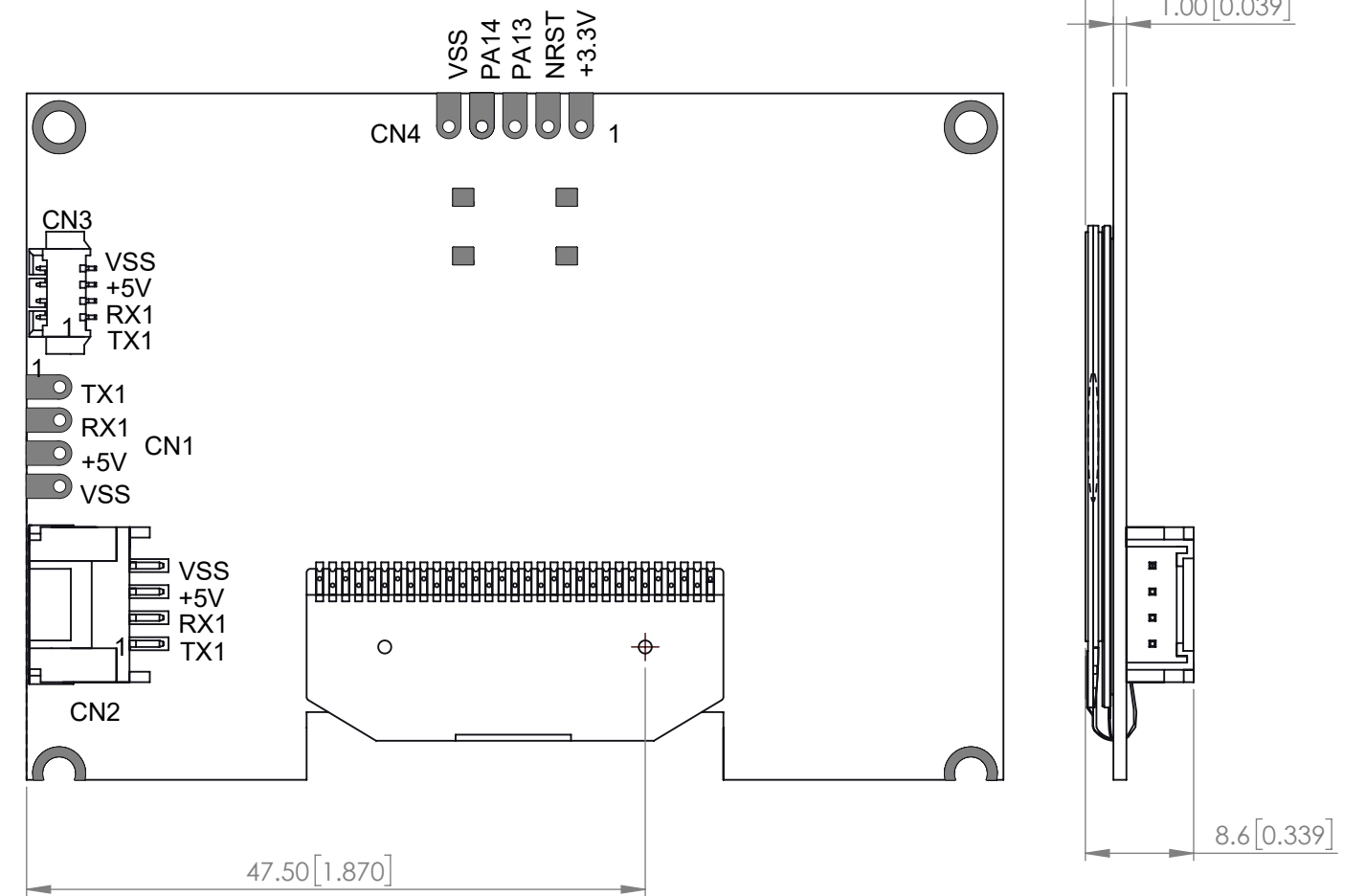
