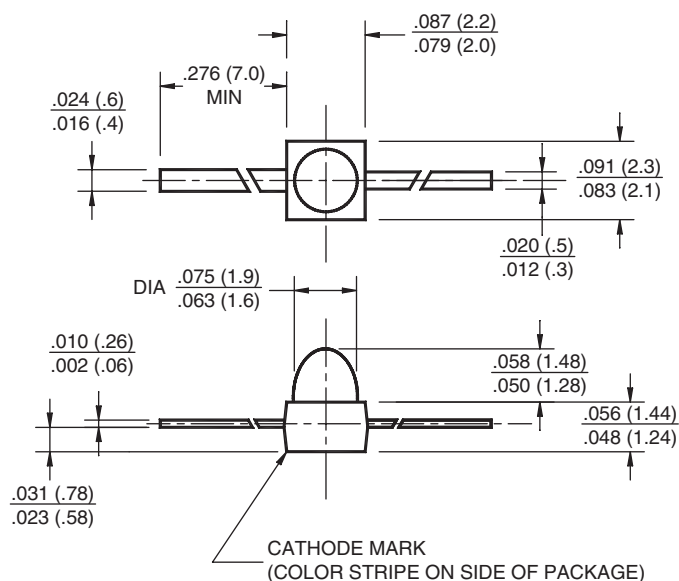


# SUBMINIATURE T-3/4 LED

## DIFFUSED AND CLEAR LAMPS

|               |            |              |            |                 |
|---------------|------------|--------------|------------|-----------------|
| HIGH EFF. RED | HLMP-6305A | Water Clear  | MV6700A    | Red Diffused    |
| YELLOW        | HLMP-6405A | Water Clear  | MV6300A    | Yellow Diffused |
| GREEN         | HLMP-6505A | Water Clear  | MV6400A    | Green Diffused  |
| AlGaAs RED    | HLMP-Q105A | Water Clear  | HLMP-Q150A | Red Diffused    |
|               | HLMP-Q101A | Red Diffused | HLMP-Q155A | Water Clear     |

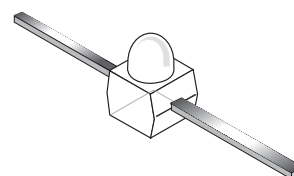
### PACKAGE DIMENSIONS



NOTES:  
ALL DIMENSIONS ARE IN INCHES (mm).

### FEATURES

- Subminiature T-3/4 transfer molded
- Low package profile
- Axial leads
- Wide viewing angle
- SMT versions



### DESCRIPTION

These T-3/4 subminiature LED lamps feature a square-base, transfer molded package for surface mount applications. A tinted diffused or water clear epoxy lens — available in AlGaAs red, high-efficiency red, green, and yellow — produces wide-angle beam emission and sharp on/off contrast. They are available with gullwing lead bends for top mounting, as well as yoke lead bends and Z-bends for mounting to the back of a PCB.

### ABSOLUTE MAXIMUM RATING <sup>c</sup>

| Parameter                                               | HLMP-6305A<br>MV6700A | HLMP-6405A<br>MV6300A | HLMP-6505A<br>MV6400A | HLMP-Q101A<br>HLMP-Q105A<br>HLMP-Q150A<br>HLMP-Q155A | Units |
|---------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------------------------------------------|-------|
| Power Dissipation                                       | 135                   | 85                    | 135                   | 85                                                   | mW    |
| Average Forward Current                                 | 30                    | 20                    | 30                    | 30                                                   | mA    |
| Peak Forward Current<br>(1 $\mu$ S pulsewidth, 0.1% DF) | 90                    | 60                    | 90                    | 300                                                  | mA    |
| Lead Soldering Time at 260°C                            | 5                     | 5                     | 5                     | 5                                                    | sec   |
| Operating Temperature                                   | -55 to +100           | -55 to +100           | -50 to +100           | -20 to +100                                          | °C    |
| Storage Temperature                                     | -55 to +100           | -55 to +100           | -50 to +100           | -20 to +100                                          | °C    |

