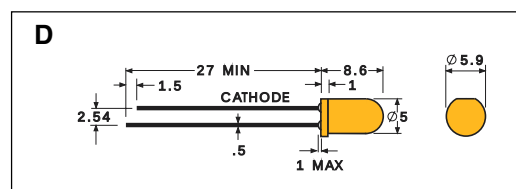
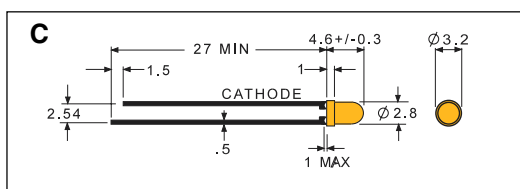


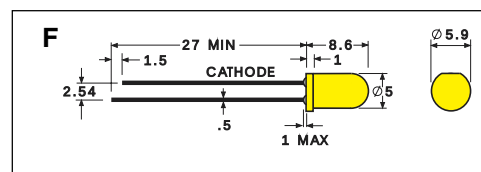
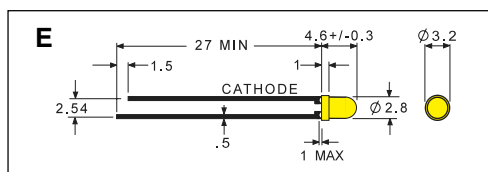
## T-1 and T-1¾ ,Ultra Bright, Red GaAlAs LEDs

|       | Line No. | Part No. | Size | Lens     | Luminous Intensity at 20mA |         | Viewing Angle 2θ½ | Forward Voltage at 20mA |         | Peak Wave Length at 20mA | Drawing |
|-------|----------|----------|------|----------|----------------------------|---------|-------------------|-------------------------|---------|--------------------------|---------|
|       |          |          |      |          | Minimum                    | Maximum |                   | Typical                 | Maximum |                          |         |
| ● RED | 1        | E169     | T-1  | Clear    | 360mcd                     | 500mcd  | 50°               | 1.85V                   | 2.50V   | 660nm                    | A       |
| ● RED | 2        | E170     | T-1  | Clear    | 500mcd                     | 700mcd  | 50°               | 1.85V                   | 2.50V   | 660nm                    | A       |
| ● RED | 3        | E171     | T-1  | Clear    | 700mcd                     | 1000mcd | 50°               | 1.85V                   | 2.50V   | 660nm                    | A       |
| ● RED | 4        | E197     | T-1  | Clear    | 1200mcd                    | 1400mcd | 50°               | 1.85V                   | 2.50V   | 660nm                    | A       |
| ● RED | 5        | E181     | T-1¾ | Clear    | 500mcd                     | 1000mcd | 30°               | 1.85V                   | 2.5V    | 660nm                    | B       |
| ● RED | 6        | E183     | T-1¾ | Clear    | 1300mcd                    | 1600mcd | 30°               | 1.85V                   | 2.5V    | 660nm                    | B       |
| ● RED | 7        | E184     | T-1¾ | Clear    | 2000mcd                    | 3500mcd | 30°               | 1.85V                   | 2.5V    | 660nm                    | B       |
| ● RED | 8        | E301     | T-1¾ | Diffused | 110mcd                     | 200mcd  | 60°               | 1.85V                   | 2.5V    | 660nm                    | B       |
| ● RED | 9        | E303     | T-1¾ | Diffused | 200mcd                     | 300mcd  | 60°               | 1.85V                   | 2.5V    | 660nm                    | B       |
| ● RED | 10       | E304     | T-1¾ | Diffused | 300mcd                     | 500mcd  | 60°               | 1.85V                   | 2.5V    | 660nm                    | B       |