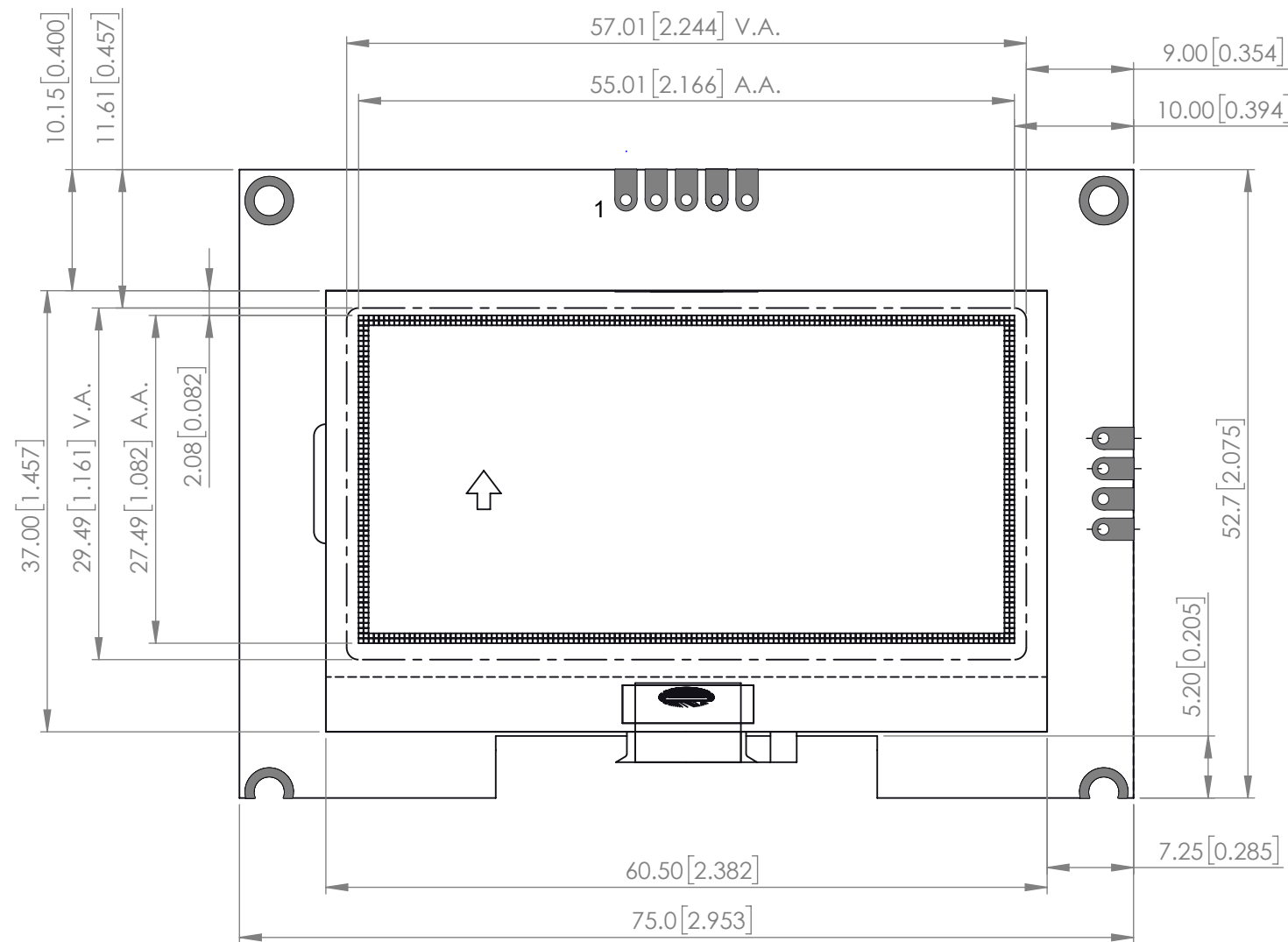




