# 4.4" Front Light Panel

12561-06 | Product Data Sheet | 2020

## Overview

The **FLEx Front Light Panel** optical film is designed to laminate to the front surface of **Sharp reflective display (LS044Q7DH01)** to provide high quality on-demand display lighting. This thin plastic panel incorporates only a single LED which enables product designers to develop ultra-thin devices and minimize battery use.
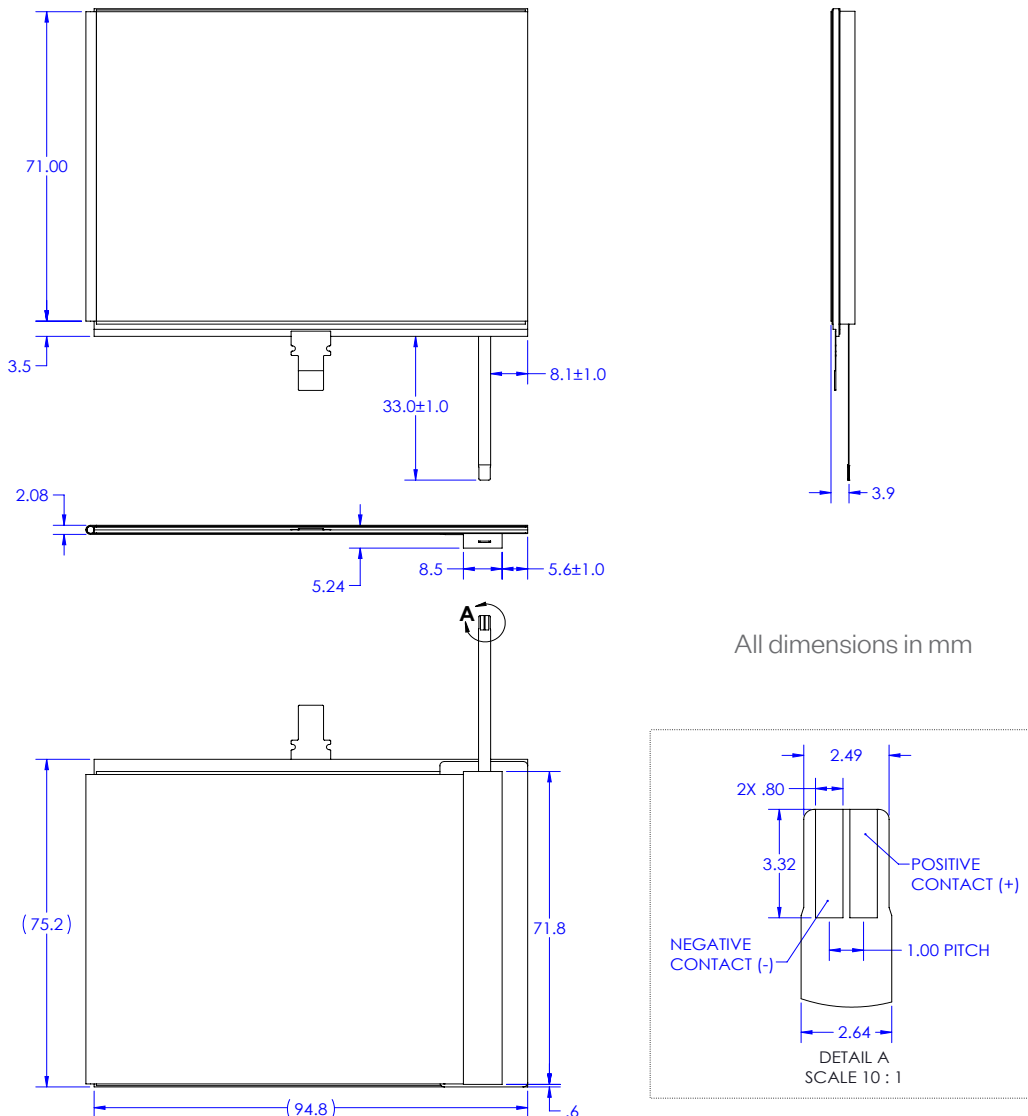
- One **low-power** LED (included in Front Light)
- Over **80x less power** compared to traditional backlighting
- 0.05 mm thick FLEx film is over **5x thinner** than alternative lightguides
- **Simple I/F** and **Connectivity** to System Board