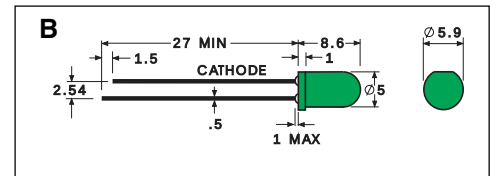
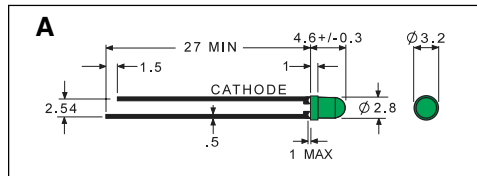
## T-1 and T-1¾, Ultra Bright, Orange InGaAlP LEDs

|          | Line No. | Part No. | Size | Lens               | Luminous Intensity at 20mA |         | Viewing Angle 2θ½ | Forward Voltage at 20mA |         | Peak Wave Length at 20mA | Drawing |
|----------|----------|----------|------|--------------------|----------------------------|---------|-------------------|-------------------------|---------|--------------------------|---------|
|          |          |          |      |                    | Minimum                    | Maximum |                   | Typical                 | Maximum |                          |         |
| ● ORANGE | 11       | E199     | T-1  | Orange Translucent | 500mcd                     | 1600mcd | 50°               | 1.8V                    | 2.3V    | 620nm                    | C       |
| ● ORANGE | 12       | E194     | T-1¾ | Orange Translucent | 700mcd                     | 3000mcd | 30°               | 1.8V                    | 2.3V    | 620nm                    | D       |



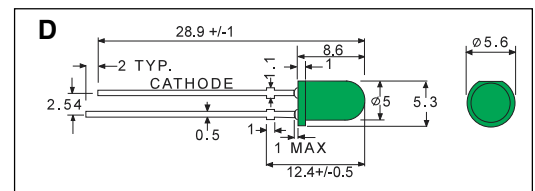
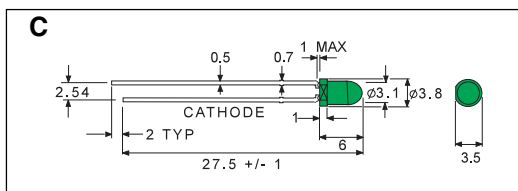
## T-1 and T-1¾, Ultra Bright , Yellow InGaAlP LEDs

|          | Line No. | Part No. | Size | Lens               | Luminous Intensity at 20mA |         | Viewing Angle 2θ½ | Forward Voltage at 20mA |         | Peak Wave Length at 20mA | Drawing |
|----------|----------|----------|------|--------------------|----------------------------|---------|-------------------|-------------------------|---------|--------------------------|---------|
|          |          |          |      |                    | Minimum                    | Maximum |                   | Typical                 | Maximum |                          |         |
| ● YELLOW | 13       | E198     | T-1  | Yellow Translucent | 300mcd                     | 1000mcd | 50°               | 2.0V                    | 2.5V    | 595nm                    | E       |
| ● YELLOW | 14       | E195     | T-1¾ | Yellow Translucent | 400mcd                     | 1600mcd | 30°               | 2.0V                    | 2.5V    | 595nm                    | F       |



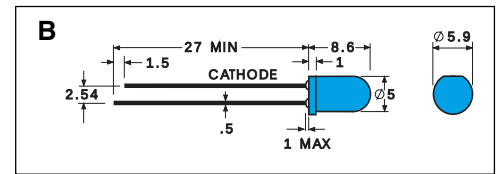
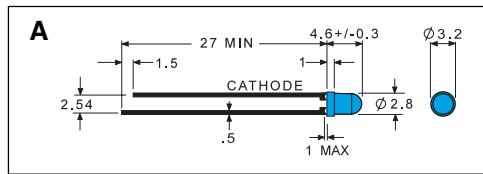
## T-1 and T-1<sup>3/4</sup>, Super Bright, Green GaP LEDs

|         | Line No. | Part No. | Size               | Lens     | Luminous Intensity at 20mA |         | Viewing Angle 2θ <sub>1/2</sub> | Forward Voltage at 20mA |         | Peak Wave Length at 20mA | Drawing |
|---------|----------|----------|--------------------|----------|----------------------------|---------|---------------------------------|-------------------------|---------|--------------------------|---------|
|         |          |          |                    |          | Minimum                    | Maximum |                                 | Typical                 | Maximum |                          |         |
| ● GREEN | 1        | E166     | T-1                | Clear    | 100mcd                     | 300mcd  | 50°                             | 2.2V                    | 2.5V    | 565nm                    | A       |
| ● GREEN | 2        | E196     | T-1                | Diffused | 40mcd                      | 60mcd   | 60°                             | 2.2V                    | 2.5V    | 565nm                    | A       |
| ● GREEN | 3        | E168     | T-1 <sup>3/4</sup> | Clear    | 100mcd                     | 200mcd  | 30°                             | 2.2V                    | 2.5V    | 565nm                    | B       |



