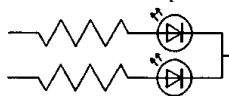
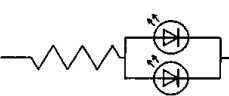
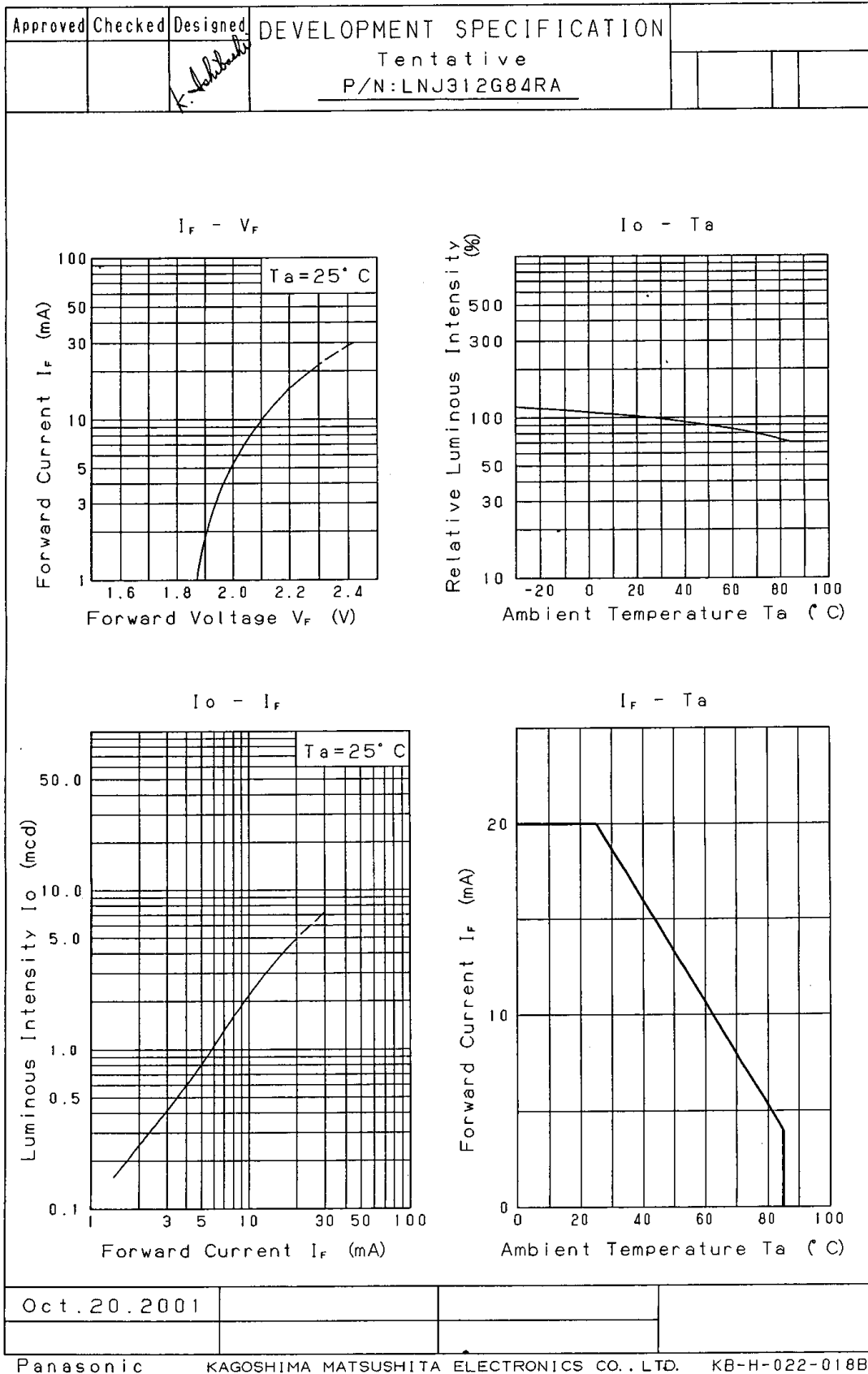


