

## NTE3020 thru NTE3024 Light Emitting Diode (LED)

### **Description:**

The NTE3020 through NTE3024 LEDs offer a variety of lens effects and color availability. The Red (NTE3020) source color device is made with Gallium Arsenide Phosphide on Gallium Arsenide Red Light Emitting Diode. The High Efficiency Red (NTE3022) and Orange (NTE3023) source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode. The Green (NTE3024) source color device is made with Gallium Phosphide on Gallium Phosphide Green Light Emitting Diode. The Yellow (NTE3021) source color device is made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

### **Features:**

- Low Power Consumption
- High Efficiency
- IC Compatible/Low Current Requirements
- Versatile mounting on P.C. board or panel
- Reliable and Rugged

### **Absolute Maximum Ratings:** ( $T_A = +25^{\circ}\text{C}$ unless otherwise specified)

#### Power Dissipation, $P_D$

|               |       |
|---------------|-------|
| NTE3020 ..... | 80mW  |
| NTE3021 ..... | 60mW  |
| NTE3022 ..... | 100mW |
| NTE3023 ..... | 100mW |
| NTE3024 ..... | 100mW |

#### Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width), $I_{F(\text{Peak})}$

|               |       |
|---------------|-------|
| NTE3020 ..... | 200mA |
| NTE3021 ..... | 80mA  |
| NTE3022 ..... | 120mA |
| NTE3023 ..... | 120mA |
| NTE3024 ..... | 120mA |

**Absolute Maximum Ratings (Cont'd):** ( $T_A = +25^{\circ}\text{C}$  unless otherwise specified)Continuous Forward Current,  $I_F$ 

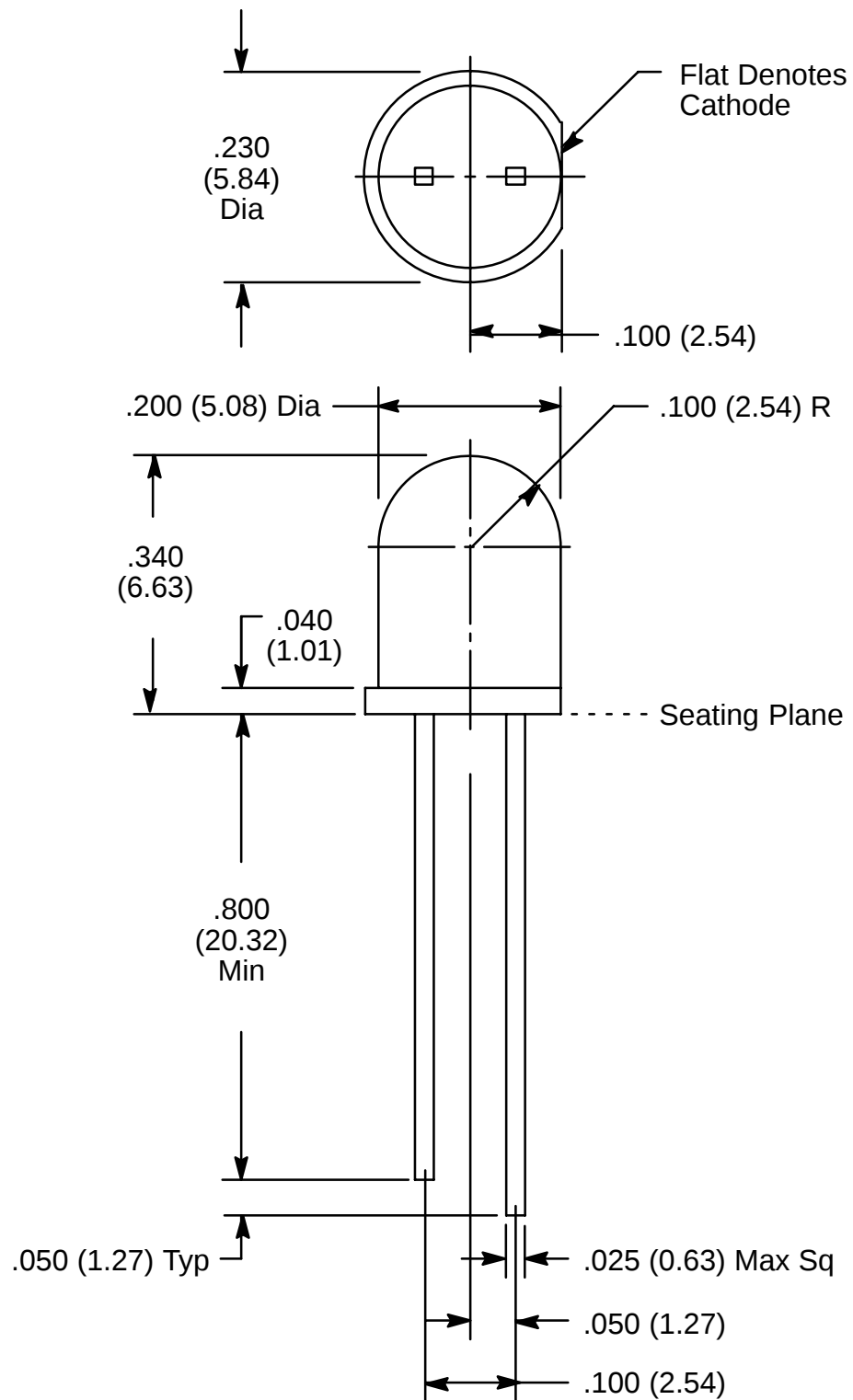
|                                            |                                  |
|--------------------------------------------|----------------------------------|
| NTE3020                                    | 40mA                             |
| Derate Linearly Above $25^{\circ}\text{C}$ | $0.5\text{mA}/^{\circ}\text{C}$  |
| NTE3021                                    | 20mA                             |
| Derate Linearly Above $25^{\circ}\text{C}$ | $0.25\text{mA}/^{\circ}\text{C}$ |
| NTE3022                                    | 30mA                             |
| Derate Linearly Above $25^{\circ}\text{C}$ | $0.4\text{mA}/^{\circ}\text{C}$  |
| NTE3023                                    | 30mA                             |
| Derate Linearly Above $25^{\circ}\text{C}$ | $0.4\text{mA}/^{\circ}\text{C}$  |
| NTE3024                                    | 30mA                             |
| Derate Linearly Above $25^{\circ}\text{C}$ | $0.4\text{mA}/^{\circ}\text{C}$  |

