TOYO LED ELECTRONICS LIMITED
Room 1610, Hong Kong Plaza, 188 Connaught Road West, Hong Kong.
Tel : (852) 2540 7288 Fax : (852) 2517 1797
http://www.toyo-led.com E-mail : sales@toyo-led.com



# SPECIFICATION FOR CUSTOMER APPROVAL

## P/N: D12574B-N-OK2-0-W

DATE : *2011-9-8*

PREPARED BY : *Candy H*

CONFIRMED BY : *Andy Man*

**PLEASE CONFIRM & SIGN BACK THIS SHEET TO US**

**CUSTOMER:** **00268-U** **APPROVAL BY:** _____

(COMPANY CHOP) (SIGNATURE)

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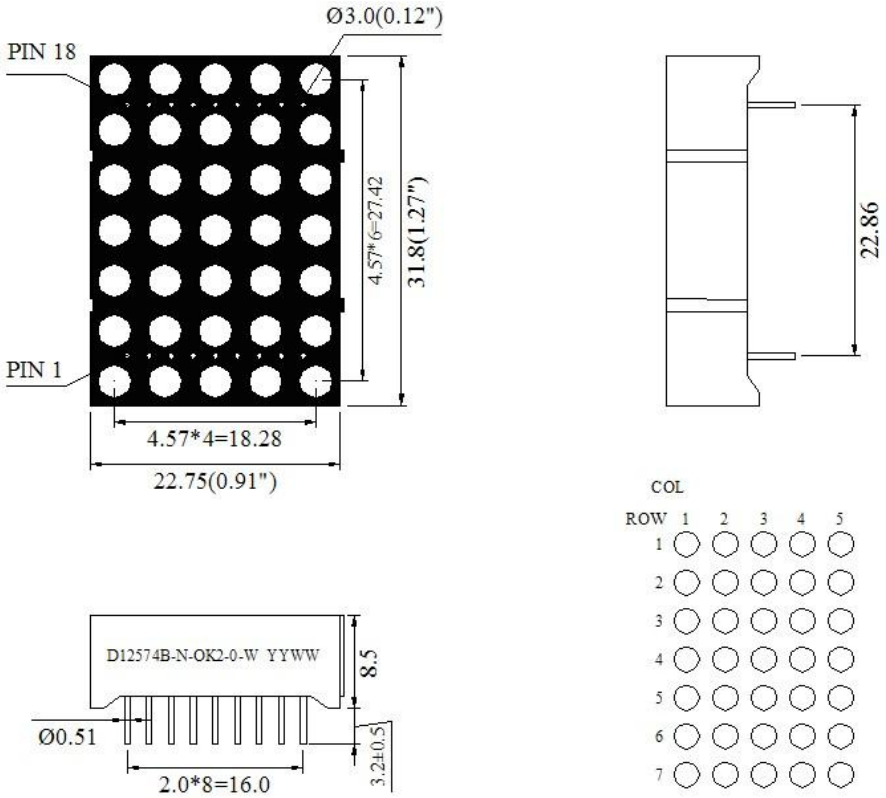
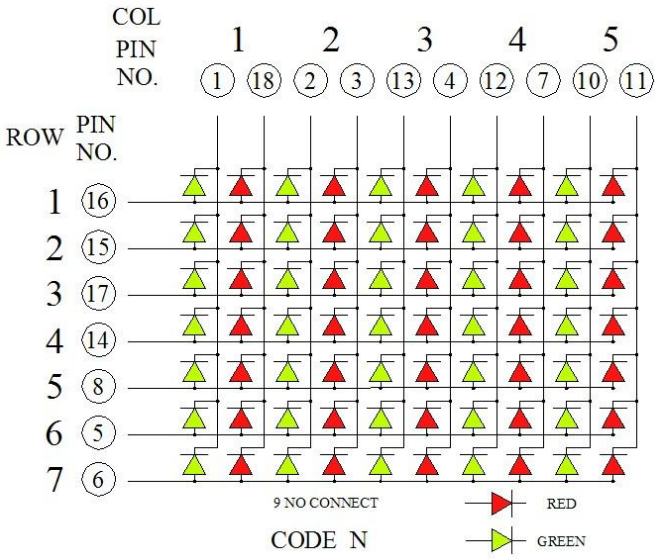
**P/N:D12574B-N-OK2-0-W** Dot-Matrix Series

## PACKAGE DIMENSIONS

Pb-free




## INTERNAL CIRCUIT DIAGRAM




NOTES:

1. All dimensions are in millimeter(inch);
2. Tolerance is ±0.25mm(0.01″) especially other specified;
3. Pin length, housing color, marking no & circuit diagram can be customized;
4. Specifications are subject to change without notice.

