

THE NEW VALUE FRONTIER



Ultra Low Power Consumption

# MIP LCD



Kyocera's Memory In Pixel (MIP) display products combines excellent image quality and visibility with ultra low power consumption to expand the potential applications for LCD screens into new markets.

## Applications

- Watches
- Healthcare Devices
- IC Recorders
- Secondary Displays for DSLR Cameras

# Features

## Ultra Low Power Consumption

1. Extended Battery Life
2. Bit pixel memory built into all pixels
3. Built-in random access circuit

Compare to Conventional TFT

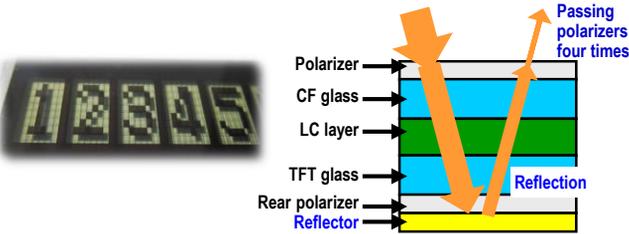
| Type                        | MIP                         | General TFT LCD |
|-----------------------------|-----------------------------|-----------------|
| Display Size [inch]         | 1.81"                       | 1.8"            |
| Resolution [dot]            | 256×256                     | 480×(RGB)×240   |
| Power Voltage [V]           | 3.3                         | 3.3             |
| Power Consumption Typ. [mW] | 0.01                        | 52.8            |
| Condition                   | Fixed Screen, Backlight Off |                 |

\*MIP power consumption per pixel is about 1/1000

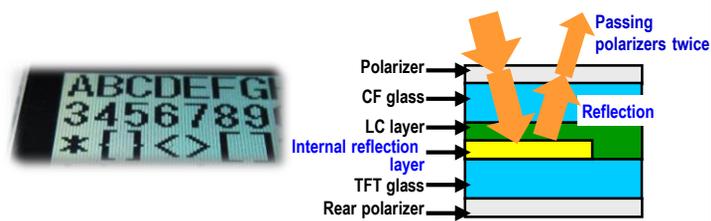
## Excellent Image Quality and Visibility

- Wide viewing angle, high contrast, no shadow
- Internal reflection layer improves outdoor visibility

### Passive Display

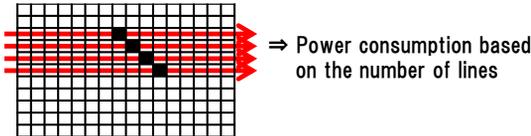


### Memory In Pixel(MIP)

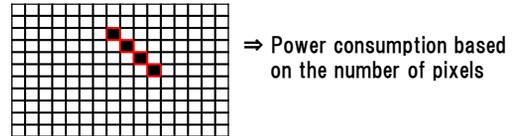


### Ref. : Pixel writing methodologies for MIP

#### ◇ Line selection method



#### ◇ Pixel selection method by random access circuit



# Specs

| Display Size [inches]                      | 1.04                                     | 1.03          | 1.81          | 2.16          |
|--|--|---------------|---------------|---------------|
| Part Number                                | TN010AANVNANN                            | TN0103ANVNANN | TN0181ANVNANN | TN0216ANVNANN |
| Image                                      |  |               |               |               |
| Shape                                      | Octagon                                  |               | Rectangle     |               |
| Display Mode                               | Normally White / Normally Black          |               |               |               |
| Resolution [dot]                           | 176×176                                  | 128×128       | 256×256       | 320×176       |
| Dot Pitch [μm]                             | 150.5×150.5                              | 145×145       | 127×127       | 150×150       |
| Outline W x H [mm]                         | 29.5×31.0                                | 22.0×24.3     | 35.9×38.2     | 51.1×31.9     |
| Thickness [mm]                             | 1.42                                     | 1.41          | 1.41          | 1.35          |
| Power Voltage [V]                          | 3.0 ±0.3                                 | 3.3 ±0.3      | 3.3 ±0.3      | 3.3 ±0.3      |
| Power Consumption Typ. [μW] (Fixed Screen) | 5  | 10            | 10            | 12            |
| Power Consumption Typ. [μW] (Rewriting)    | 10                                       | 35            | 75            | 95            |
| Pixel Rewriting Method                     | Random Access<br>(1 dot access Possible) |               | Line Access   |               |
| Operating Temp. [°C]                       | -20~70°C                                 |               |               |               |

※ Please note that the part number and spec. values are subject to change without notice.  
 ※ Please refer to the specification when using the product.

※ The information in this leaflet is current as of June 2020.  
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