CHECK POINTS of CUSTOM DESIGNED LCD

Optrex produce both custom LCD Panel and custom LCD Module according to customer's request.
If you consider to use custom designed product, please check your detailed requirements on check lists as stated hereunder:—

T-41-99

■LCD Panel

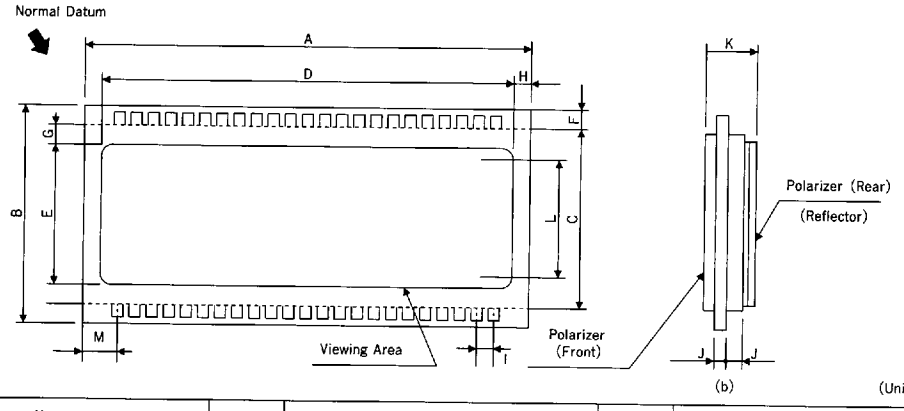
Application

☐Calculator ☐Audio Equipments ☐Automobile
☐Watch ☐Home Appliances ☐OA Equipments
☐Clock ☐Instruments ☐Game
☐Camera ☐Telephone ☐Others( )

Schedule

Item	Finalize Specifications	Start of Designing	W/S	E/S	C/S	P/P	M/P	Monthly Requirement	Total Lot
Date									
Quantity									

Dimensions



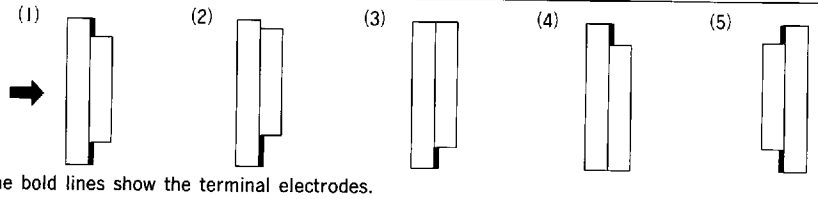
(Unit:mm)

Item	Size	Item	Size	Item	Size
A. Width of Glass		F. Terminal (H)		K. Total Thickness	
B. Front Glass (H)		G. Seal Width (STD 2.0mmor more)		L. Height of The Pattern	
C. Rear Glass (H)		H. Seal Width(STD 2.5mm or more)		M. Glass Edge to First Terminal Electrode (Center)	
D. Viewing Area (W)		I. Pitch of Terminal Electrodes		N. Position of Injection Port	
E. Viewing Area (H)		J. Glass Thickness (STD 1.1, 0.7mm)		☐Right Only☐Left Only☐Right or Left	

NOTE:

LCD Configuration

(1) (2) (3) (4) (5) (6) Others



The bold lines show the terminal electrodes.

View Direction

U (from Up-Side; 12:00 or 1:30 or 10:30 direction)
D (from Down-Side; 6:00 or 4:30 or 7:30 direction)
R (from Right-Side; 3:00 direction)
L (from Left-Side; 9:00 direction)

Display Mode

☐ Positive Image ☐ Negative Image

Polarizer

(Front) Pasted or Separated. Consumer or Extended Temperature Use.
Color_____
(Back) Pasted or Separated. Reflective. Transmissive or Transflective (Semi-Transmissive) Type

Operating Method

Voltage_____ Vo-p Frame Frequency_____ Hz
STATIC or DYNAMIC DUTY_____ BIAS_____
LSI (Manufacturer and Model Code)_____

Connector

Rubber Connector/Heat-Seal Connector/Pin-Connector (Straight-Pin or Curved-Pin)
Others_____

Holder

Plastic or Metal Size_____

Temperature Range

Operating Temperature_____℃~_____℃ Storage Temperature_____℃~_____℃

Others

※Please attach drawing with graphic pattern and wiring connections, if available.

