



NINGBO FORYARD OPTO  
ELECTRONICS CO.,LTD.

# LED DIGIT DISPLAY

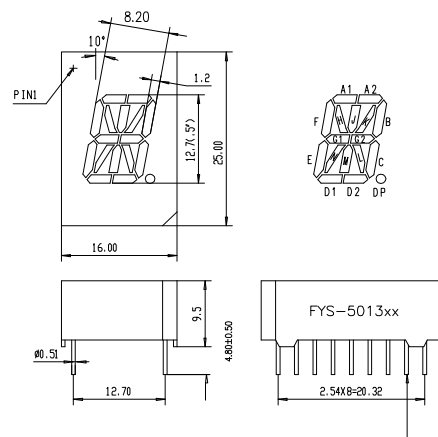
PartNO.: FYS-5013AX/BX-XX

## DESCRIPTION

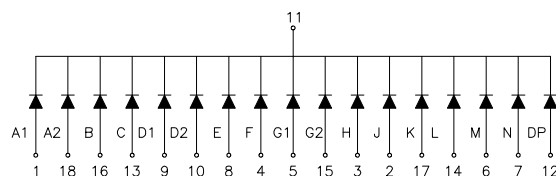
- 12.70 mm (0.5") Single digit numeric display series.
- Standard brightness.
- Low current operation.
- Excellent character appearance.
- Easy mounting on P.C.boards or sockets

## Package Dimensions & Internal Circuit Diagram

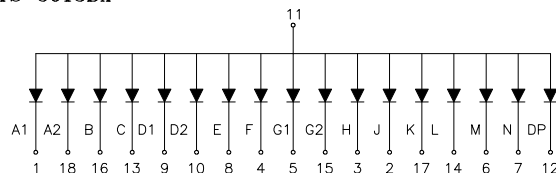
FYS-5013 Series



FYS-5013Ax



FYS-5013Bx



### Notes:

- All dimensions are in millimeters (inches)
- Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
- Specifications are subject to change without notice.

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**PartNO.: FYS-5013AX/BX-XX**

: Absolute maximum ratings (Ta=25℃)

| Parameter             | Symbol | Test Condition      | Value |       | Unit |
|-----------------------|--------|---------------------|-------|-------|------|
|                       |        |                     | Min   | Max   |      |
| Reverse Voltage       | VR     | IR=30μA             | 5     | ----- | V    |
| Forward Current       | IF     | -----               | ----- | 30    | mA   |
| Power Dissipation     | Pd     | -----               | ----- | 100   | mW   |
| Pulse Current         | Ipeak  | Duty=0.1mS,<br>1KHz | ----- | 150   | mA   |
| Operating Temperature | Topr   | -----               | -40   | +85   | ° C  |
| Storage Temperature   | Tstr   | -----               | -40   | +85   | ° C  |

• -XX: Surface / Lens color:

| Number            | 0           | 1              | 2            | 3              | 4               | 5 |
|-------------------|-------------|----------------|--------------|----------------|-----------------|---|
| Ref Surface Color | White       | Black          | Gray         | Red            | Green           |   |
| Epoxy Color       | Water clear | White diffused | Red Diffused | Green Diffused | Yellow Diffused |   |

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**PartNO.: FYS-5013AX/BX-XX**

■ **Description:**

- Color Code & Chip characteristics: (Test Condition: IF=20mA)