# SUBMINIATURE T-3/4 LED

## DIFFUSED AND CLEAR LAMPS

|               |            |              |            |                 |
|---------------|------------|--------------|------------|-----------------|
| HIGH EFF. RED | HLMP-6305A | Water Clear  | MV6700A    | Red Diffused    |
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| AlGaAs RED    | HLMP-Q105A | Water Clear  | HLMP-Q150A | Red Diffused    |
|               | HLMP-Q101A | Red Diffused | HLMP-Q155A | Water Clear     |

| ELECTRICAL / OPTICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ ) |         |         |         |            |                               |
|-------------------------------------------------------------------|---------|---------|---------|------------|-------------------------------|
| Part Number QTLF-                                                 | MV6700A | MV6300A | MV6400A | HLMP-Q150A | Condition                     |
| Luminous Intensity (mcd)                                          |         |         |         |            | $I_F = 10\text{mA}$           |
| Minimum                                                           | 1.0     | 1.0     | 1.0     | 1.0*       |                               |
| Typical                                                           | 3.0     | 3.0     | 3.0     | 1.8*       | *Tested at $I_F = 1\text{mA}$ |
| Forward Voltage (V)                                               |         |         |         |            | $I_F = 10\text{mA}$           |
| Maximum                                                           | 3.0     | 3.0     | 3.0     | 1.8*       |                               |
| Typical                                                           | 1.8     | 2.0     | 2.0     | 1.6*       | *Tested at $I_F = 1\text{mA}$ |
| Peak Wavelength (nm)                                              | 635     | 585     | 565     | 660        | $I_F = 10\text{mA}$           |
| Spectral Line Half Width (nm)                                     | 40      | 36      | 28      | 20         | $I_F = 10\text{mA}$           |
| Reverse Voltage (V)                                               | 5       | 5       | 5       | 5          | $I_R = 100\mu\text{A}$        |
| Viewing Angle ( $^\circ$ )                                        | 50      | 50      | 50      | 50         | $I_F = 10\text{mA}$           |

| ELECTRICAL / OPTICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ ) |            |            |            |            |                      |                                 |
|-------------------------------------------------------------------|------------|------------|------------|------------|----------------------|---------------------------------|
| Part Number QTLF-                                                 | HLMP-6305A | HLMP-6405A | HLMP-6505A | HLMP-Q101A | HLMP-Q105A/<br>Q155A | Condition                       |
| Luminous Intensity (mcd)                                          |            |            |            |            |                      | $I_F = 10\text{mA}$             |
| Minimum                                                           | 3.0        | 3.0        | 3.0        | 22**       | 20.0**/2.0*          | **Tested at $I_F = 1\text{mA}$  |
| Typical                                                           | 12.0       | 12.0       | 12.0       | 45**       | 50.0**/4.0*          | **Tested at $I_F = 20\text{mA}$ |
| Forward Voltage (V)                                               |            |            |            |            |                      | $I_F = 10\text{mA}$             |
| Maximum                                                           | 3.0        | 3.0        | 3.0        | 2.4**      | 2.4**/1.8*           | *Tested at $I_F = 1\text{mA}$   |
| Typical                                                           | 1.8        | 2.0        | 2.0        | 1.8**      | 1.8**/1.6*           | **Tested at $I_F = 20\text{mA}$ |
| Peak Wavelength (nm)                                              | 635        | 585        | 565        | 660        | 660                  | $I_F = 10\text{mA}$             |
| Spectral Line Half Width (nm)                                     | 40         | 36         | 28         | 20         | 20                   | $I_F = 10\text{mA}$             |
| Reverse voltage (V)                                               | 5          | 5          | 5          | 5          | 5                    | $I_R = 100\mu\text{A}$          |
| Viewing Angle ( $^\circ$ )                                        | 25         | 25         | 25         | 50         | 25                   | $I_F = 10\text{mA}$             |