*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX.= ^{+0.00}_{-DECIMAL PRECISION}

LUMEX Creating LED and LCD Solutions Together™	425 N. GARY AVE. CAROL STREAM, IL 60188 PHONE : 800-278-5666 FAX : 630-315-2150 WEB : WWW.LUMEX.COM	75(L)*52.7(W)*8.6(H)mm, 128*64 DISPLAY FORMAT, TRANSFLECTIVE, 5V.		DATE : 2018.03.21	DRAWN BY : C.C.
		THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.		PAGE : 1 OF 6	CHKD BY : E.C.
		CONFIDENTIAL INFORMATION		SCALE : NTF	APRVD BY : G.Y.
		THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.		UNIT : mm [INCH]	Ⓢ

GENERAL SPECIFICATION

ITEM	DESCRIPTION
VIEWING AREA	57.01(W)mm×29.49(H)mm
MODULE SIZE	75.0(W)×52.7(H)×8.6(D) mm
DOT SIZE	0.40(W)mm×0.40(H)mm
DOT PITCH	0.43(W)mm×0.43(H)mm
DISPLAY FORMAT	128 (W)× 64 (H)
INTERFACE	UART
BUILT-IN	WITH DC/DC CONVERTER
LCD TYPE	DFSTN
REAR POLARIZER	NEGATIVE / TRANSFLECTIVE
BACKLIGHT TYPE	WHITE
LCD COLOR	BLACK
TEMPERATURE RANGE	WIDE TEMP., 5V, SINGLE SUPPLY VOLTAGE
VIEWING DIRECTION	6 O'CLOCK

NOTE :
1. RoHS COMPLIANT.

CN1 PIN ASSIGNMENT

PIN NO.	PIN OUT	LEVEL	DESCRIPTION
1	TX1	H/L	SERIAL TRANSMIT SIGNAL
2	RX1	H/L	SERIAL RECEIVE SIGNAL
3	+5V	+5V	POWER SUPPLY VOLTAGE
4	VSS	0V	POWER SUPPLY GROUND

ABSOLUTE MAXIMUM RATING

(1) Electrical Absolute Ratings

ITEM	SYMBOL	MIN.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	VDD-VSS	4.5	5.5	VOLT
BACKLIGHT LUMINANCE	Lv	80	--	cd/m ²

Note 1: All the above voltages are on the basis of “VSS” = 0V”.
Note 2: When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur.
Note 3: Test Point Distance: 500mm±50.

(2) Environmental Absolute Maximum Ratings

ITEM	WIDE TEMPERATURE			
	OPERATING		STORAGE	
	MIN.	MAX.	MIN.	MAX.
AMBIENT TEMPERATURE	-20℃	+70℃	-30℃	+80℃
HUMIDITY (WITHOUT CONDENSATION)	SEE NOTE 1,2		SEE NOTE 1,3	

Note 1 : Background color changes slightly depending on ambient temperature.
This phenomenon is reversible.
Note 2 : Ta≤70℃: 75%RH max。
Ta>70℃: absolute humidity must be lower than the humidity of 75%RH at 70℃.
Note 3 : Ta at -20℃ will be <48hrs, at 80 ℃ will be <120hrs when humidity is higher than 70%.

FUNCTIONAL SPECIFICATION

UART CONFIGURATION:

ITEM	SETTING VALUE
BAUD RATE	115200
DATA BIT	8
STOP BIT	1
PARITY BIT	NONE
FLOW CONTROL	NONE

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX.= ^{+0.00}_{-DECIMAL PRECISION}

ELECTRICAL CHARACTERISTICS

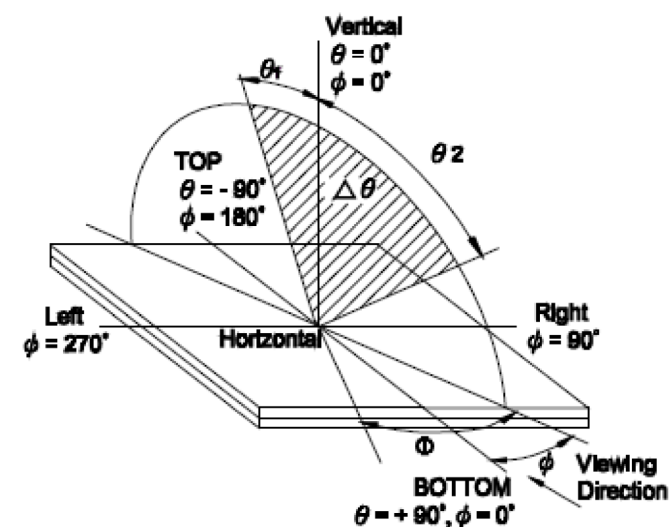
ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
POWER SUPPLY FOR LOGIC	VDD-VSS	Ta=25℃	4.5	5.0	5.5	VOLT
SUPPLY VOLTAGE FOR LCD	VDD-V5	Ta=25℃	9.8	10.0	10.2	VOLT
INPUT VOLTAGE	VIL	L LEVEL	0	-	0.3 VDD	VOLT
	VIH	H LEVEL	0.7 VDD	-	VDD	VOLT
OUTPUT VOLTAGE	VOL	L LEVEL	0	-	0.2 VDD	VOLT
	VOH	H LEVEL	0.8 VDD	-	VDD	VOLT
POWER SUPPLY CURRENT FOR LCM	IDD	VDD=5.0V	-	78.6	-	mA