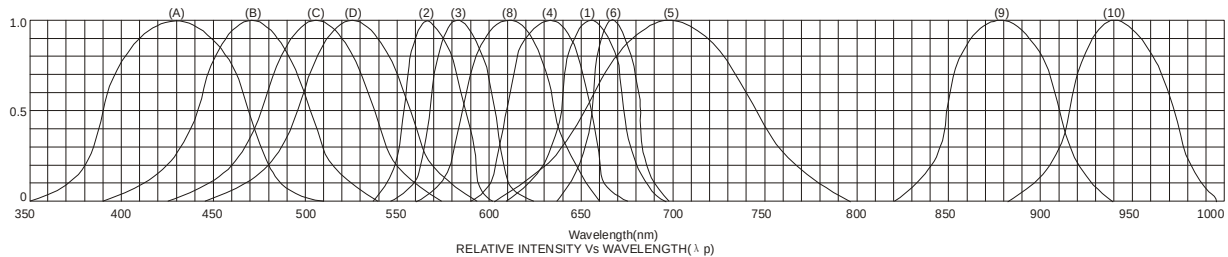
| Emitting Color                                    |                  | Dice Material | Peak Wave Length( $\lambda_p$ ) | Spectral Line halfwidth( $\Delta\lambda_{1/2}$ ) | Forward Voltage(VF)<br>Unit:V |       | Luminous Intensity (Iv)<br>Unit:mcd |
|---------------------------------------------------|------------------|---------------|---------------------------------|--------------------------------------------------|-------------------------------|-------|-------------------------------------|
|                                                   |                  |               |                                 |                                                  | Typ                           | Max   |                                     |
| H                                                 | Red              | GaP           | 700nm                           | 90nm                                             | 2.20                          | 2.50  | 5.0                                 |
| S, SR                                             | Hi Red           | AlGaAs,SH     | 660nm                           | 20nm                                             | 1.80                          | 2.20  | 15-20                               |
| D                                                 | Super Red        | AlGaAs,DH     | 660nm                           | 20nm                                             | 1.80                          | 2.20  | 20-30                               |
| LR                                                | Ultra Red        | AlGaAs,DDH    | 660nm                           | 20nm                                             | 1.90                          | 2.40  | 26-38                               |
| HR                                                | HE Red           | GaAsP         | 640nm                           | 45nm                                             | 1.90                          | 2.40  | 50-80                               |
| E                                                 | Orange           | GaAsP         | 630nm                           | 35nm                                             | 2.10                          | 2.50  | 10-20                               |
| A                                                 | Amber            | GaAsP         | 610nm                           | 35nm                                             | 2.10                          | 2.50  | 15-20                               |
| Y                                                 | Yellow           | GaAsP         | 590nm                           | 35nm                                             | 2.10                          | 2.50  | 15-20                               |
| G                                                 | Green            | GaP           | 570nm                           | 30nm                                             | 2.20                          | 2.50  | 14-18                               |
| Ultra brightness                                  |                  |               |                                 |                                                  |                               |       |                                     |
| UH R                                              | Ultra Hi Red     | AlGaInP       | 645nm                           | 20nm                                             | 2.10                          | 2.50  | 80-150                              |
| UE                                                | Ultra Orange     | AlGaInP       | 630nm                           | 20nm                                             | 2.10                          | 2.50  | 180-210                             |
| UA                                                | Ultra Amber      | AlGaInP       | 610nm                           | 20nm                                             | 2.10                          | 2.50  | 90-120                              |
| UY                                                | Ultra Yellow     | AlGaInP       | 590nm                           | 20nm                                             | 2.10                          | 2.50  | 150-200                             |
| UG                                                | Ultra Green      | AlGaInP       | 570nm                           | 30nm                                             | 2.20                          | 2.50  | 60-100                              |
| PG                                                | Ultra Pure Green | InGaN         | 520nm                           | 36nm                                             | 2.80                          | 3.80  | 260-310                             |
| BG                                                | Ultra Blue Green | InGaN         | 505nm                           | 36nm                                             | 2.80                          | 3.80  | 260-310                             |
| B                                                 | Blue             | InGaN         | 430nm                           | 30nm                                             | 2.80                          | 3.80  | 10-20                               |
| UB                                                | Ultra Blue       | InGaN         | 470nm                           | 30nm                                             | 2.80                          | 3.80  | 80-90                               |
|                                                   |                  |               | 460nm                           | 30nm                                             | 2.80                          | 3.80  | 80-90                               |
| V                                                 | UV               | InGaN         | 405nm                           |                                                  | 2.80                          | 3.80  | 5-8                                 |
| W                                                 | White            | InGaN         | X=0.29,y=0.30                   |                                                  | 2.80                          | 3.80  | 180-200                             |
| U W                                               | Ultra White      | InGaN         | X=0.29,y=0.30                   |                                                  | 2.80                          | 3.80  | 180-200                             |
| Segment-to-Segment Luminous Intensity ratio(Iv-M) |                  |               |                                 |                                                  |                               | 1.5:1 |                                     |



