

**1.85 inch ( 47.0mm )**

**8X8 DOT MATRIX LED DISPLAY UVP-2688/2788 SERIES**

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**DESCRIPTION**

The UVP-2688/2788 is 1.85 inch ( 47.0mm) height 8X8 dot matrix display.  
Single color displays have the choices of three bright colors-AlGaAs red/green/yellow.  
Multicolor displays are applicable to two bright colors:green and red orange  
All device have black face and white dot.  
The AlGaAs red LED chip are made from AlGaAs on a non-transparent GaAs substrate.  
The green LED chip are made from GaP on a transparent GaP substrate.  
The yellow and red orange LED chip are made from GaAsP on a transparent GaP substrate.

**FEATURES**

- Industry standard size
- Wide viewing angle
- Continuous uniform dot matrix.
- Excellent characters appearance
- Low power requirement

**DEVICES**

| PART NO. | DESCRIPTION  | PACKAGE DIMENSION | INTERNAL CIRCUIT DIAGRAM |
|----------|--------------|-------------------|--------------------------|
| UVP-2688 | Column Anode | Fig. 1            | Fig. 2                   |
| UVP-2788 | Column Anode |                   |                          |

**ABSOLUTE MAXIMUM RATINGS**

@ T<sub>A</sub>=25°C

| PARAMETER   | AlGaAs RED     | GREEN | YELLOW | RED ORANGE | UNIT  |
|---|----------------|-------|--------|------------|-------|
| Power Dissipation Per Dot   | 36             | 36    | 32     | 36         | mW    |
| Peak Forward Current Per Dot  | 125            | 100   | 80     | 100        | mA    |
| Continuous Forward Current Per Dot                                      | 15             | 13    | 10     | 13         | mA    |
| Derating Linear From 25°C Per Dot                                       | 0.20           | 0.17  | 0.12   | 0.17       | mA/°C |
| Reverse Voltage Per Dot   | 5              | 5     | 5      | 5          | V     |
| Operating Temperature Range   | -35°C to +85°C |       |        |            |       |
| Storage Temperature Range   | -35°C to +85°C |       |        |            |       |
| Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260°C |                |       |        |            |       |

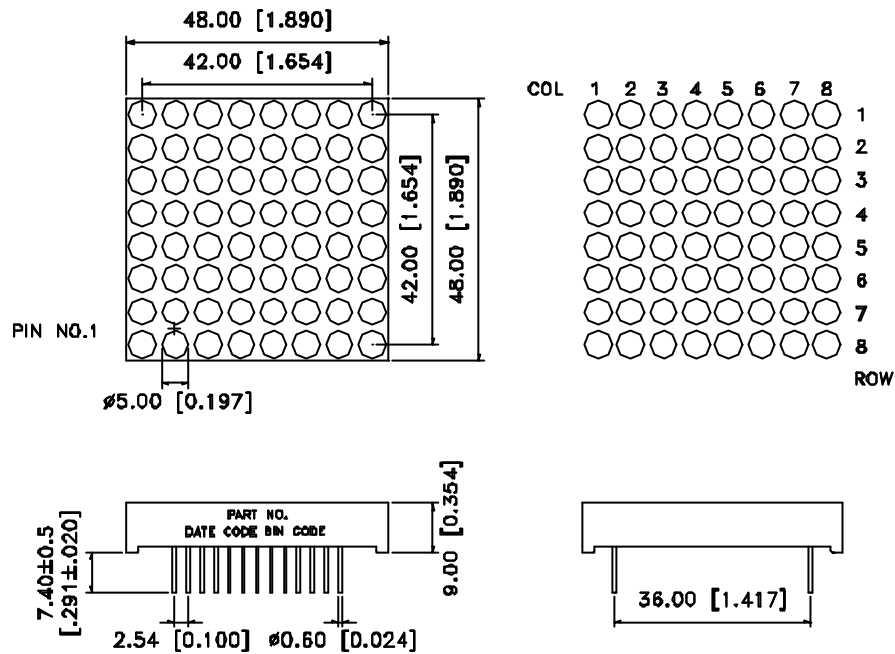


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8X8 DOT MATRIX LED DISPLAY

UVP-2688/2788 SERIES

PACKAGE DIMENSIONS



Unit:mm(Inches)