OPTICAL CHARACTERISTICS

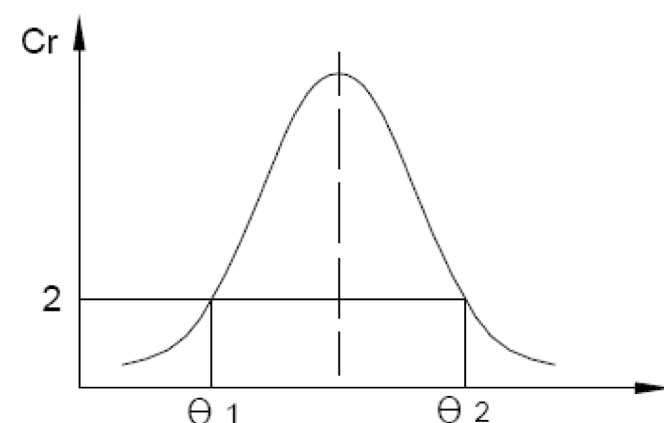
ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
VIEW ANGLE RANGE	Φf (12 O'CLOCK)	Ta=25℃	-	31	-	DEGREE
	Φb (6 O'CLOCK)		-	50	-	
	Φl (9 O'CLOCK)		-	23	-	
	Φr (3 O'CLOCK)		-	23	-	
RISE TIME	Tr	Ta=25℃ Φ = 0° θ = 0°	-	96	120	mS
FALL TIME	Tf		-	160	320	
CONTRAST	Cr		2	4.58	19.8	-
BRIGHTNESS	L	-	-	120	-	cd/m ²
PEAK EMISSION WAVELENGTH	C.I.E (WHITE)		X=0.285 Y=0.275	X=0.31 Y=0.31	X=0.33 Y=0.33	mm

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX.= ^{+0.00}_{-DECIMAL PRECISION}