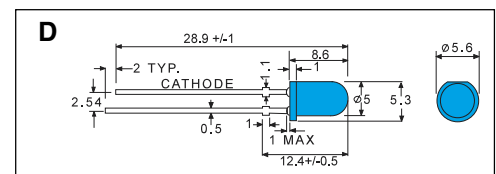
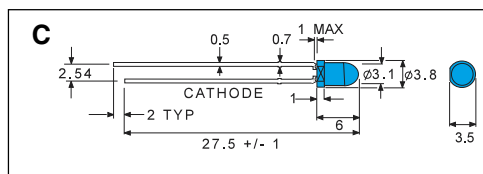
## T-1 and T-1<sup>3/4</sup>, Mega Bright Green, GaN LEDs

|         | Line No. | Part No. | Size               | Lens  | Luminous Intensity at 20mA |           | Viewing Angle 2θ <sub>1/2</sub> | Forward Voltage at 20mA |         | Reverse Current (V <sub>R</sub> =5.0V) | Peak Wave Length at 20mA | Drawing |
|---------|----------|----------|--------------------|-------|----------------------------|-----------|---------------------------------|-------------------------|---------|----------------------------------------|--------------------------|---------|
|         |          |          |                    |       | Minimum                    | Typical   |                                 | Typical                 | Maximum |                                        |                          |         |
| ● GREEN | 4        | E902     | T-1                | Clear | 6800mcd                    | 13,200mcd | 15°                             | 3.5V                    | 4.0V    | 50μA                                   | 525nm                    | C       |
| ● GREEN | 5        | E903     | T-1 <sup>3/4</sup> | Clear | 13,800mcd                  | 16,000mcd | 15°                             | 3.5V                    | 4.0V    | 50μA                                   | 525nm                    | D       |



## T-1 and T-1<sup>3/4</sup>, Super Bright, Blue GaN LEDs

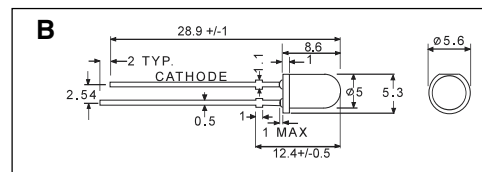
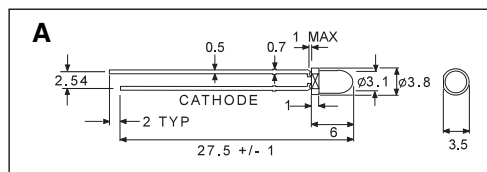
|        | Line No. | Part No. | Size               | Lens  | Luminous Intensity at 20mA |          | Viewing Angle 2θ <sub>1/2</sub> | Forward Voltage at 20mA |         | Peak Wave Length at 20mA | Drawing |
|--------|----------|----------|--------------------|-------|----------------------------|----------|---------------------------------|-------------------------|---------|--------------------------|---------|
|        |          |          |                    |       | Minimum                    | Maximum  |                                 | Typical                 | Maximum |                          |         |
| ● BLUE | 1        | E472     | T-1                | Clear | 20.0mcd                    | 90.0mcd  | 20°                             | 4.5V                    | 5.5V    | 430nm                    | A       |
| ● BLUE | 2        | E474     | T-1 <sup>3/4</sup> | Clear | 60.0mcd                    | 150.0mcd | 16°                             | 4.5V                    | 5.5V    | 430nm                    | B       |