Tolerance is ± 0.25mm(0.01")unless otherwise noted

INTERNAL CIRCUIT DIAGRAM

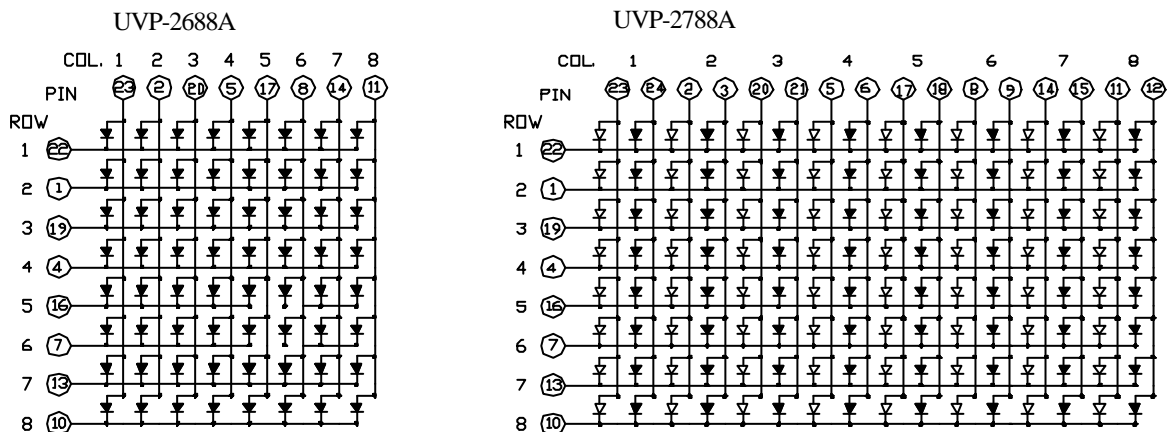


Fig. 2



Unity Opto Technology Co., Ltd.

11/14/2000

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**PIN CONNECTION**

| PIN | CONNECTION    |               |
|-----|---------------|---------------|
|     | UVP-2688      | UVP-2788      |
| 1   | CATHODE ROW 2 | CATHODE ROW 2 |
| 2   | ANODE COL. 2  | ANODE COL. 2G |
| 3   | NO PIN        | ANODE COL. 2E |
| 4   | CATHODE ROW 4 | CATHODE ROW 4 |
| 5   | ANODE COL. 4  | ANODE COL. 4G |
| 6   | NO PIN        | ANODE COL. 4E |
| 7   | CATHODE ROW 6 | CATHODE ROW 6 |
| 8   | ANODE COL. 6  | ANODE COL. 6G |
| 9   | NO PIN        | ANODE COL. 6E |
| 10  | CATHODE ROW 8 | CATHODE ROW 8 |
| 11  | ANODE COL. 8  | ANODE COL. 8G |
| 12  | NO PIN        | ANODE COL. 8E |
| 13  | CATHODE ROW 7 | CATHODE ROW 7 |
| 14  | ANODE COL. 7  | ANODE COL. 7G |
| 15  | NO PIN        | ANODE COL. 7E |
| 16  | CATHODE ROW 5 | CATHODE OW 5  |
| 17  | ANODE COL. 5  | ANODE COL. 5G |
| 18  | NO PIN        | ANODE COL. 5E |
| 19  | CATHODE ROW 3 | CATHODE ROW 3 |
| 20  | ANODE COL. 3  | ANODE COL. 3G |
| 21  | NO PIN        | ANODE COL. 3E |
| 22  | CATHODE ROW 1 | CATHODE ROW 1 |
| 23  | ANODE CO. 1   | ANODE COL. 1G |
| 24  | NO PIN        | ANODE COL. 1E |

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**8X8 DOT MATRIX LED DISPLAY**