**SHARP**
*Approved*
*Value-Added Partner*

## Mechanical



All dimensions in mm

DETAIL A
SCALE 10 : 1

POSITIVE CONTACT (+)
NEGATIVE CONTACT (-)
1.00 PITCH

**PRELIMINARY**

FLEx

## Electrical

| Item | Symbol | Typical | Absolute Max | Unit |
|---|---|---|---|---|
| Forward Current | $I_F$ | 40 | 60 | mA |
| Pulse Forward Current | $I_{FP}$ | -- | 200 | mA |
| Reverse Voltage | $V_R$ | 2.95 | 3.4 | V |

**Example ZIF Connectors:**
- Molex 503480-0400
- Molex 52745-0497
- Molex 54550-0471
- Molex 54548-0471 (bottom)
- Molex 505110-0492

順電流 Forward Current(mA) vs 順電圧 Forward Voltage(V)

許容順電流 Allowable Forward Current(mA) vs デューティー比 Duty Ratio(%)
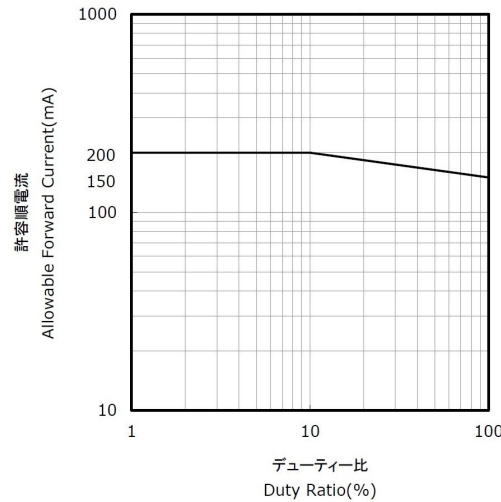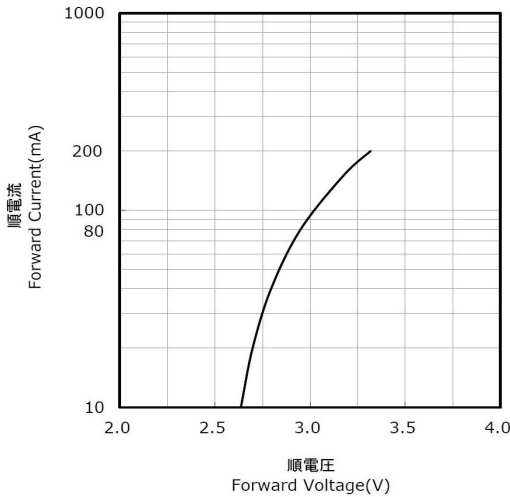
## Optical (PRELIMINARY)

| 4.4" Sharp + Front Light (12561-06) | | | | | |
|---|---|---|---|---|---|
| Item | Symbol | TYP. | Unit | Remark | |
| Viewing Angle CR >2 | V | Θ 11 Θ 12 | -- | ° (Degree) | [Remark 1] |
| | H | Θ 21 Θ 22 | -- | ° (Degree) | |
| Contrast Ratio | Front light ON | CR | 10 | -- | [Remark 2] |

**Brightness vs. Power**

TBD

Brightness (Nits, Typical) vs Current (mA)

Remark 1: Viewing Angle



Θ22 Θ21 Θ11 Θ12

Ref Image 1
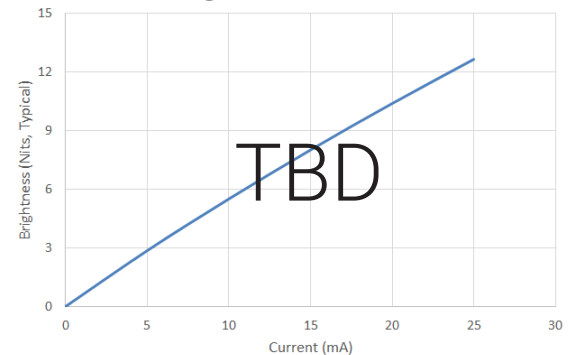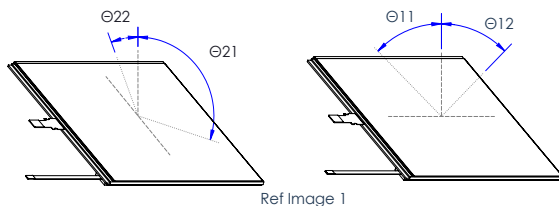
Remark 2: Definition of Contrast Ratio

$$\text{Contrast Ratio (CR)} = \frac{\text{Reflection intensity in white display}}{\text{Reflection intensity in black display}}$$

*Measurements taken with a Minolta Chroma Meter CS-100 at a 17" view distance*