## T-1 and T-1<sup>3/4</sup>, Mega Bright Blue GaN LEDs

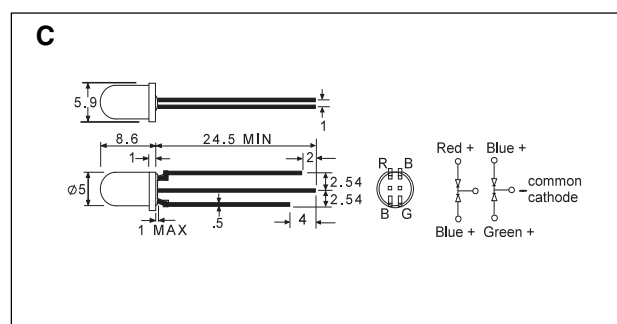
|        | Line No. | Part No. | Size               | Lens  | Luminous Intensity at 20mA |         | Viewing Angle 2θ <sub>1/2</sub> | Forward Voltage at 20mA |         | Reverse Current (V <sub>R</sub> =5.0V) | Peak Wave Length at 20mA | Drawing |
|--------|----------|----------|--------------------|-------|----------------------------|---------|---------------------------------|-------------------------|---------|----------------------------------------|--------------------------|---------|
|        |          |          |                    |       | Minimum                    | Typical |                                 | Typical                 | Maximum |                                        |                          |         |
| ● BLUE | 3        | E482     | T-1                | Clear | 1940mcd                    | 2300mcd | 15°                             | 3.6V                    | 4.0V    | 50μA                                   | 470nm                    | C       |
| ● BLUE | 4        | E484     | T-1 <sup>3/4</sup> | Clear | 4120mcd                    | 4800mcd | 15°                             | 3.6V                    | 4.0V    | 50μA                                   | 470nm                    | D       |





## T-1 and T-1 $\frac{3}{4}$ , Mega Bright White LEDs

|         | Line No. | Part No. | Size              | Lens  | Luminous Intensity at 20mA |         | Viewing Angle 2 $\theta$ $\frac{1}{2}$ | Forward Voltage at 20mA |         | Reverse Current (V <sub>R</sub> =5.0V) | Chromaticity Coordinates |        | Drawing |
|---------|----------|----------|-------------------|-------|----------------------------|---------|----------------------------------------|-------------------------|---------|----------------------------------------|--------------------------|--------|---------|
|         |          |          |                   |       | Minimum                    | Typical |                                        | Typical                 | Maximum |                                        | X Typ.                   | Y Typ. |         |
| ○ WHITE | 1        | E1004    | T-1               | Clear | 3900mcd                    | 4600mcd | 25°                                    | 3.6V                    | 4.0V    | 50μA                                   | 0.31                     | 0.32   | A       |
| ○ WHITE | 2        | E1003    | T-1 $\frac{3}{4}$ | Clear | 7800mcd                    | 9200mcd | 15°                                    | 3.6V                    | 4.0V    | 50μA                                   | 0.31                     | 0.32   | B       |



## T-1 $\frac{3}{4}$ Full Color LEDs

|         | Line No. | Part No. | Lens           | Luminous Intensity at 20mA |         | Viewing Angle 2 $\theta$ $\frac{1}{2}$ | Forward Voltage at 20mA |         | Peak Wave Length at 20mA | Drawing |
|---------|----------|----------|----------------|----------------------------|---------|----------------------------------------|-------------------------|---------|--------------------------|---------|
|         |          |          |                | Minimum                    | Maximum |                                        | Typical                 | Maximum |                          |         |
| ○ WHITE | 3        | E1000    | Clear          | 90mcd                      | 200mcd  | 15°                                    | 2.0V                    | 2.5V    | 625nm                    | C       |
|         |          |          |                | 50mcd                      | 90mcd   | 15°                                    | 2.2V                    | 2.5V    | 565nm                    |         |
|         |          |          |                | 12.5mcd                    | 40mcd   | 15°                                    | 4.5V                    | 5.5V    | 430nm                    |         |
| ○ WHITE | 4        | E1001    | Diffused White | 20.0mcd                    | 90.0mcd | 30°                                    | 2.0V                    | 2.5V    | 625nm                    | C       |
|         |          |          |                | 20.0mcd                    | 70.0mcd | 30°                                    | 2.2V                    | 2.5V    | 565nm                    |         |
|         |          |          |                | 3.2mcd                     | 12.5mcd | 30°                                    | 4.5V                    | 5.5V    | 430nm                    |         |