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## NTE3133, NTE3135, NTE3136, NTE3138, NTE3139 Light Emitting Diode – 1.8mm

### **Features:**

- All Plastic Mold Type w/Water Clear Lens:
  - NTE3133 (Super Yellow-Green, AlGaP/GaAs)
  - NTE3135 (Orange, AlInGaP/GaAs)
  - NTE3136 (Super Orange, AlInGaP/GaAs)
  - NTE3138 (Super Red, GaAlAs/GaAlAs)
  - NTE3139 (Super Blue, GaAlAs/GaAlAs)

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

|                                                                              |                |
|------------------------------------------------------------------------------|----------------|
| Power Dissipation, $P_D$                                                     |                |
| NTE3133, NTE3135, NTE3136                                                    | 100mW          |
| NTE3138                                                                      | 110mW          |
| NTE3139                                                                      | 120mW          |
| Forward Current, $I_F$                                                       |                |
| Continuous                                                                   | 25mA           |
| Peak (Note 1)                                                                |                |
| All Devices                                                                  | 50mA           |
| NTE3139 <b>Only</b>                                                          | 100mA          |
| Reverse Voltage, $V_R$                                                       |                |
| All Devices                                                                  | 5V             |
| NTE3139 <b>Only</b>                                                          | 4V             |
| LED Junction Temperature, $T_J$                                              | +100°C         |
| Operating Temperature Range, $T_{opr}$                                       |                |
| All Devices                                                                  | -30° to +85°C  |
| NTE3139 <b>Only</b>                                                          | -25° to +85°C  |
| Storage Temperature Range, $T_{stg}$                                         | -40° to +100°C |
| Lead Temperature (During Soldering, 0.62 (1.6mm) from case, 3sec max), $T_L$ | +240°C         |

Note 1.  $t_p = 1\mu\text{sec}$  pulse, 0.3% duty cycle

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

| Parameter                | Symbol           | Test Conditions     | Min | Typ  | Max  | Unit   |
|--------------------------|------------------|---------------------|-----|------|------|--------|
| View Angle of Half Power | 2 $\theta_{1/2}$ | $I_F = 20\text{mA}$ | –   | 24   | –    | Degree |
| Forward Voltage          | $V_F$            | $I_F = 20\text{mA}$ | –   | 2.20 | 2.40 | V      |
| NTE3133                  |                  |                     |     |      |      |        |
| NTE3135, NTE3136         |                  |                     |     |      |      |        |
| NTE3138                  |                  |                     |     |      |      |        |
| NTE3139                  |                  |                     |     | 3.5  | 4.0  | V      |

**Electrical Characteristics (cont'd):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

| Parameter                              | Symbol                    | Test Conditions              | Min | Typ  | Max | Unit          |
|----------------------------------------|---------------------------|------------------------------|-----|------|-----|---------------|
| Reverse Current                        | $I_R$                     | $V_R = 5V$                   | –   | –    | 10  | $\mu\text{A}$ |
| NTE3139 <b>Only</b>                    |                           |                              | –   | –    | 60  | $\mu\text{A}$ |
| Luminous Intensity                     | $I_V$                     | $I_F = 20\text{mA}$ (Note 2) | 450 | 900  | –   | mcd           |
| NTE3133                                |                           |                              | 900 | 1300 | –   | mcd           |
| NTE3135, NTE3136                       |                           |                              | 700 | 1200 | –   | mcd           |
| NTE3138                                |                           |                              | 750 | 1500 | –   | mcd           |
| Peak Emission Wavelength               | $\lambda_p$               | $I_F = 20\text{mA}$          | –   | 575  | –   | nm            |
| NTE3133                                |                           |                              | –   | 620  | –   | nm            |
| NTE3135, NTE3136                       |                           |                              | –   | 660  | –   | nm            |
| NTE3138                                |                           |                              | –   | 468  | –   | nm            |
| Dominate Wavelength                    | $\lambda_{d(\text{HUE})}$ | $I_F = 20\text{mA}$ (Note 3) | –   | 572  | –   | nm            |
| NTE3133                                |                           |                              | –   | 615  | –   | nm            |
| NTE3135, NTE3136                       |                           |                              | –   | 645  | –   | nm            |
| NTE3138                                |                           |                              | 470 | 472  | 475 | nm            |
| Spectrum Width of Half Valve           | $\Delta\lambda$           | $I_F = 20\text{mA}$          | –   | 20   | –   | nm            |
| NTE3139 <b>Only</b>                    |                           |                              | –   | 30   | –   | nm            |
| Terminal Capacitance                   | $C_t$                     | $V = 0V, F = 1\text{MHz}$    | –   | 35   | –   | pF            |
| NTE3133                                |                           |                              | –   | 15   | –   | pF            |
| NTE3135, NTE3136                       |                           |                              | –   | 22   | –   | pF            |
| NTE3138                                |                           |                              |     |      |     |               |
| Optic Rise Time (NTE3139 <b>Only</b> ) | $\tau$                    | $I_F = 20\text{mA}$          | –   | 30   | –   | ns            |

Note 2. Tolerance: 30%, measured using Exeltron 2001.

Note 3. The dominate wavelength,  $\lambda_d$ , is derived from the CIE Chromaticity Diagram and represents the color of the device.

