

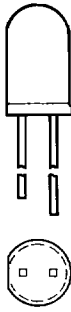


High Power TS AlGaAs Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|--------------|---------|----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-8150 | Red (637 nm) | T-4 | Untinted Nondiffused | 15.0 mcd @ 20 mA | 4° | 1.85 V @ 20 mA | 3-30 |
|  | HLMP-8104 | Red (637nm) | T-1 3/4 | Untinted Nondiffused | 4.0 mcd @ 20 mA | 7° | 1.85 V @ 20 mA | 3-34 |
| | HLMP-8103 | | | | 3.0 mcd @ 20 mA | | | |
| | HLMP-8102 | | | | 2.0 mcd @ 20 mA | | | |
| | HLMP-8100 | | | | 0.7 mcd @ 20 mA | 24° | | |

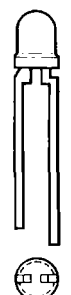
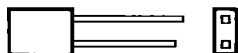

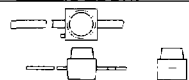
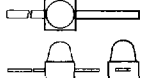
High Intensity DH AlGaAs Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|--|------------------|---------------------|---------|----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-D101 | AlGaAs Red (637 nm) | T-1 3/4 | Tinted Diffused | 70.0 mcd @ 20 mA | 65° | 1.8 V @ 20 mA | 3-38 |
| | HLMP-D105 | | | Untinted Nondiffused | 240.0 mcd @ 20 mA | 24° | | |

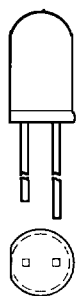
Bold Type – New Product

SOLID STATE LAMPS

High Intensity DH AlGaAs Lamps (Continued)

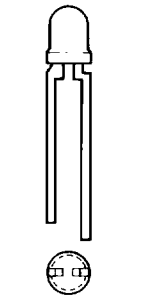
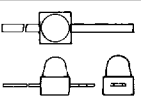
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|----------------------|---------------------|-------------------------|----------------------|----------------------------|------------------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-K101 | AlGaAs Red (637 nm) | T-1 | Tinted Diffused | 45.0 mcd @ 20 mA | 60° | 1.8 V @ 20 mA | 3-38 |
| | HLMP-K105 | | | Untinted Nondiffused | 65.0 mcd @ 20 mA | 45° | | |
|  | HLMP-R100 | AlGaAs Red (637 nm) | Rectangular | Tinted Diffused | 7.5 mcd @ 20 mA | 100° | 1.7 V @ 10 mA | 3-83 |
|  | HLMP-S100 | | 2 mm x 5 mm Rectangular | Tinted Diffused | 7.5 mcd @ 20 mA | 110° | | 3-87 |
|  | HLMP-P105 | | Flat Top Subminiature | | Untinted Nondiffused | 10.0 mcd @ 10 mA | | 125° |
|  | HLMP-Q101 | AlGaAs Red (637 nm) | Subminiature | Tinted Diffused | 45.0 mcd @ 20 mA | 70° | 1.8 V @ 20 mA | 3-91 |
| HLMP-Q105 | Untinted Nondiffused | | | 55.0 mcd @ 10 mA | 28° | 1.7 V @ 10 mA | | |

Low Current DH AlGaAs Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|---------------------|---------|----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-D150 | AlGaAs Red (637 nm) | T-1 3/4 | Tinted Diffused | 3.0 mcd @ 1 mA | 65° | 1.6 V @ 1 mA | 3-42 |
| | HLMP-D155 | | | Untinted Nondiffused | 10.0 mcd @ 1 mA | 24° | | |

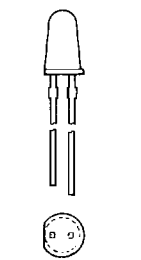
Bold Type – New Product

Low Current DH AlGaAs Lamps (Continued)

| Device | | Description | | | Typical Luminous Intensity | 2 θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|---------------------|--------------|----------------------|----------------------------|----------------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-K150 | AlGaAs Red (637 nm) | T-1 | Tinted Diffused | 2.0 mcd @ 1 mA | 60° | 1.6 V @ 1 mA | 3-42 |
| | HLMP-K155 | | | Untinted Nondiffused | 3.0 mcd @ 1 mA | 45° | | |
|  | HLMP-Q150 | | Subminiature | Tinted Diffused | 1.8 mcd @ 1 mA | 70° | 1.6 V @ 1 mA | 3-91 |
| | HLMP-Q155 | | | Untinted Nondiffused | 4.0 mcd @ 1.0 mA | 28° | | |

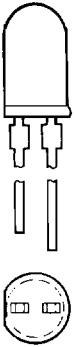
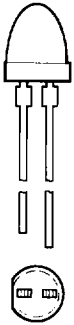

SOLID STATE LAMPS

Very High Intensity AlGaAs Lamps

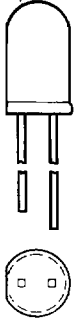

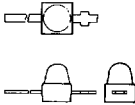
| Device | | Description | | | Typical Luminous Intensity | 2 θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|---------------------|---------|----------------------|----------------------------|----------------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-4100 | AlGaAs Red (637 nm) | T-1 3/4 | Untinted Nondiffused | 750.0 mcd @ 20 mA | 8° | 1.8 V @ 20 mA | 3-46 |
| | HLMP-4101 | | | | 1000.0 mcd @ 20 mA | | | |