«DMC/DMF Order acceptance rule»
1. Minimum order quantity
(1)DMC Standard 5 PCS or more and its multiple
Semi-standard 500 PCS or more and multiple of 100 PCS. In case min. Q'ty is not fulfilled semi-standard charge of J. yen 200K shall be charged besides unit cost.
(2)DMF Standard 1 PC
Semi-standard 100 PCS or more. In case min. Q'ty is not fulfilled, semi-standard charge of J. yen 300K shall be charged besides unit cost.
(3)DMC/DMF custom models
Release amount of J. yen 7M within two years and each release and shipment shall be J. yen 500K or more. Custom tooling charge shall be charged separately.
2. Delivery
(1)Standard and stock quantity available with in 10 working days with aro.
(2)Semi-standard DMC 45 Working days with confirmed spec and aro.
DMF 60 Working days with confirmed spec and aro.

■LCD Module

Application					
Function					
Structure					
Display Spec	Segment Type	7-segment or( )-segment×( )characters、Flag( )-segment	LCD driving=( )V	Duty=1/( )	Bias=1/( )
	Full dot matrix type	( )L×( )H dots、Flag( )-segment	LCD driving=( )V	Duty=1/( )	Bias=1/( )
	Character dot matrix type	( )Columns×( )Lines、Flag( )-segment Display Fonts( )L×( )H dots、Cursor(Yes / No)	LCD driving=( )V	Duty=1/( )	Bias=1/( )
	Note	Please attach the drawing if all of display cannot be explained above.			
Outer Spec	Outer Dimension	1.Optrex Proposal 2.Specific Requirements : ( ) L× ( ) H× ( ) T [mm]			
	Deuel Dimension	1.Optrex Proposal 2.Specific Requirements : Bezel Window( )L×( )H Outer Dimension( )L×( )H×( )T [mm]			
	Terminal Position	1.Optrex Proposal 2.Specific Requirements: Top/Bottom/Left/Right/Other			
	Note	Other specific requirements of outer dimension( )			
LCD Spec	LCD outer dimension	1.Optrex Proposal 2.Specific Requirements Front:( )L×( )H×( )T Rear:( ) L×( )H×( )T			
	Dinplay Mode	1.TN Postive 2.TN Negative 3.Super TN (Neutral) 4.Super TN (Yellow) 5.Other( )			
	Viewing Direction	1.6:00 2.12:00 3.3:00 4.9:00 5.Other( )			
	Note				
LSI	Driver	1.Optrex Proposal 2.Specific Requirements : Common × pieces Segment × pieces			
	Control	1.Yes/No 2.Specific Requirements S-RAM memory ( ) K			
	Note				
Back Light Spec	Back Light	1.Nil 2.EL 3.LED 4.CFL 5.Lamp 6.Other ( )			
	EL	1.Blue-green(EB) 2.Yellow(EY) 3.White(EW) 4.Other(Specific Product:)			
	LED	1.Yellow-green(LY) 2.Amber(LA) 3.Red(LR) 4.Other(Specific Product:)			
	CFL	( )pieces, Diffusor Color( ) Other(Specific Product:)			
	Lamp	Standard(V/ mA), Dimension T-( ) or ( ), Lamp ( ) pcs Specific Material ( ) Lamp Cap: Color ( ), Specific Product ( )			
	Note				
Other Spec	PWB	Material: 1.FR-4 2.CEM-3 3.Other Thickness ( ) mm UL Standard: 1.Unnecessary 2.Necessary(94HB 94V-1 94V-0)			
	Terminal	1.Pattern Only 2.Specific Connector (Type Nbr. Manufacturer) 3.Other			
	Bezel	Material: 1.SPCC(to be completed) 2.Steel 3.SUS 4.Black Zinc 5.Other Completion: Plating ( ) or Printing ( )			
	Note				
Cost	Development charge		Unit Price	Sample :	
	Tooling charge			Series Production :	

Schedule	Item	Finalize Specifications	Start of Designing	W/S	E/S	C/S	P/P	M/P	Monthly Requirement	Total Lot
	Date									
	Quantity									

Other Conditions	

Others

PRECAUTIONS in USE of LCD

■LCD MODULE

❶Precautions for Handling LCD Modules (hereinafter MDL)

Our MDL have been assembled and adjusted accurately before delivery, therefore, observe the following points for handling:

(1)Don't subject it to excessive shocks by dropping it.

(2)Do not modity the tab of the metal holder nor make any arrangement to it.

(3)Do not work on the printed wiring board.

(4)Limit the soldering to the printed wiring board only to I/O terminals.