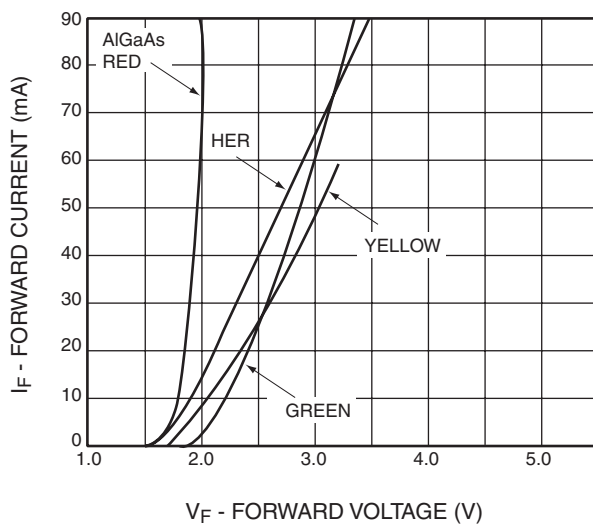
# SUBMINIATURE T-3/4 LED

## DIFFUSED AND CLEAR LAMPS

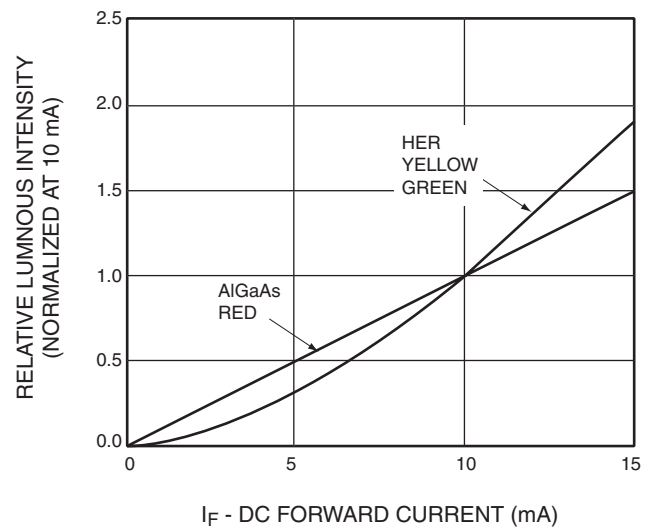
|               |            |              |            |                 |
|---------------|------------|--------------|------------|-----------------|
| HIGH EFF. RED | HLMP-6305A | Water Clear  | MV6700A    | Red Diffused    |
| YELLOW        | HLMP-6405A | Water Clear  | MV6300A    | Yellow Diffused |
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| AlGaAs RED    | HLMP-Q105A | Water Clear  | HLMP-Q150A | Red Diffused    |
|               | HLMP-Q101A | Red Diffused | HLMP-Q155A | Water Clear     |

### TYPICAL PERFORMANCE CURVES

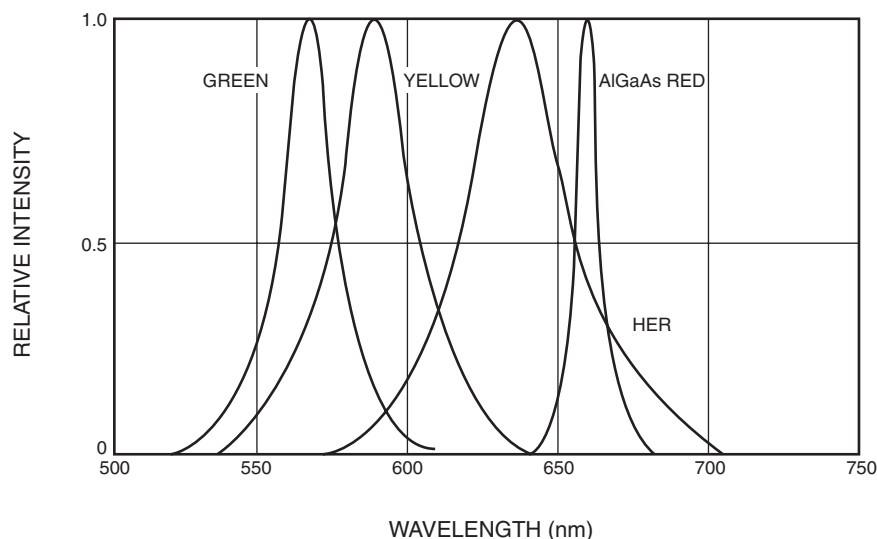
**Fig. 1 Forward Current vs. Forward Voltage**