|                                                                                                                                                                                                                                                                      |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------|------------------------------|----------------------------|--------------------|-------------------------------------------------------------------------------------|----------------|------------------|------------------|--|--|
| Approved                                                                                                                                                                                                                                                             | Checked | Designed           | DEVELOPMENT SPECIFICATION    |                            |                    |                                                                                     |                |                  |                  |  |  |
|                                                                                                                                                                                                                                                                      |         | <i>K. Nakamura</i> | Tentative<br>P/N:LNJ312G84RA |                            |                    |                                                                                     |                |                  |                  |  |  |
| T                                                                                                                                                                                                                                                                    | Y       | P                  | E                            | Green Light Emitting Diode |                    |                                                                                     |                |                  |                  |  |  |
| APPLICATION                                                                                                                                                                                                                                                          |         |                    |                              | Indicators                 |                    |                                                                                     |                |                  |                  |  |  |
| MATERIAL                                                                                                                                                                                                                                                             |         |                    |                              | GaP                        |                    |                                                                                     |                |                  |                  |  |  |
| OUTLINE                                                                                                                                                                                                                                                              |         |                    |                              | Attached                   |                    |                                                                                     |                |                  |                  |  |  |
| ABSOLUTE<br>MAXIMUM<br>RATINGS                                                                                                                                                                                                                                       |         |                    |                              | P                          | *1 I <sub>FP</sub> | I <sub>FDC</sub>                                                                    | V <sub>R</sub> | T <sub>opr</sub> | T <sub>stg</sub> |  |  |
|                                                                                                                                                                                                                                                                      |         |                    |                              | 60                         | 60                 | 20                                                                                  | 4              | -30~+85          | -40~+100         |  |  |
|                                                                                                                                                                                                                                                                      |         |                    |                              | mW                         | mA                 | mA                                                                                  | V              | °C               | °C               |  |  |
| CONDITION                                                                                                                                                                                                                                                            |         |                    |                              | T <sub>a</sub> = 25 ± 3 °C |                    |                                                                                     |                |                  |                  |  |  |
| Test Specification                                                                                                                                                                                                                                                   |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| Item                                                                                                                                                                                                                                                                 |         | Symbol             | Condition                    |                            | Typ.               | Limit                                                                               |                | Unit             |                  |  |  |
|                                                                                                                                                                                                                                                                      |         |                    |                              |                            |                    | Min                                                                                 | Max            |                  |                  |  |  |
| Forward Voltage                                                                                                                                                                                                                                                      |         | V <sub>F</sub>     | I <sub>F</sub> = 10 mA       |                            | 2.1                |                                                                                     | 2.6            | V                |                  |  |  |
| Reverse Leakage Current                                                                                                                                                                                                                                              |         | I <sub>R</sub>     | V <sub>R</sub> = 4 V         |                            |                    |                                                                                     | 10             | μA               |                  |  |  |
| Luminous Intensity *2                                                                                                                                                                                                                                                |         | I <sub>O</sub>     | I <sub>F</sub> = 10 mA DC    |                            | 2.1                | 1.1                                                                                 |                | mcd              |                  |  |  |
| Peak Emission Wavelength                                                                                                                                                                                                                                             |         | λ <sub>p</sub>     | I <sub>F</sub> = 10 mA DC    |                            | 560                |                                                                                     |                | nm               |                  |  |  |
| Spectral Line Half Width                                                                                                                                                                                                                                             |         | Δλ                 | I <sub>F</sub> = 10 mA DC    |                            | 25                 |                                                                                     |                | nm               |                  |  |  |
| <p>*1 · The Condition of I<sub>FP</sub> is duty 10 % , Pulse width 1 ms<br/>· Please contact the Panasonic local office if you design at low current (below 1 mA DC) or pulse current operation and have any questions.</p> <p>*2 Measurement Tolerance is ±20%.</p> |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| NOTE                                                                                                                                                                                                                                                                 |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| ★1. Terminal:Plated with gold on copper base.                                                                                                                                                                                                                        |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| ★2. Package:Light green diffusion type.                                                                                                                                                                                                                              |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| ★3. Soldering conditions.<br>Refer to Handling note.                                                                                                                                                                                                                 |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| ★4. Care should be taken that soldering is done within 7-days after opening the dry package and reel.                                                                                                                                                                |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
| ★5. Circuit to operate LED.                                                                                                                                                                                                                                          |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
|                                                                                                                                                                                   |         |                    |                              |                            |                    |  |                |                  |                  |  |  |
| (A)                                                                                                                                                                                                                                                                  |         |                    |                              |                            |                    | (B)                                                                                 |                |                  |                  |  |  |
| Oct. 20. 2001                                                                                                                                                                                                                                                        |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |
|                                                                                                                                                                                                                                                                      |         |                    |                              |                            |                    |                                                                                     |                |                  |                  |  |  |