**UVP-2688/2788 SERIES**

**ELECTRICAL/OPTICAL CHARACTERISTICS**

**AlGaAs RED (UVP-2688AC)**

@ T<sub>A</sub>=25°C

| PARAMETER                         | SYMBOL              | MIN. | TYP.    | MAX. | UNIT | TEST CONDITION                   |
|-----------------------------------|---------------------|------|---------|------|------|----------------------------------|
| Average Luminous Intensity        | I <sub>V</sub>      | 6300 | 12000   |      | μcd  | I <sub>p</sub> = 80 mA 1/16 Duty |
| Peak Emission Wavelength          | λ <sub>p</sub> /Hue |      | 660/638 |      | nm   | I <sub>F</sub> = 20 mA           |
| Spectral Line Half-Width          | Δλ                  |      | 35      |      | nm   | I <sub>F</sub> = 20 mA           |
| Forward Voltage, any Dot          | V <sub>F</sub>      |      | 1.8     | 2.4  | V    | I <sub>F</sub> = 20 mA           |
| Reverse Current, any Dot          | I <sub>R</sub>      |      |         | 100  | μA   | V <sub>R</sub> = 5 V             |
| Luminous Intensity Matching Ratio | I <sub>V</sub> -m   |      |         | 2:1  |      | I <sub>F</sub> = 10 mA           |

**GREEN (UVP-2688AG) & (UVP-2788AA GREEN)**

@ T<sub>A</sub>=25°C

| PARAMETER                         | SYMBOL              | MIN. | TYP.    | MAX. | UNIT | TEST CONDITION                   |
|-----------------------------------|---------------------|------|---------|------|------|----------------------------------|
| Average Luminous Intensity        | I <sub>V</sub>      | 1780 | 4800    |      | μcd  | I <sub>p</sub> = 80 mA 1/16 Duty |
| Peak Emission Wavelength          | λ <sub>p</sub> /Hue |      | 565/569 |      | nm   | I <sub>F</sub> = 20 mA           |
| Spectral Line Half-Width          | Δλ                  |      | 30      |      | nm   | I <sub>F</sub> = 20 mA           |
| Forward Voltage, any Dot          | V <sub>F</sub>      |      | 2.1     | 2.6  | V    | I <sub>F</sub> = 20 mA           |
| Reverse Current, any Dot          | I <sub>R</sub>      |      |         | 100  | μA   | V <sub>R</sub> = 5 V             |
| Luminous Intensity Matching Ratio | I <sub>V</sub> -m   |      |         | 2:1  |      | I <sub>F</sub> = 10 mA           |

**YELLOW (UVP-2688AY)**

@ T<sub>A</sub>=25°C

| PARAMETER                         | SYMBOL              | MIN. | TYP.    | MAX. | UNIT | TEST CONDITION                   |
|-----------------------------------|---------------------|------|---------|------|------|----------------------------------|
| Average Luminous Intensity        | I <sub>V</sub>      | 1780 | 4800    |      | μcd  | I <sub>p</sub> = 80 mA 1/16 Duty |
| Peak Emission Wavelength          | λ <sub>p</sub> /Hue |      | 585/588 |      | nm   | I <sub>F</sub> = 20 mA           |
| Spectral Line Half-Width          | Δλ                  |      | 35      |      | nm   | I <sub>F</sub> = 20 mA           |
| Forward Voltage, any Dot          | V <sub>F</sub>      |      | 2.1     | 2.6  | V    | I <sub>F</sub> = 20 mA           |
| Reverse Current, any Dot          | I <sub>R</sub>      |      |         | 100  | μA   | V <sub>R</sub> = 5 V             |
| Luminous Intensity Matching Ratio | I <sub>V</sub> -m   |      |         | 2:1  |      | I <sub>F</sub> = 10 mA           |

**RED ORANGE (UVP-2788AA RED ORANGE)**

@ T<sub>A</sub>=25°C

| PARAMETER                         | SYMBOL              | MIN. | TYP.    | MAX. | UNIT | TEST CONDITION                   |
|-----------------------------------|---------------------|------|---------|------|------|----------------------------------|
| Average Luminous Intensity        | I <sub>V</sub>      | 1780 | 4800    |      | μcd  | I <sub>p</sub> = 80 mA 1/16 Duty |
| Peak Emission Wavelength          | λ <sub>p</sub> /Hue |      | 630/621 |      | nm   | I <sub>F</sub> = 20 mA           |
| Spectral Line Half-Width          | Δλ                  |      | 40      |      | nm   | I <sub>F</sub> = 20 mA           |
| Forward Voltage, any Dot          | V <sub>F</sub>      |      | 2.0     | 2.6  | V    | I <sub>F</sub> = 20 mA           |
| Reverse Current, any Dot          | I <sub>R</sub>      |      |         | 100  | μA   | V <sub>R</sub> = 5 V             |
| Luminous Intensity Matching Ratio | I <sub>V</sub> -m   |      |         | 2:1  |      | I <sub>F</sub> = 10 mA           |



