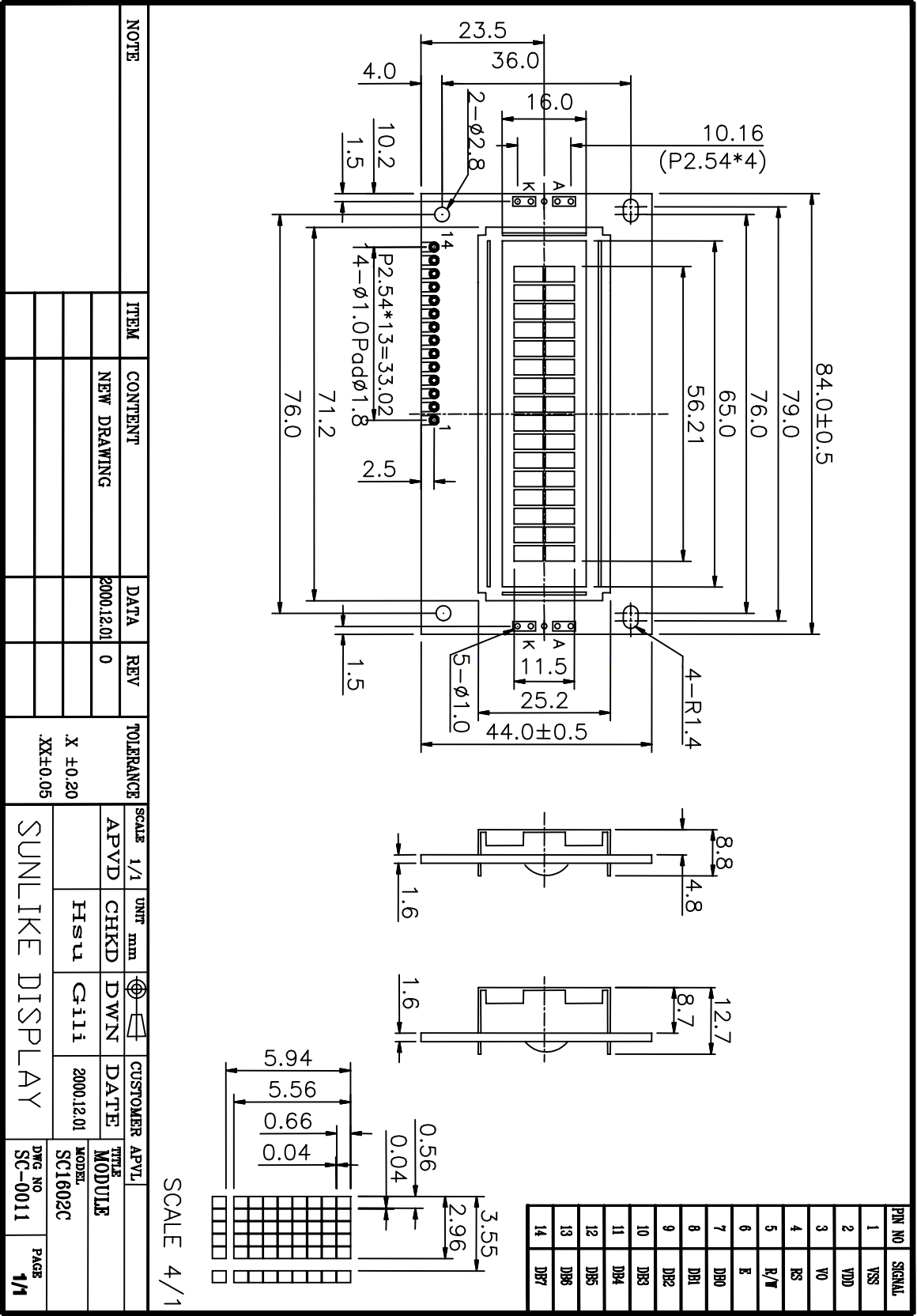


**GENERAL SPECIFICATION**

ITEM	DESCRIPTION					
Product No	SC1602CU*B-SO-GB-G					
LCD Type	<input type="checkbox"/> STN Gray Positive		STN Yellow Green Positive		<input type="checkbox"/> STN Blue Negative	
	<input type="checkbox"/> TN Negative			<input type="checkbox"/> TN Positive		
	<input type="checkbox"/> FSTN Negative White & Black			<input type="checkbox"/> FSTN Positive Black & White		
Rear Polarizer	Reflective		<input type="checkbox"/> Transflective		<input type="checkbox"/> Transmissive	
Backlight Type	NO B/L	<input type="checkbox"/> LED		<input type="checkbox"/> CCFL		<input type="checkbox"/> EL
Backlight Color	<input type="checkbox"/> Yellow Green	<input type="checkbox"/> Green	<input type="checkbox"/> Amber		<input type="checkbox"/> White	<input type="checkbox"/> Blue Green
View Direction	6 O'clock			<input type="checkbox"/> 12 O'clock		
Temperature Range	Normal			<input type="checkbox"/> Wide		
Frame	Black			<input type="checkbox"/> Silver		

**TO BE VERY CAREFUL !**

The LCD driver ICs are made by CMOS process, which are very easy to be damaged by static charge, make sure the user is grounded when handling the LCM.



## ABSOLUTE MAXIMUM RATING

### (1) Electrical Absolute Ratings

Item	Symbol	Min.	Max.	Unit	Note
Power Supply for Logic	$V_{DD}-V_{SS}$	-0.3	7.0	Volt	
Power Supply for LCD	$V_{DD}-V_O$	-0.3	12.0	Volt	
Input Voltage	$V_I$	-0.3	$V_{DD}$	Volt	
LED Power Dissipation	$P_{AD}$	-	897	mW	