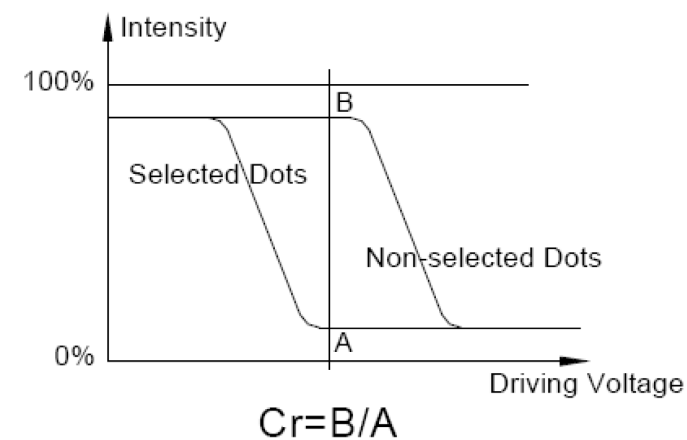
DEFINITION OF ANGLE θ & Φ



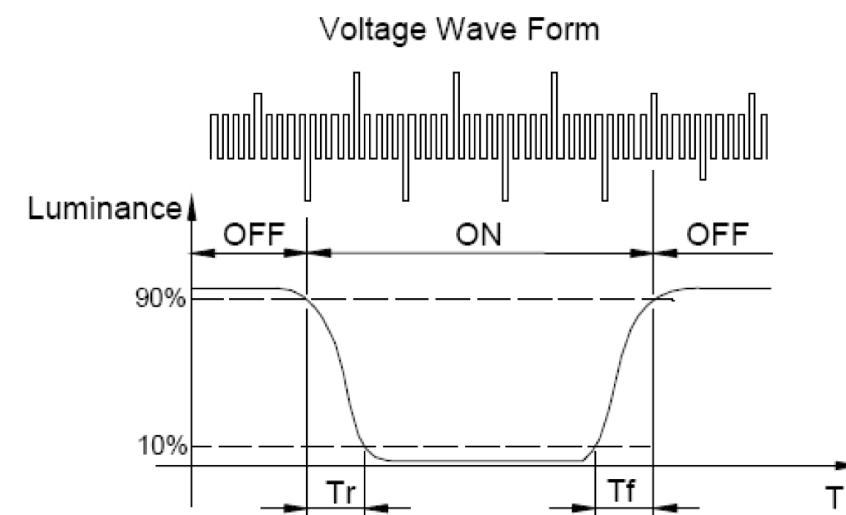
DEFINITION OF VIEWING ANGLE θ_1 & θ_2



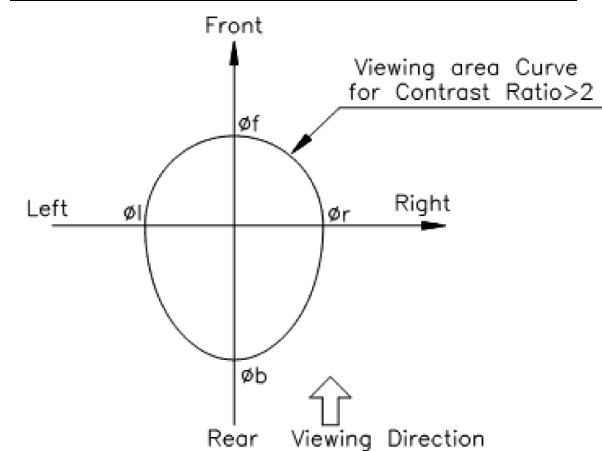
DEFINITION OF CONTRAST CR



DEFINITION OF OPTICAL RESPONSE



DEFINITION OF VIEWING DIRECTION



*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX= ^{+0.00}_{-DECIMAL PRECISION}

LUMEX®
Creating LED and LCD Solutions Together™

425 N. GARY AVE.
CAROL STREAM, IL 60188
PHONE : 800-278-5666
FAX : 630-315-2150
WEB : WWW.LUMEX.COM

75(L)*52.7(W)*8.6(H)mm, 128*64 DISPLAY FORMAT, TRANSFLECTIVE, 5V.

****THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.****

CONFIDENTIAL INFORMATION

THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.

DATE : 2018.03.21

DRAWN BY : C.C.

PAGE : 4 OF 6

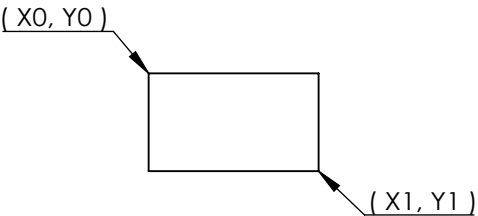
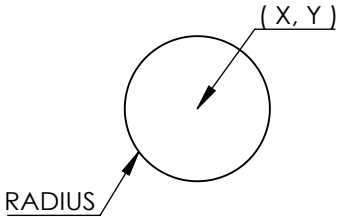
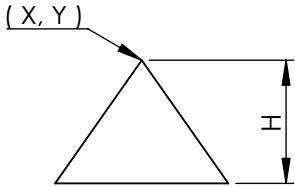
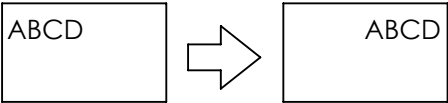
CHKD BY : E.C.

SCALE : NTF

APRVD BY : G.Y.