**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



**Fig. 3 Relative Intensity vs. Peak Wavelength**

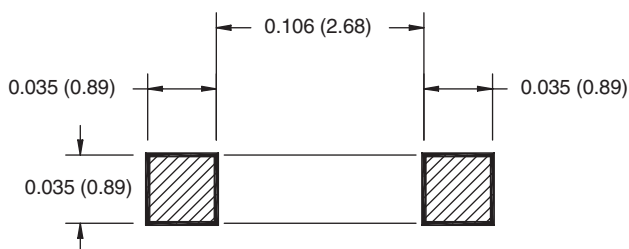


# SUBMINIATURE T-3/4 LED

## DIFFUSED AND CLEAR LAMPS

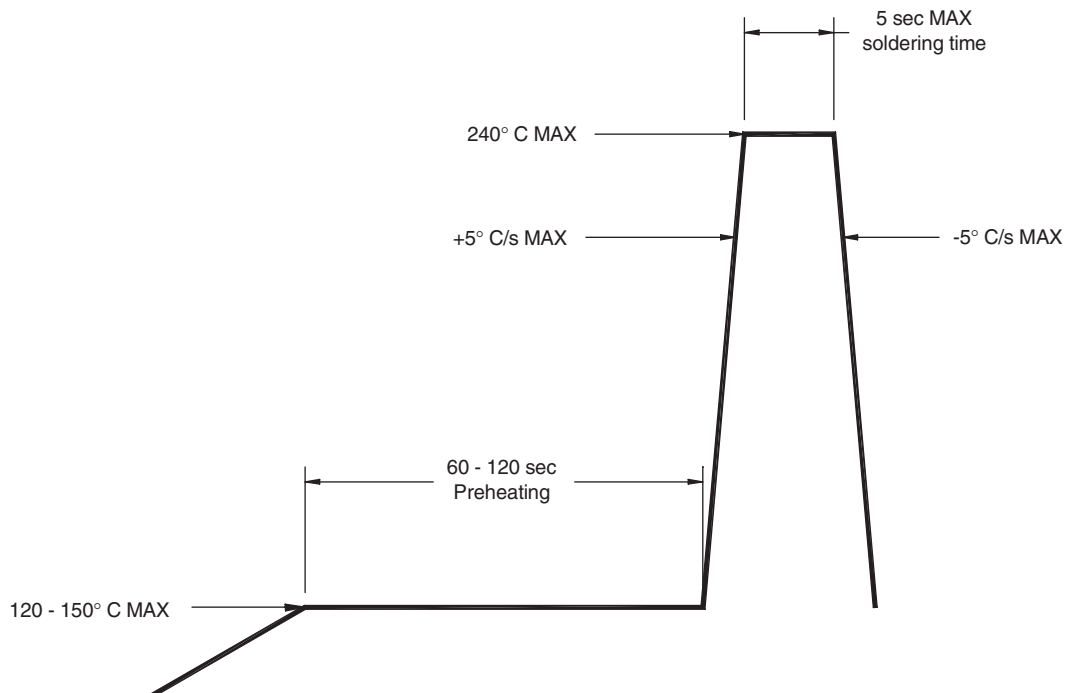
|               |            |              |            |                 |
|---------------|------------|--------------|------------|-----------------|
| HIGH EFF. RED | HLMP-6305A | Water Clear  | MV6700A    | Red Diffused    |
| YELLOW        | HLMP-6405A | Water Clear  | MV6300A    | Yellow Diffused |
| GREEN         | HLMP-6505A | Water Clear  | MV6400A    | Green Diffused  |
| AlGaAs RED    | HLMP-Q105A | Water Clear  | HLMP-Q150A | Red Diffused    |
|               | HLMP-Q101A | Red Diffused | HLMP-Q155A | Water Clear     |

### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



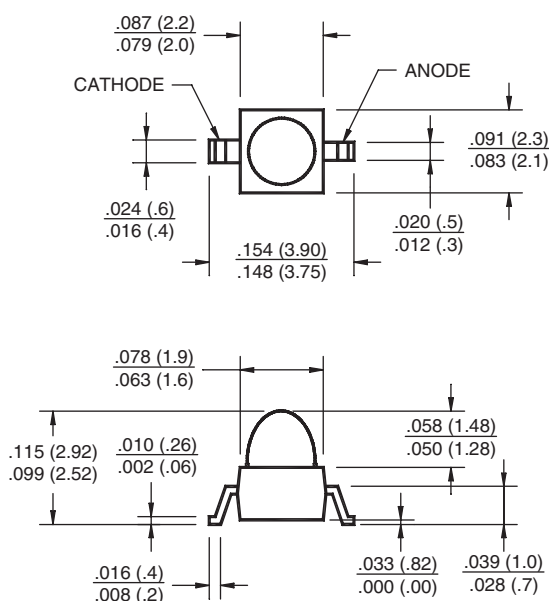
For Gullwing Lead Bend

### RECOMMENDED REFLOW SOLDERING PROFILE



|               |            |              |            |                 |
|---------------|------------|--------------|------------|-----------------|
| HIGH EFF. RED | HLMP-6305A | Water Clear  | MV6700A    | Red Diffused    |
| YELLOW        | HLMP-6405A | Water Clear  | MV6300A    | Yellow Diffused |
| GREEN         | HLMP-6505A | Water Clear  | MV6400A    | Green Diffused  |
| AlGaAs RED    | HLMP-Q105A | Water Clear  | HLMP-Q150A | Red Diffused    |
|               | HLMP-Q101A | Red Diffused | HLMP-Q155A | Water Clear     |