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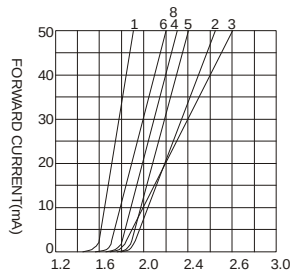
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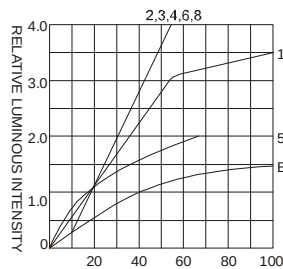


- (1) - GaAsP/GaAs 655nm/Red
- (2) - GaP 570nm/Yellow Green
- (3) - GaAsP/GaP 585nm/Yellow
- (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) - GaP 700nm/Bright Red
- (6) - GaAlAs/GaAs 660nm/Super Red
- (8) - GaAsP/GaP 610nm/Super Red

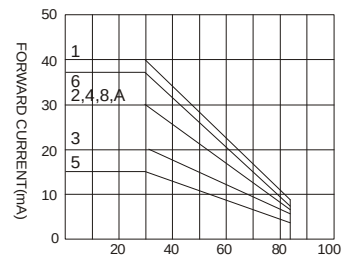
- (9) - GaAlAs 880nm
- (10) - GaAs/GaAs & GaAlAs/GaAs 940nm
- (A) - GaN/SiC 430nm/Blue
- (B) - InGaN/SiC 470nm/Blue
- (C) - InGaN/SiC 505nm/Ultra Green
- (D) - InGaAl/SiC 525nm/Ultra Green



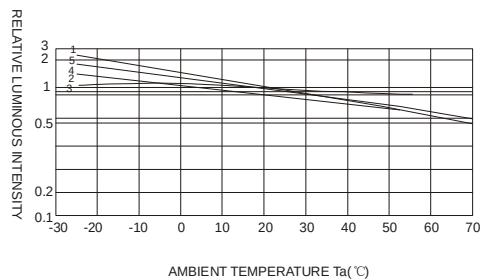
FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



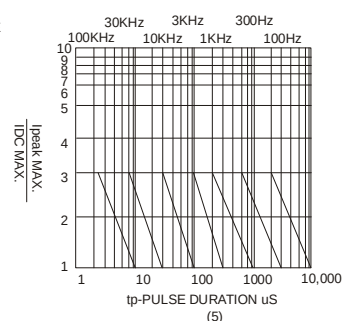
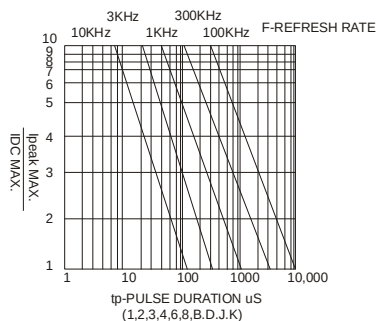
FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



AMBIENT TEMPERATURE Ta (°C)  
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE Ta (°C)