UNIT : mm [INCH]



				PART NUMBER	LCM-H12864GWN-W-UR	REV	--
DIAGRAM		COMMAND*	EXAMPLE				
		Write a 5X7 String	at 81 =(line,column,String) at 81 =(0,0,ABCD)				
		Draw a Rectangle	at 91 =(X0 position,Y0 position,X1 position,Y1 position, 0 or 1) at 91 =(0,0,55,7,1) : '1' positive mode				
		Draw a Circle	at 94 =(X position,Y position,Radius, 0 or 1) at 94 =(48,4,3,1) : '1' positive mode				
		Draw a tip upward Triangle	at 96 =(X position,Y position,Height, 0 or 1) at 96 =(48,1,3,1) : '1' positive mode				
 SCROLL RIGHTWARD		Scroll the whole display rightward	at d5 =(shif time in ms) at d5 =(20)				

* Please refer to detail commands on Lumex website: www.lumex.com/ezdisplay

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX.= ^{+0.00}_{-DECIMAL PRECISION}

 Creating LED and LCD Solutions Together™	425 N. GARY AVE. CAROL STREAM, IL 60188 PHONE : 800-278-5666 FAX : 630-315-2150 WEB : WWW.LUMEX.COM	75(L)*52.7(W)*8.6(H)mm, 128*64 DISPLAY FORMAT, TRANFLECTIVE, 5V.				DATE : 2018.03.21	DRAWN BY : C.C.
		THE SPECIFICATIONS MAY CHANGE AT ANY TIME WITHOUT NOTICE DUE TO NEW MATERIALS OR PRODUCT IMPROVEMENT.				PAGE : 5 OF 6	CHKD BY : E.C.
		CONFIDENTIAL INFORMATION				SCALE : NTF	APRVD BY : G.Y.
		THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF LUMEX INC. EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING BY LUMEX INC., THE HOLDER OF THIS DOCUMENT SHALL KEEP ALL INFORMATION CONTAINED HEREIN CONFIDENTIAL AND SHALL PROTECT SAME IN WHOLE OR IN PART FROM DISCLOSURE AND DISSEMINATION TO ALL THIRD PARTIES.				UNIT : mm [INCH]	

ASCII code of 5X7 fonts and 8X16 fonts

Hex	Symbol	Hex	Symbol	Hex	Symbol
0x20		0x40	@	0x60	`
0x21	!	0x41	A	0x61	a
0x22	"	0x42	B	0x62	b
0x23	#	0x43	C	0x63	c
0x24	\$	0x44	D	0x64	d
0x25	%	0x45	E	0x65	e
0x26	&	0x46	F	0x66	f
0x27		0x47	G	0x67	g
0x28	(	0x48	H	0x68	h
0x29	)	0x49	I	0x69	i
0x2a	*	0x4a	J	0x6a	j
0x2b	+	0x4b	K	0x6b	k
0x2c	,	0x4c	L	0x6c	l
0x2d	-	0x4d	M	0x6d	m
0x2e	.	0x4e	N	0x6e	n
0x2f		0x4f	O	0x6f	o
0x30	0	0x50	P	0x70	p
0x31	1	0x51	Q	0x71	q
0x32	2	0x52	R	0x72	r
0x33	3	0x53	S	0x73	s
0x34	4	0x54	T	0x74	t
0x35	5	0x55	U	0x75	u
0x36	6	0x56	V	0x76	v
0x37	7	0x57	W	0x77	w
0x38	8	0x58	X	0x78	x
0x39	9	0x59	Y	0x79	y
0x3a	:	0x5a	Z	0x7a	z
0x3b	;	0x5b	]	0x7a	{
0x3c	<	0x5c	\	0x7a	
0x3d	=	0x5d	[	0x7a	}
0x3e	>	0x5e	^	0x7a	~
0x3f	?	0x5f	_	0x7a	<-

ASCII code of 16X16 fonts

Hex	Symbol
0x30	0
0x31	1
0x32	2
0x33	3
0x34	4
0x35	5
0x36	6
0x37	7
0x38	8
0x39	9

No. of 8X16 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

No. of 32X32 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	°C
11	°F
12	

No. of 8X8 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

No. of 16X16 pattern

No.	Symbol
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= ^{+DECIMAL PRECISION}_{-0.00} MAX.= ^{+0.00}_{-DECIMAL PRECISION}