### GULLWING LEAD CONFIGURATION



### FEATURES

- Available in Gullwing, Yoke and Z-bend lead formings
- Compatible with automatic placement equipment
- Compatible with vapor phase reflow soldering processes
- Long life — solid state reliability
- Reel and tape or bulk packaging available

### DESCRIPTION

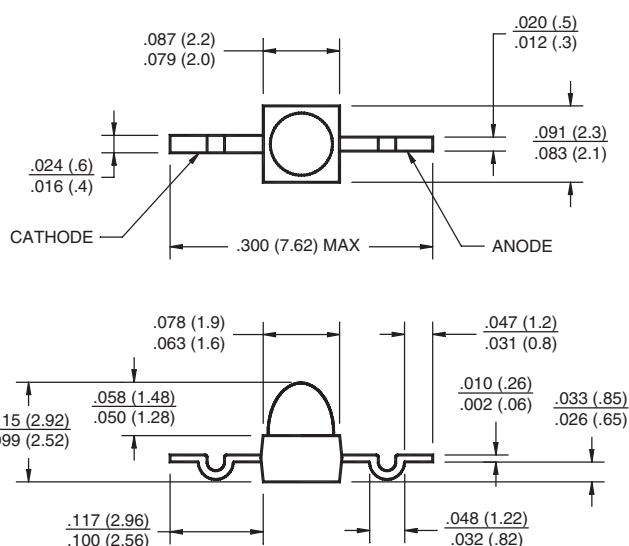
These subminiature solid state lamps are transfer molded in an axial lead package. They are available in yellow, green, high efficiency red and AlGaAs red in both diffused and water clear lens.

Automatic placement equipment can be used to mount the LEDs on the PC board. The lamps can be mounted using either batch or in line vapor phase reflow solder processes.

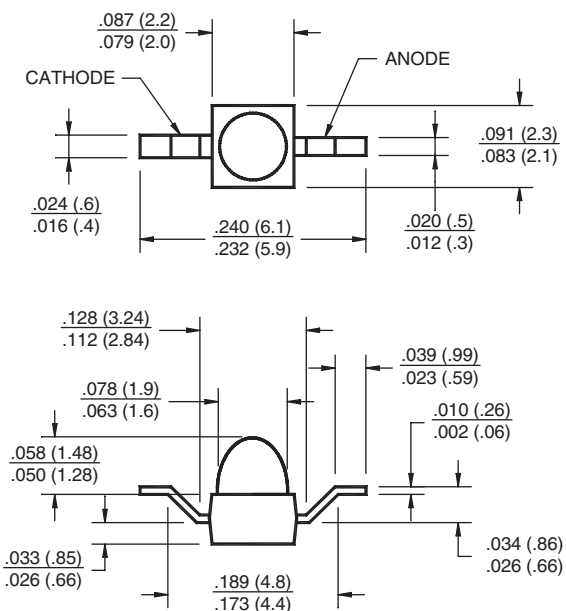
### NOTES:

ALL DIMENSIONS ARE IN INCHES (mm)

### YOKE LEAD CONFIGURATION



### Z-BEND LEAD CONFIGURATION



# SUBMINIATURE T-3/4 LED

## DIFFUSED AND CLEAR LAMPS

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|                      |                   |                     |                   |                        |
|----------------------|-------------------|---------------------|-------------------|------------------------|
| <b>HIGH EFF. RED</b> | <b>HLMP-6305A</b> | <b>Water Clear</b>  | <b>MV6700A</b>    | <b>Red Diffused</b>    |
| <b>YELLOW</b>        | <b>HLMP-6405A</b> | <b>Water Clear</b>  | <b>MV6300A</b>    | <b>Yellow Diffused</b> |
| <b>GREEN</b>         | <b>HLMP-6505A</b> | <b>Water Clear</b>  | <b>MV6400A</b>    | <b>Green Diffused</b>  |
| <b>AlGaAs RED</b>    | <b>HLMP-Q105A</b> | <b>Water Clear</b>  | <b>HLMP-Q150A</b> | <b>Red Diffused</b>    |
|                      | <b>HLMP-Q101A</b> | <b>Red Diffused</b> | <b>HLMP-Q155A</b> | <b>Water Clear</b>     |

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