NOTE: 25 °C free air temperature unless otherwise specified

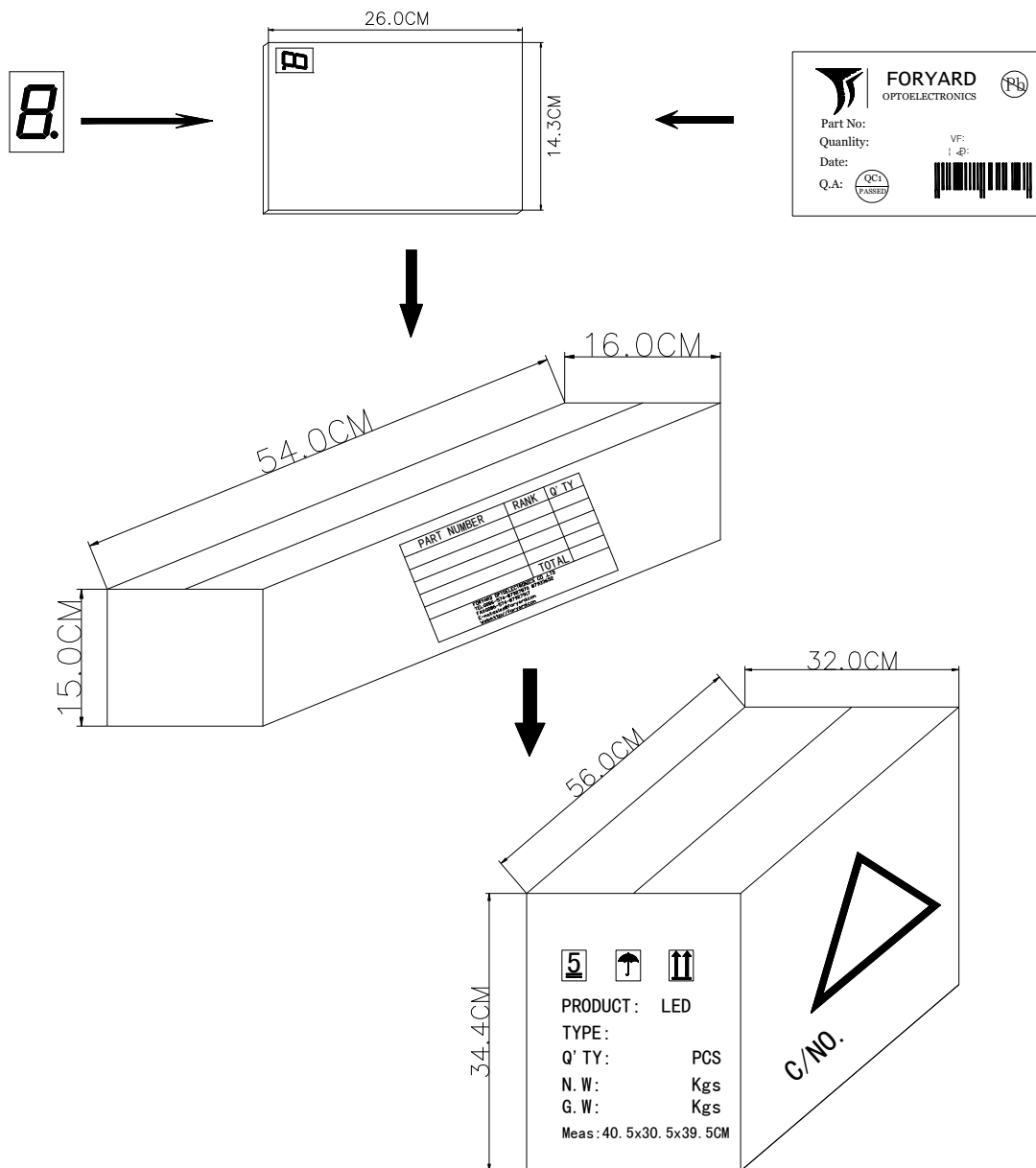
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| type            | QTY/foam(pcs) | QTY /Bundle (pcs) | QTY /CARTONDimension |
|-----------------|---------------|-------------------|----------------------|
| FYS-5013A/Bx-xx | 9*9=81        | 81*16=1296        | 1296*4=5184          |
|                 |               |                   |                      |
|                 |               |                   |                      |

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