LED Forward current	$I_{AF}$	-	195	mA	
LED Reverse Voltage	$V_R$	-	8	V	

### (2) Environmental Absolute Maximum Ratings

Item	Normal Temperature				Wide Temperature			
	Operating		Storage		Operating		Storage	
	Min,	Max.	Min,	Max.	Min,	Max.	Min,	Max.
Ambient Temperature	0	+50	-20	+70	-20	+70	-30	+80
Humidity(without condensation)	Note 2,4		Note 3,5		Note 4,5		Note 4,6	

Note 2  $T_a = 50$  : 80% RH max

$T_a > 50$  : Absolute humidity must be lower than the humidity of 85%RH at 50

Note 3  $T_a$  at -20 will be <48hrs at 70 will be <120hrs when humidity is higher than 70%.

Note 4 Background color changes slightly depending on ambient temperature. This phenomenon is reversible.

Note 5  $T_a = 70$  : 75RH max

$T_a > 70$  : absolute humidity must be lower than the humidity of 75%RH at 70

Note 6  $T_a$  at -30 will be <48hrs, at 80 will be <120hrs when humidity is higher than 70%.

**ELECTRICAL CHARACTERISTICS**

Item	Symbol	Condition	Min.	Typ	Max.	Unit	note
Power Supply for Logic	$V_{DD}-V_{SS}$	-	4.5	5.0	5.5	Volt	
Input Voltage	$V_{IL}$	L level	0	-	0.6	Volt	
	$V_{IH}$	H level	2.2	-	$V_{DD}$	Volt	
LCM Recommend LCD Module Driving Voltage	$V_{DD}-V_O$	$T_a = 0$	-	-	-	Volt	
		$T_a = 25$	4.2	4.5	4.8		
		$T_a = 50$	-	-	-		
Power Supply Current for LCM	$I_{DD}$	$V_{DD}=5.0V$ $V_{DD}-V_O=4.5V$	-	2.0	3.0	mA	
LED Forward Voltage	$V_F$	$I_f = 130 \text{ mA}$	-	4.1	4.6	Volt	
LED Forward Current	$I_F$	-	-	130	-	mA	
LED Reverse Current	$I_R$	$V_R=8V$	-	-	0.2	mA	