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## CHIPS

Pb-free

**Chip Material: AlGaAs / GaAs Bright Red LED Chip**

**ABSOLUTE MAXIMUM RATINGS (Ta = 25℃)**

| PARAMETER | SYMBOL | MAXIMUM RATING | UNIT |
|---|---|---|---|
| Power Dissipation | $P_D$ | 60 | mW |
| Peak Forward Current (1/10 Duty Cycle, 0.1 Ms Pulse Width) | $I_{PEAK}$ | 80 | mA |
| DC Forward Current | $I_F$ | 30 | mA |
| Reverse Voltage | $V_R$ | 5 | V |
| Operating Temperature Range | $T_A$ | -40 ℃ to +85 ℃ | |
| Storage Temperature Range | $T_{STG}$ | -40 ℃ to +85 ℃ | |
| Solder temperature 1/16 inch below seating plane for 3 seconds at 260 ℃ | | | |

**ELECTRICAL OPTICAL CHARACTER AND CURVES (Ta = 25℃)**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | LOCATION | TEST CONDITION |
|---|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | - | 1.80 | 2.20 | V | Per Dot | $I_F$ =20mA |
| Luminous Intensity | $I_V$ | 15.0 | 18.0 | 21.0 | mcd | Per Dot | $I_F$ =20mA |
| Peak Emission Wavelength | λp | - | 655 | - | nm | Per Dot | $I_F$ =20mA |
| Dominant Emission Wavelength | λd | 638 | 642 | 644 | nm | Per Dot | $I_F$ =20mA |
| Spectral Line Half-Width | Δλ1/2 | - | 20 | - | nm | Per Dot | $I_F$ =20mA |
| Reverse Current | $I_R$ | - | - | 10 | uA | Per Dot | VR = 5V |
| | | | | | | | |

Note:

1. Luminous intensity tolerance is ±10%;
2. Dominant Emission Wavelength tolerance is ±5%.

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**P/N:D12574B-N-OK2-0-W** Dot-Matrix Series

## TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE

FIG. 1 Forward Current Vs. Forward Voltage

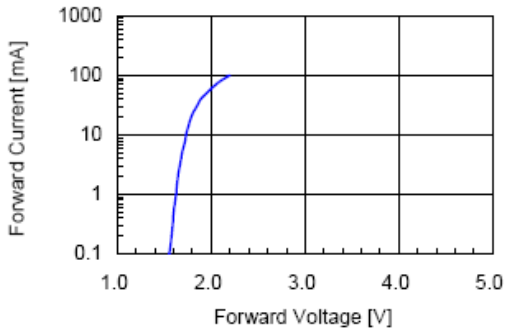



FIG. 2 Relative Intensity Vs. Forward Current

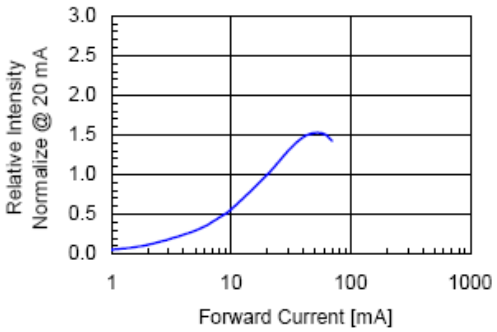



FIG. 3 Forward Voltage Vs. Temperature

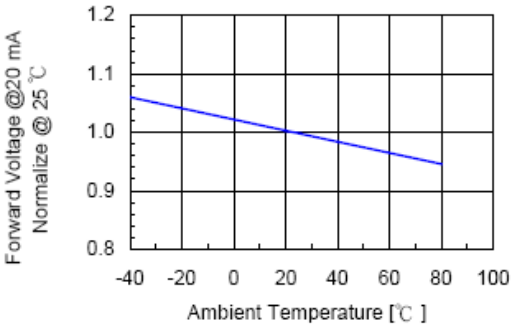



FIG. 4 Relative Intensity Vs. Temperature

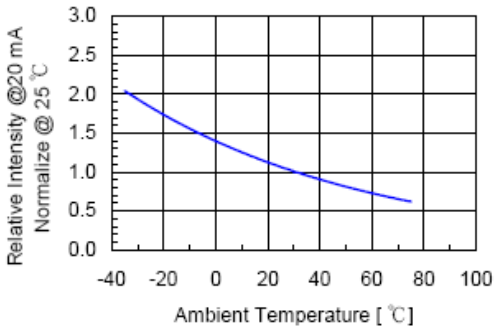
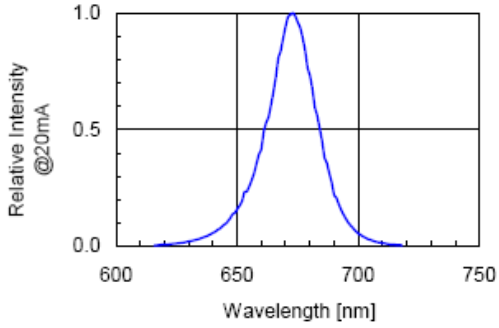



