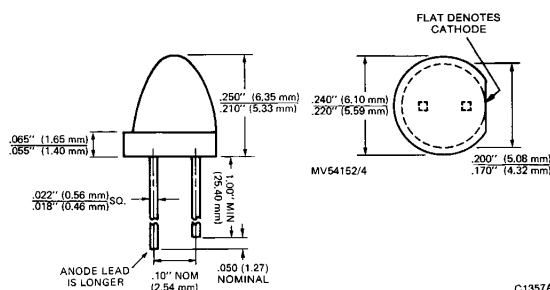


**STANDARD RED MV50152/4  
YELLOW MV53152/4**

**HIGH EFFICIENCY GREEN MV54152/4  
HIGH EFFICIENCY RED MV57152/4**

### PACKAGE DIMENSIONS



#### NOTES:

1. ALL DIMENSIONS ARE IN INCHES (mm)
2. TOLERANCES ARE .010 INCH UNLESS SPECIFIED
3. AN EPOXY MENISCUS MAY EXTEND ABOUT .040" (1 mm) DOWN THE LEADS

### DESCRIPTION

These solid state indicators offer a variety of lens effects and color availability in a short barrel T-1¾ package. The High Efficiency Red, High Efficiency Green and Yellow devices are made with gallium phosphide.

### FEATURES

- High intensity light source with two lens effects
- Red, High Efficiency Red, High Efficiency Red, High Efficiency Green and Yellow colors available
- Versatile mounting on PC board or panel
- Long life—solid state reliability
- Low power requirements
- Compact, rugged, lightweight
- High efficiency
- MV5X154 diffused, MV5X152 non-diffused
- Short T-1¾ size

### PHYSICAL CHARACTERISTICS

| TYPE    | SOURCE COLOR          | LENS COLOR              | LENS EFFECT       |
|---------|-----------------------|-------------------------|-------------------|
| MV50152 | Standard Red          | Red Clear               | Point Source      |
| MV50154 | Standard red          | Red Lightly Diffused    | Soft Point Source |
| MV53152 | Yellow                | Amber Clear             | Point Source      |
| MV53154 | Yellow                | Amber Lightly Diffused  | Soft Point Source |
| MV54152 | High Efficiency Green | Green Clear             | Point Source      |
| MV54154 | High Efficiency Green | Green Lightly Diffused  | Soft Point Source |
| MV57152 | High Efficiency Red   | Orange Clear            | Point Source      |
| MV57154 | High Efficiency Red   | Orange Lightly Diffused | Soft Point Source |

| ELECTRO-OPTICAL CHARACTERISTICS (T <sub>A</sub> =25°C Unless Otherwise Specified) |      |                 |                        |         |       |       |       |       |       |       |       |       |
|-----------------------------------------------------------------------------------|------|-----------------|------------------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| PARAMETER                                                                         |      | SYMBOL          | TEST COND.             | UNITS   | 50152 | 50154 | 53152 | 53154 | 54152 | 54154 | 57152 | 57154 |
| Forward voltage                                                                   | typ. | V <sub>F</sub>  | I <sub>F</sub> =10 mA  | V       | 1.6   | 1.6   | 2.1   | 2.1   | 2.2   | 2.2   | 2.0   | 2.0   |
|                                                                                   | max. |                 | I <sub>F</sub> =10 mA  |         | 2.0   | 2.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Luminous Intensity                                                                | min. | I <sub>V</sub>  | I <sub>F</sub> =10 mA  | mcd     | 0.6   | 0.4   | 3.0   | 1.5   | 2.5   | 2.0   | 4.0   | 2.0   |
|                                                                                   | typ. |                 | I <sub>F</sub> =10 mA  | mcd     | 2.0   | 1.5   | 10.   | 8.0   | 15.0  | 12.0  | 10.0  | 8.0   |
| Peak wavelength                                                                   |      | λ <sub>p</sub>  | I <sub>F</sub> =10 mA  | nm      | 660   | 660   | 585   | 585   | 565   | 565   | 630   | 630   |
| Spectral line half width                                                          |      |                 | I <sub>F</sub> =10 mA  | nm      | 20    | 20    | 35    | 35    | 35    | 35    | 45    | 45    |
| Capacitance                                                                       | typ. | C               | V=0                    | pF      | 30    | 30    | 45    | 45    | 20    | 20    | 45    | 45    |
| Reverse voltage                                                                   | min. | V <sub>BR</sub> | I <sub>R</sub> =100 μA | V       | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Reverse current                                                                   | max. | I <sub>R</sub>  | V <sub>R</sub> =5.0 V  | μA      | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
| Viewing angle (total)<br>(See Fig. 2)                                             |      | 2θ½             |                        | degrees | 45    | 50    | 45    | 50    | 45    | 50    | 45    | 50    |