**OPTICAL CHARACTERISTICS**

Item	Symbol	Condition	Min.	Typ	Max.	Unit	note
Viewing angle range	f(12 o'clock)	When $C_r$ 1.4	-	20	-	Degree	9,10
	b(6 o'clock)		-	40	-		
	l(9 o'clock)		-	30	-		
	r(3 o'clock)		-	30	-		
Rise Time	$T_r$	$V_{DD}-V_O=4.5V$ $T_a=25$	-	200		mS	
Fall Time	$T_f$		-	250			
Frame frequency	$F_{rm}$		-	64	-	Hz	8,10
Contrast	$C_r$		-	3.0	-		7
The Brightness Of Backlight	L	$I_F=130 \text{ mA}$	120	180	-	$\text{cd/m}^2$	
Peak Emission Wavelength	P		567	570	577	nm	

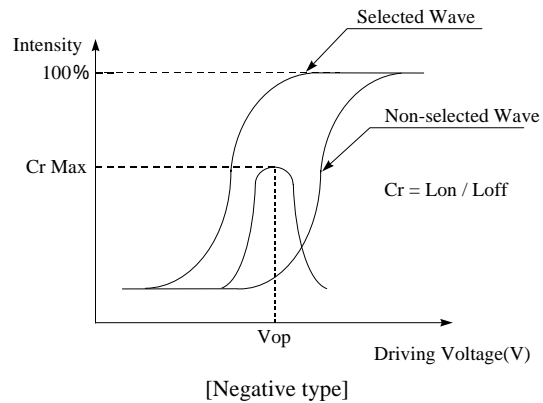
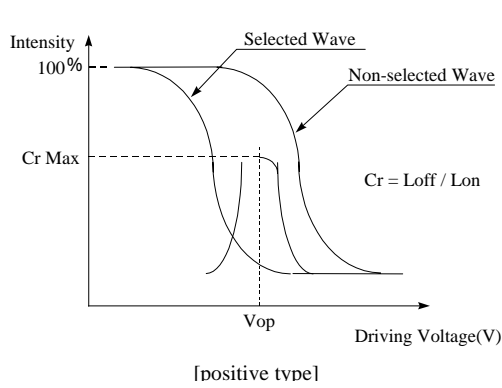
**MECHANICAL SPECIFICATION**

ITEM	DESCRIPTION
Product No.	SC1602C
Module Size	84.0(W)×44.0(H)×8.8(LED=12.7) max(D)
Viewing Area	65.0(W)mm×16.0(H)mm
Dot Size	0.56(W)mm×0.66(H)mm
Dot Pitch	0.60(W)mm×0.70(H)mm
Display Format	16 characters (W)×2 lines (H)
Duty Ratio	1/16 Duty
Controller	KS0066 or Equivalent

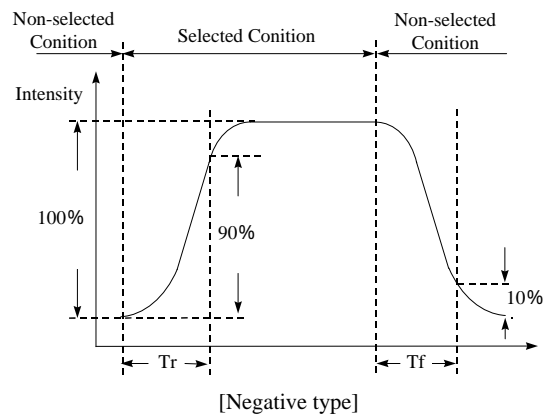
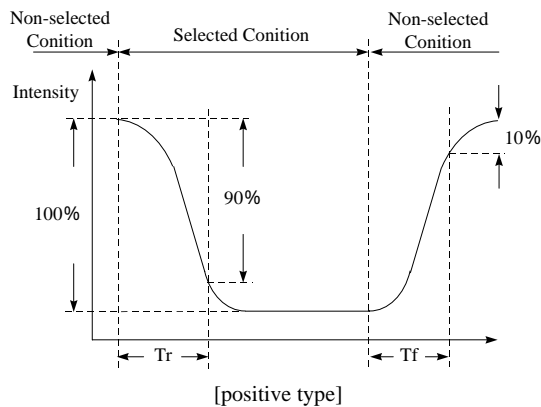
**INTERFACE PIN ASSIGNMENT**