Reverse Voltage,  $V_R$  ..... 5VOperating Temperature Range,  $T_A$  .....  $-55^{\circ}$  to  $+100^{\circ}\text{C}$ Storage Temperature Range,  $T_{\text{stg}}$  .....  $-55^{\circ}$  to  $+100^{\circ}\text{C}$ Lead Temperature (During Soldering, .063 in. (1.6mm) from Body for 5sec),  $T_L$  .....  $+260^{\circ}\text{C}$ **Electrical/Optical Characteristics:** ( $T_A = +25^{\circ}\text{C}$  unless otherwise specified)

| Parameter                                                                     | Symbol          | Test Conditions               | Min                   | Typ                             | Max                         | Unit          |
|-------------------------------------------------------------------------------|-----------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|---------------|
| Luminous Intensity<br>NTE3020<br>All Other Devices                            | $I_V$           | $I_F = 10\text{mA}$ , Note 1  | 0.3<br>2.5            | 0.8<br>8.7                      | —<br>—                      | mcd           |
| Viewing Angle                                                                 | $2\Theta^{1/2}$ | Note 2                        | —                     | 36                              | —                           | deg.          |
| Peak Emission Wavelength<br>NTE3020<br>NTE3021<br>NTE3022, NTE3023<br>NTE3024 | $\lambda_P$     |                               | —<br>—<br>—<br>—      | 655<br>585<br>635<br>565        | —<br>—<br>—<br>—            | nm            |
| Spectral Line Half Width<br>NTE3020<br>NTE3021<br>NTE3022, NTE3023<br>NTE3024 | $\Delta\lambda$ |                               | —<br>—<br>—<br>—      | 24<br>35<br>40<br>30            | —<br>—<br>—<br>—            | nm            |
| Forward Voltage<br>NTE3020<br>NTE3021<br>NTE3022<br>NTE3023<br>NTE3024        | $V_F$           | $I_F = 20\text{mA}$           | —<br>—<br>—<br>—<br>— | 1.7<br>2.1<br>2.0<br>2.0<br>2.1 | —<br>2.8<br>—<br>2.8<br>2.8 | V             |
| Reverse Current                                                               | $I_R$           | $V_R = 5\text{V}$             | —                     | —                               | 100                         | $\mu\text{A}$ |
| Capacitance<br>NTE3020<br>NTE3021<br>NTE3022, NTE3023<br>NTE3024              | C               | $V_F = 0$ , $f = 1\text{MHz}$ | —<br>—<br>—<br>—      | 30<br>15<br>20<br>15            | —<br>—<br>—<br>—            | pF            |

Note 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclairage) eye-response curve.

Note 2.  $\Theta^{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.



Tolerance  $\pm .010$  (.254)