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^{\circ}\text{C}$ Unless Otherwise Specified)                |                                                 |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Power dissipation (MV5015X) .....                                                                     | 180 mW                                          |
| Power dissipation (MV5315X=85 mW) .....                                                               | 105 mW                                          |
| Derate linearly from $25^{\circ}\text{C}$ (MV5015X) .....                                             | 2.0 mW/ $^{\circ}\text{C}$                      |
| Derate linearly from $25^{\circ}\text{C}$ .....                                                       | 1.14 mW/ $^{\circ}\text{C}$                     |
| Storage and operating temperatures .....                                                              | $-55^{\circ}\text{C}$ to $+100^{\circ}\text{C}$ |
| Lead soldering time at $260^{\circ}\text{C}$ (See Note 2) .....                                       | 5 sec.                                          |
| Continuous forward current (MV5015X) .....                                                            | 100 mA                                          |
| Continuous forward current (MV5315X=20 mA) .....                                                      | 35 mA                                           |
| Peak forward current (1 $\mu\text{sec}$ pulse, 0.3% duty cycle) (MV5415X=90 mA) (MV5315X=60 mA) ..... | 1.0 A                                           |
| Reverse voltage .....                                                                                 | 5.0 V                                           |

| <b>NOTES</b>                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The axis of spatial distribution are typically within a $10^{\circ}$ cone with reference to the central axis of the device.                                                               |
| 2. The leads of the device were immersed in molten solder at $260^{\circ}\text{C}$ to a point 1/16 inch (1.6 mm) from the body of the device per MIL-Sd-750, with a dwell time of 5 seconds. |

**TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES**  
(25°C Free Air Temperature Unless Otherwise Specified)

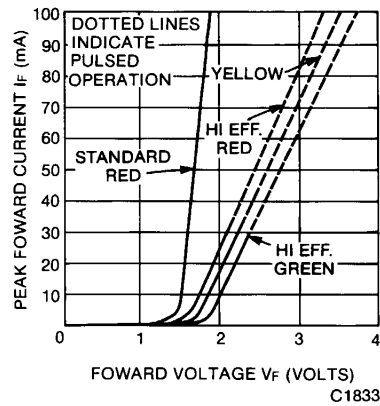


Fig. 1. Forward Current vs. Forward Voltage

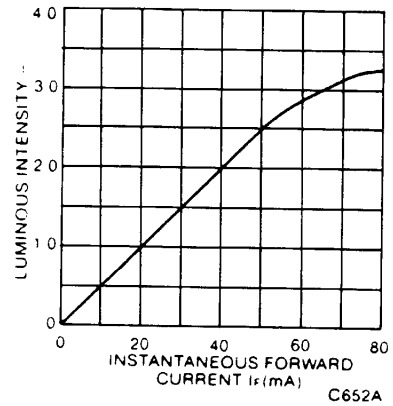


Fig. 2. Luminous Intensity vs. Forward Current

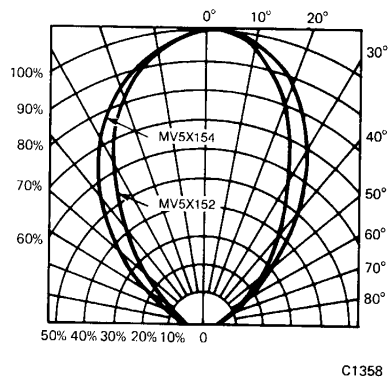


Fig. 3. Spatial Distribution (Note 1)

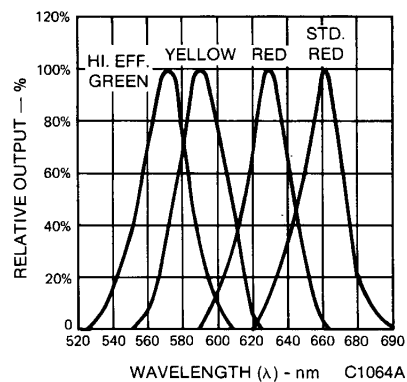


Fig. 4. Spectral Distribution



## BULLET PROFILE T-1 3/4 SOLID STATE LAMPS

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.