Pin No.	Pin Out	Level	Description
1	VSS	0V	Power Supply Ground
2	VDD	5V	Power Supply Voltage
3	Vo	---	Contrast Adj
4	RS	H/L	Register Select
5	R/W	H/L	Read / Write
6	E	H,H L	Enable Signal
7	DB0	H/L	Data Bit 0
8	DB1	H/L	Data Bit 1
9	DB2	H/L	Data Bit 2
10	DB3	H/L	Data Bit 3
11	DB4	H/L	Data Bit 4
12	DB5	H/L	Data Bit 5
13	DB6	H/L	Data Bit 6
14	DB7	H/L	Data Bit 7

## [Note 7] Definition of Operation Voltage (Vop)



## [Note 8] Definition of Response Time (Tr, Tf)



### Conditions:

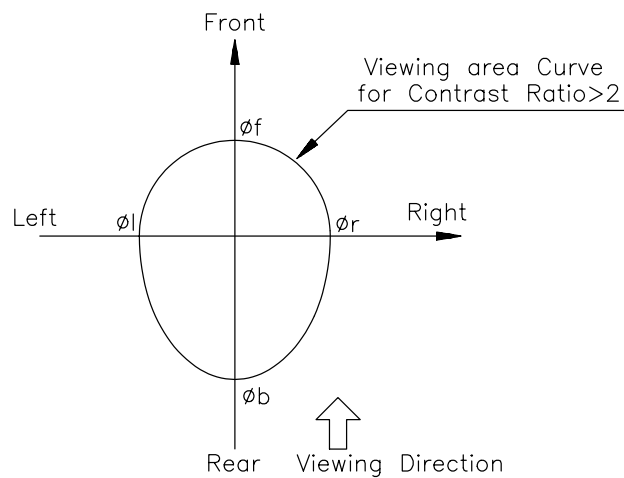