(5)Do not touch connection rubber(inter-connector), nor modify its location.

❷Warning for Static Electricity

Our MDL uses CMOS LSI. Therefore, countermeasures for static electricity is taken through all the processes from manufacturing the MDL to shipping. When using MDL, take sufficient care to prevent static electricity as in the case of a normal CMOS IC.

(1)Do not take MDL fron its packaging bag until it is assembled.

MDL are individually packed in bags treated to resist static electricity. Control them so they are not taken out of the bag until just before the soldering operation for the MDL terminals. When string them, keep them as packed in the bags, or store them in a container processed to be resistant to static electricity, or in a electric conductive conaine.

(2)Always use a human body grounded when handling MDL.

Always apply grounding to your body while you are working with MDL from the time it is taken out of the anti-static bag until it is assembled in a set to keep the human body and MDL at the same potential. When it is necessary to transfer MDL after it is taken out of the bag. always place it in a electric conductive container.

Moreover, avoid wearing clothes of chemical fiber, and the use of cotton or conductive treated fiber clothes is recommended.

(3)Use a no-leak iron for soldering MDL.

The soldering iron to be used for soldering of I/O terminals MDL, is to be insulated at the iron tip, or grounded at the iron tip.

(4)Always grounded electric apparatuses reguired for assembly.

Electric apparatuses required to assemble MDL in a set, specially electric drivers, are to be grounded to avoid the efforts of transmitting spike noise generated when the motor is rotated.

(5)Make the potential of the operation bench egual to the grounded potential.

When the operation bench in grounded with aluminum or steel plate, there is a possibilty op damaging the MDL, or in rare cases of electric shocks being genrated because the impedance is too low, therefore, it is recommended to use an electric conductive(rubber)mat.

(6)Peel off the MDL protective film slowly.

Our MDL are attached with protective film to protect the display surface from contamination, flaw, adhesion of flux, etc., however, peeling it off abruptly of the film may cause some static electricity to be generated, so pay attention when peeling off the tape slowly.

(7)Pay attention to the humidity of the work shop.

50~60%PH is statisfactory.

❸Cautions for Soldering to MDL

The following shall be followed for soldering the MDL, as already explained:

*Soldering is to be applied only to the I/O terminals.

*Use a soldering iron with no leakage.

In addition to the above, pay attention to the following:

(1)Conditions for soldering I/O terminals

Temperature at iron tip:280°C+10°C

Soldering time:3—4sec./terminal

Type of solder:Eutectic solder(rosin flux filled)

Avoid using flux, because it may penetrate the MDL, and the MDL may be contaminated when cleaning is required. Moreover, peel off the protective film after soldering the I/O terminals is completed. In this way surface contamination caused by the dispersion of flux while soldering can be avoided.

(2)Removing the wiring

When a lead wire or a connector soldered to the I/O terminals of MDL is to be removed, remove it after the solder at the connection part has melted sufficiently because the I/O terminals is inserted into a through hole. If forcefuly removed, it may cause the terminal to break or peel. it is recommended to use a suction-type solder sucker.

Moreover, do not repeat wiring by soldering more than 3times.

❹Long-term storage

When long-term storage of MDL is necessary, please comply with the following procedure:

If the method of storage is bad, deterioration of the display waterial (polarizer), generation of oxide on the I/O terminals plating (flush plating with gold) may make the soldering process difficult (adhesion of solder becomes worse).

(1)Store as packed in the condition it is delivered from us as far as possible.

(2)If the MDL is independent, place it in anti-static bag, seal the opening, and store it where it is not subjected to direct sunshine, or to the light of a fluorescent lamp

(3)In either case store them in the temperature range of 0°C—35°C and at low humidity.

Please refer to a separated specification sheet for each module about requirements of storage temperature and humidity resistance.

❺Excess electric current. protection.

Excess electric Current protection circuit is not equipped in MDL. Therefore, preporing for the worst, use electric source which has excess electric current Protection circuit.

■PRECAUTIONS in USE of LCDs

❶Do not give any external shock.

❷Do not wipe the surface with hard materials.

❸Do not apply excessive force on the surace.

❹Do not drive by DC voltage.

❺Do not expose to direct sunlight or fluorecent light for a long time.

❻Avoid storage in high temperature and high humidity.

❼When storage for a long time at 40°C or higher is required, R/H shall be less than 60%.

❽Liquid in LCD is hazardous substance. Must not lick, swallow when the liquid is attached to your hands, skin, clothes etc. Wash it out thoroughly.