**1.2 inch ( 30.42mm )**

**5X7 DOT MATRIX LED DISPLAY**

**UVP-2688/2788 SERIES**

**TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES**

( Ambient Temperature =25°C Unless Otherwise Noted )

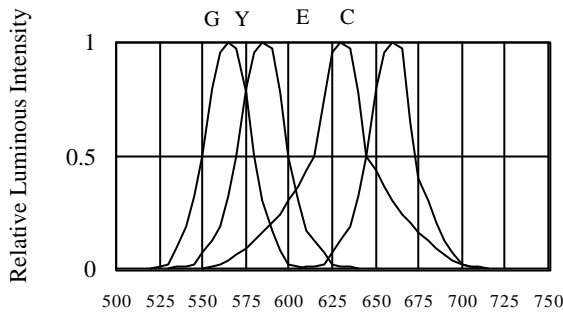


Fig 1. RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH

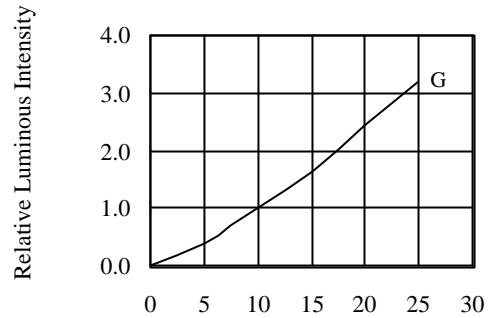


Fig 2. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

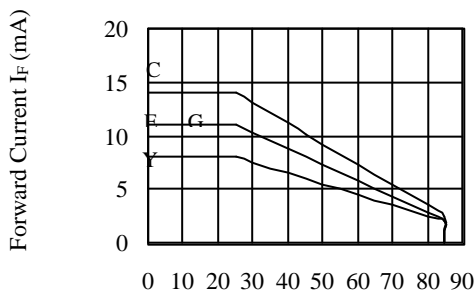


Fig 3. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE

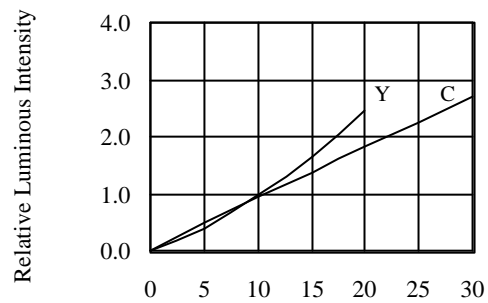


Fig 4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

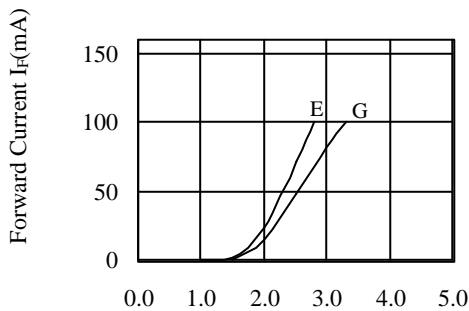


Fig 5. FORWARD CURRENT VS. FORWARD VOLTAGE

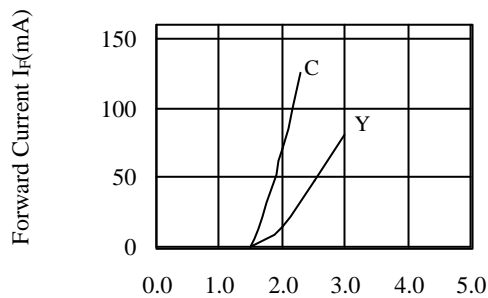


Fig 6. FORWARD CURRENT VS. FORWARD VOLTAGE