FIG. 5 Relative Intensity Vs. Wavelength



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**P/N:D12574B-N-OK2-0-W** Dot-Matrix Series

**Chip Material: Gap/Gap Yellow Green LED Chip**

Pb-free

**ABSOLUTE MAXIMUM RATINGS (Ta = 25℃)**

| PARAMETER | SYMBOL | MAXIMUM RATING | UNIT |
|---|---|---|---|
| Power Dissipation | $P_D$ | 65 | mW |
| Peak Forward Current (1/10 Duty Cycle, 0.1 Ms Pulse Width) | $I_{PEAK}$ | 140 | mA |
| DC Forward Current | $I_F$ | 25 | mA |
| Reverse Voltage | $V_R$ | 5 | V |
| Operating Temperature Range | $T_A$ | -40 ℃ to +85 ℃ | |
| Storage Temperature Range | $T_{STG}$ | -40 ℃ to +85 ℃ | |
| Solder temperature 1/16 inch below seating plane for 3 seconds at 260 ℃ | | | |

**ELECTRICAL OPTICAL CHARACTER AND CURVES (Ta = 25℃)**

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT | LOCATION | TEST CONDITION |
|---|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | - | 2.20 | 2.60 | V | Per Dot | $I_F$ =20mA |
| Luminous Intensity | $I_V$ | 11.0 | 12.0 | 14.0 | mcd | Per Dot | $I_F$ =20mA |
| Peak Emission Wavelength | λp | - | 575 | - | nm | Per Dot | $I_F$ =20mA |
| Dominant Emission Wavelength | λd | 571 | 572 | 573 | nm | Per Dot | $I_F$ =20mA |
| Spectral Line Half-Width | Δλ1/2 | - | 30 | - | nm | Per Dot | $I_F$ =20mA |
| Reverse Current | $I_R$ | - | - | 10 | uA | Per Dot | VR = 5V |
| | | | | | | | |

**Note:**

1. **Luminous intensity tolerance is ±10%;**
2. **Dominant Emission Wavelength tolerance is ±5%**

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## TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE:

FIG. 1 Forward Current Vs. Forward Voltage

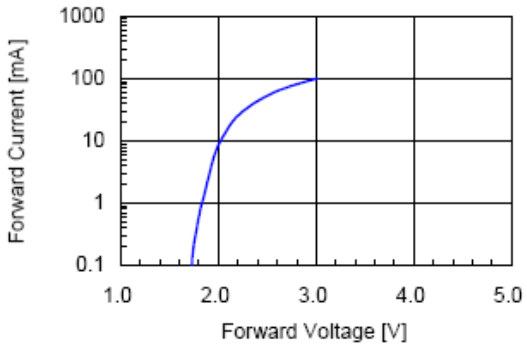


FIG. 2 Relative Intensity Vs. Forward Current

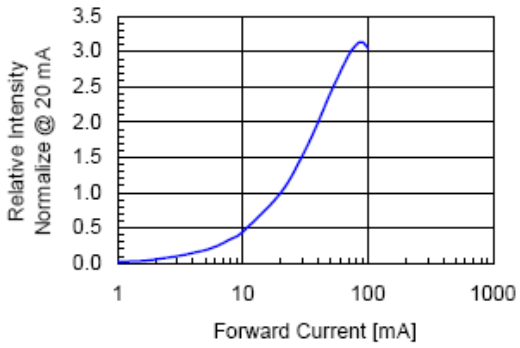


FIG. 3 Forward Voltage Vs. Temperature

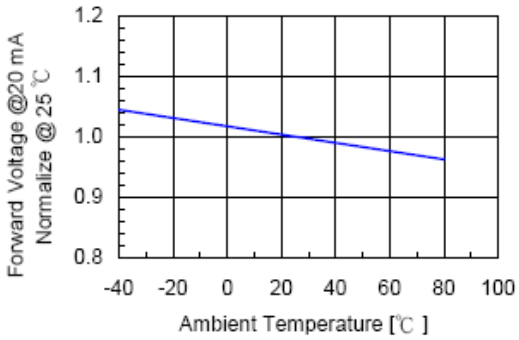


FIG. 4 Relative Intensity Vs. Temperature

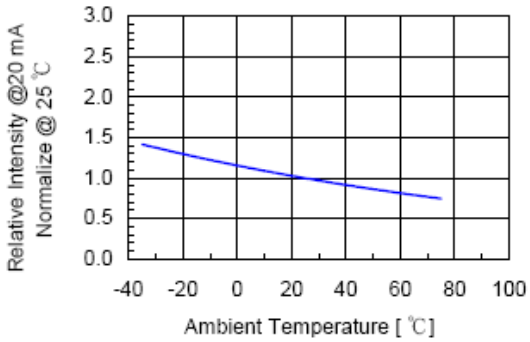


FIG. 5 Relative Intensity Vs. Wavelength