		
2	Viewing Angle	Hor.	Θ_{2+}	0°	45	60	-	degree	3
			Θ_{2-}	180°	45	60	-		
		Ver.	Θ_{1+}	270°	15	45	-		
			Θ_{1-}	90°	45	60	-		
3	Contrast Ratio		Cr	25 °C	150	250	-	-	4
4	Red x-code		Rx	25 °C	0.58	0.63	0.68	-	5
	Red y-code		Ry		0.31	0.36	0.41		
	Green x-code		Gx		0.28	0.33	0.38		
	Green y-code		Gy		0.55	0.60	0.65		
	Blue x-code		Bx		0.09	0.14	0.19		
	Blue y-code		By		0.06	0.11	0.16		
	White x-code		Wx		0.27	0.32	0.37		
	White y-code		Wy		0.30	0.35	0.40		
	Brightness		Y		350	450	-	cd/m^2	
5	Brightness Uniformity			25 °C	80	-	-	%	6

4. RELIABILITY :

Item No	Items	Condition
1	High temperature operating	70 ℃ , 200 hours
2	Low temperature operating	-20 ℃ , 200 hours
3	High temperature storage	80 ℃ , 200 hours
4	Low temperature storage	-30 ℃ , 200 hours
5	High temperature & humidity storage	60°C, 90%RH, 100 hours
6	Thermal Shock storage	-30℃, 30min.<=> 80℃, 30min. 10 Cycles
7	Vibration test	10 => 55 =>10 => 55 => 10 Hz , within 1 minute Amplitude : 1.5mm. 15 minutes for each Direction (X,Y,Z)
8	Drop test	Packed, 100CM free fall, 6 sides, 1 corner, 3edges
9	Life time	50,000 hours 25℃ , 60%RH , specification condition driving

* One single product test for only one item.

* Judgment after test : keep in room temperature for more than 2 hours.

- Current consumption < 2 times of initial value
- Contrast > 1/2 initial value
- Function : work normally