Panasonic

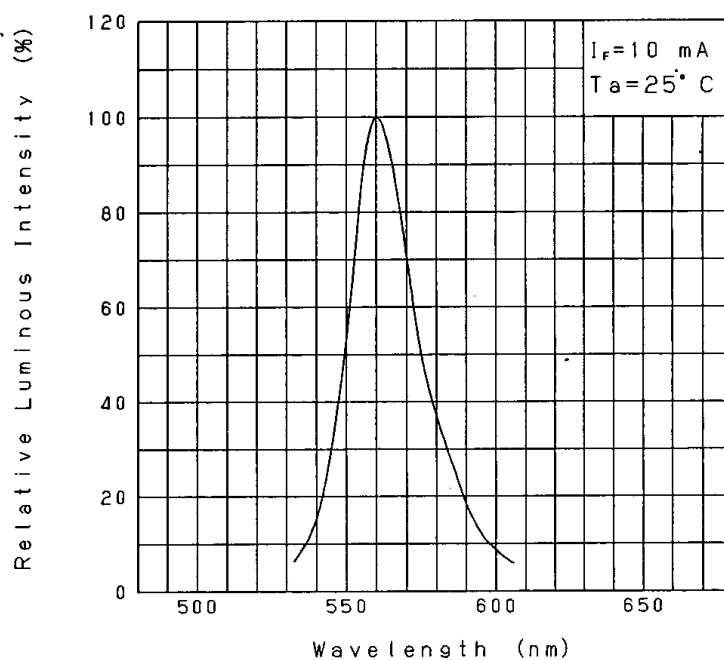
KAGOSHIMA MATSUSHITA ELECTRONICS CO., LTD

KB-II-022-018B

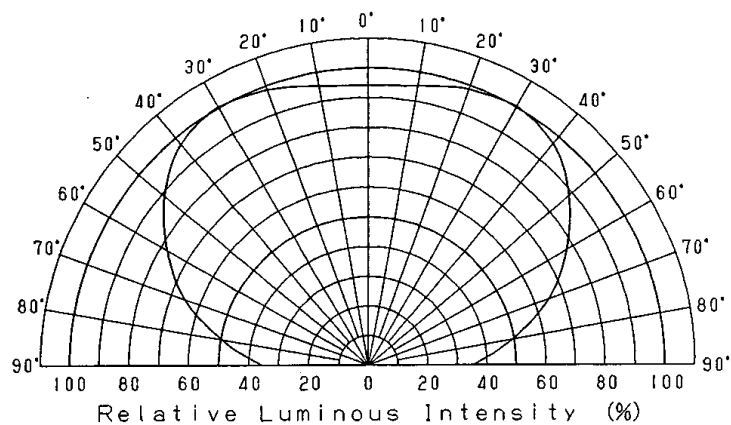


|          |         |                    |                           |  |  |
|----------|---------|--------------------|---------------------------|--|--|
| Approved | Checked | Designed           | DEVELOPMENT SPECIFICATION |  |  |
|          |         | <i>K. Nakamura</i> | Tentative                 |  |  |
|          |         |                    | P/N: LNJ312G84RA          |  |  |

Relative Luminous Intensity  
Wavelength Characteristics



Directive Characteristics



|               |  |  |
|---------------|--|--|
| Oct. 20, 2001 |  |  |
|               |  |  |

Panasonic

KAGOSHIMA MATSUSHITA ELECTRONICS CO., LTD.

KB11-022-0188

| Approved | Checked | Designed           | DEVELOPMENT SPECIFICATION<br>(O U T L I N E)<br>Tentative P/N:LNJ312G84RA |  |
|----------|---------|--------------------|---------------------------------------------------------------------------|--|
|          |         | <i>K. Nakamura</i> |                                                                           |  |

Top View Dimensions:

- Overall width:  $1.6 \pm 0.1$
- Inner width:  $1.1 \pm 0.1$
- Height:  $0.8 \pm 0.1$

Side View Dimensions:

- Lead height:  $0.18 \pm 0.1$
- Lead thickness:  $0.55 \pm 0.1$

Front View Dimensions:

- Width:  $1.0 \pm 0.1$
- Feature: Polarity mark

Recommended Land Layout

Land Layout Dimensions:

- Pad width:  $0.8$
- Pad height:  $0.8$
- Center-to-center distance:  $1.65$

Polarity

1: Anode  
2: Cathode

(NOTE)

- Measurement of the package doesn't include electrode projection.
- Unit:mm

|             |  |  |  |
|-------------|--|--|--|
| Oct.20.2001 |  |  |  |
|-------------|--|--|--|

Panasonic

KAGOSHIMA MATSUSHITA ELECTRONICS CO.,LTD.

KB-H-022-018B