Operating Voltage : Vop

Frame Frequency : 64 Hz

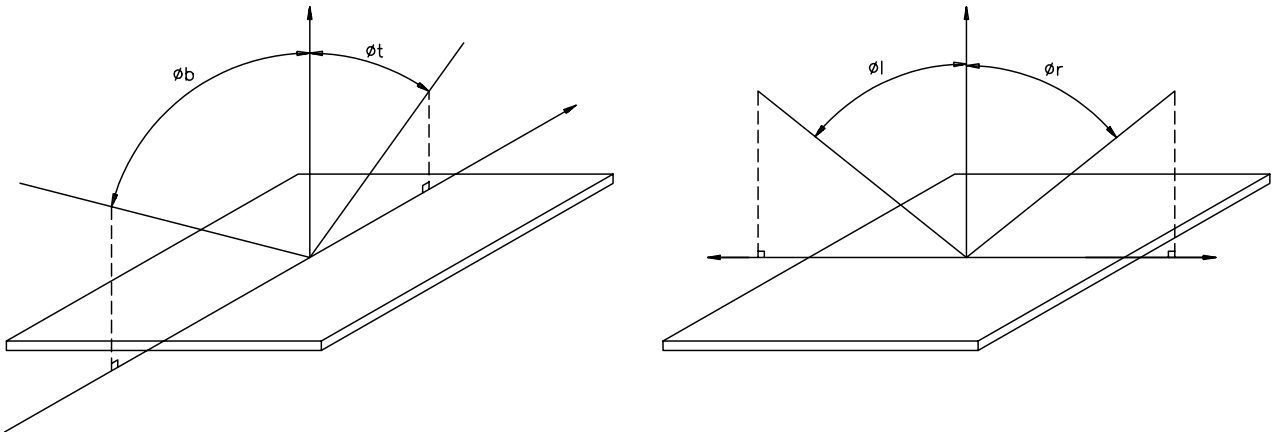
Viewing Angle( , ): 0°, 0°

Driving Wave form : 1/N duty, 1/a bias

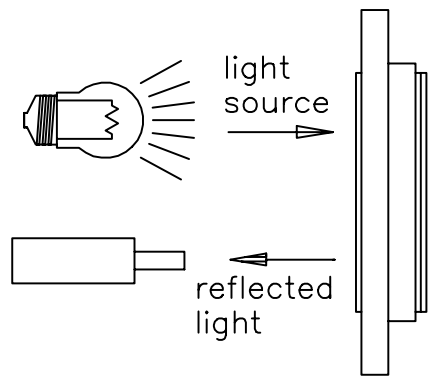
## [Note 9] Definition of Viewing Direction



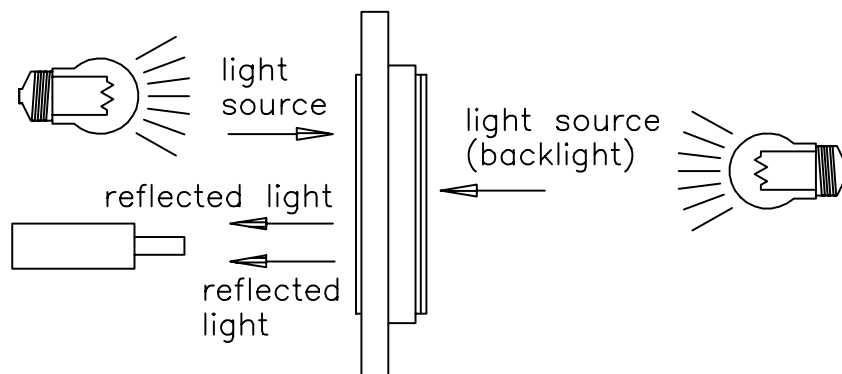
**[Note 10] Definition of viewing angle**



**[Note 11] Description of Measuring Equipment**

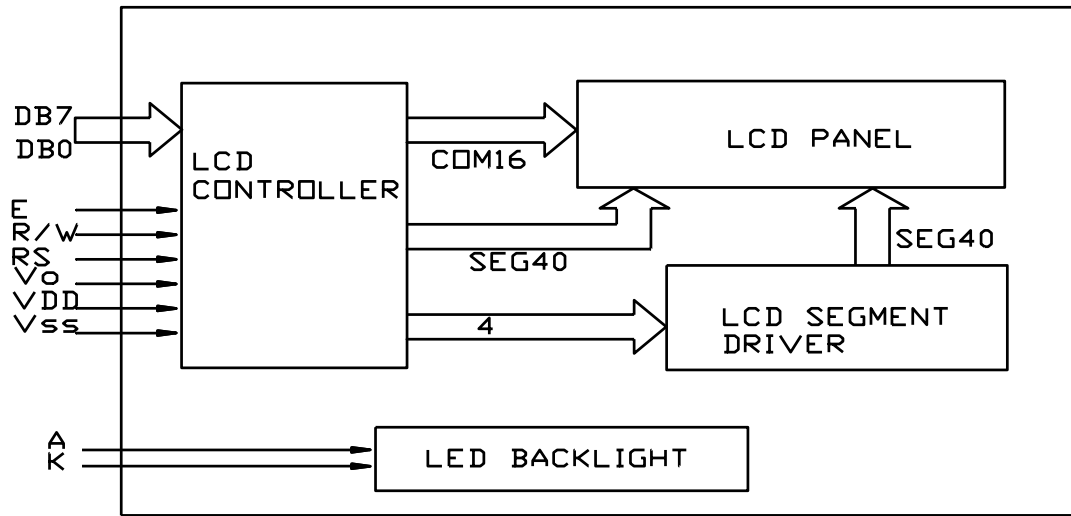


Reflective type



Transflective type

## BLOCK DIAGRAM



## POWER SUPPLY