Bold Type – New Product

Ultrabright Lamps

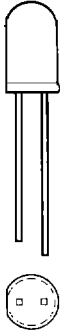
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------------------|-----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3750 | High Efficiency Red (626 nm) | T-1 3/4 | Untinted Non-diffused | 125.0 mcd @ 20 mA | 24° | 2.2 V @ 20 mA | 3-50 |
| | HLMP-3850 | Yellow (585 nm) | | | 140.0 mcd @ 20 mA | | 2.2 V @ 20 mA | |
| | HLMP-3950 | Green (569 nm) | | | 120.0 mcd @ 20 mA | | 2.3 V @ 20 mA | |
|  | HLMP-3390 | High Efficiency Red (626 nm) | T-1 3/4 Low Profile | Untinted Non-diffused | 55.0 mcd @ 20 mA | 32° | 2.2 V @ 20 mA | |
| | HLMP-3490 | Yellow (585 nm) | | | | | 2.2 V @ 20 mA | |
| | HLMP-3590 | Green (569 nm) | | | | | 2.3 V @ 20 mA | |
|  | HLMP-1340 | High Efficiency Red (626 nm) | T-1 | Untinted Non-diffused | 45.0 mcd @ 20 mA | 45° | 2.2 V @ 20 mA | |
| | HLMP-1440 | Yellow (585 nm) | | | | | 2.2 V @ 20 mA | |
| | HLMP-1540 | Green (569 nm) | | | | | 2.3 V @ 20 mA | |

Low Current Lamps

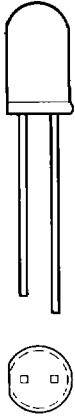
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|--------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-4700 | High Efficiency Red (626 nm) | T-1 3/4 | Tinted Diffused | 2.0 mcd @ 2 mA | 50° | 1.8 V @ 2 mA | 3-54 |
| | HLMP-4719 | Yellow (585 nm) | | | 1.8 mcd @ 2 mA | | 1.9 V @ 2 mA | |
| | HLMP-4740 | Green (569 nm) | | | 1.8 mcd @ 2 mA | | 1.8 V @ 2 mA | |
|  | HLMP-1700 | High Efficiency Red (626 nm) | T-1 | Tinted Diffused | 1.8 mcd @ 2 mA | 50° | 1.8 V @ 2 mA | |
| | HLMP-1719 | Yellow (585 nm) | | | 1.6 mcd @ 2 mA | | 1.9 V @ 2 mA | |
| | HLMP-1790 | Green (569 nm) | | | 1.6 mcd @ 2 mA | | 1.8 V @ 2 mA | |
|  | HLMP-7000 | High Efficiency Red (626 nm) | Subminiature | Tinted Diffused | 0.8 mcd @ 2 mA | 90° | 1.8 V @ 2 mA | 3-91 |
| | HLMP-7019 | Yellow (585 nm) | | | 0.6 mcd @ 2 mA | | 1.9 V @ 2 mA | |
| | HLMP-7040 | Green (569 nm) | | | 0.6 mcd @ 2 mA | | 1.8 V @ 2 mA | |

SOLID STATE LAMPS

High Intensity T-1 3/4 Lamps

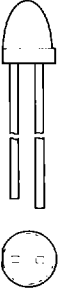
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------|--------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3315 | High Efficiency Red (626 nm) | T-1 3/4 | Tinted Nondiffused | 40.0 mcd @ 10 mA | 35° | 2.2 V @ 10 mA | 3-58 |
| | HLMP-3316 | | | | 60.0 mcd @ 10 mA | | | |
| | HLMP-3415 | Yellow (585 nm) | | | 40.0 mcd @ 10 mA | | | |
| | HLMP-3416 | | | | 50.0 mcd @ 10 mA | | | |
| | HLMP-3517 | Green (569 nm) | | | 50.0 mcd @ 10 mA | 24° | 2.3 V @ 10 mA | |
| | HLMP-3519 | | | | 70.0 mcd @ 10 mA | | | |

Diffused (Wide Angle) T-1 3/4 Lamps

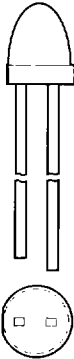
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|------------------------------|---------|------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3300 | High Efficiency Red (626 nm) | T-1 3/4 | | 3.5 mcd @ 10 mA | 60° | 2.2 V @ 10 mA | 3-62 |
| | HLMP-3301 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-3762 | | | | 12.0 mcd @ 10 mA | | | |
| | HLMP-D400 | Orange (602 nm) | | | 3.5 mcd @ 10 mA | 60° | 2.2 V @ 10 mA | |
| | HLMP-D401 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-3400 | Yellow (585 nm) | | | 4.0 mcd @ 10 mA | 60° | 2.2 V @ 10 mA | |
| | HLMP-3401 | | | | 8.0 mcd @ 10 mA | | | |
| | HLMP-3862 | | | | 12.0 mcd @ 10 mA | | | |
| | HLMP-3502 | Green (569 nm) | | | 2.4 mcd @ 10 mA | 60° | 2.3 V @ 10 mA | |
| | HLMP-3507 | | | | 5.2 mcd @ 10 mA | | | |
| HLMP-3962 | 11.0 mcd @ 10 mA | | | | | | | |

SOLID STATE LAMPS

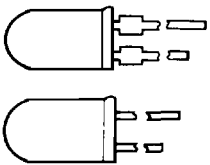
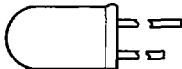
High Intensity T-1 3/4 Low Profile Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------------------|---------------------|----------------------------|---------------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3365 | High Efficiency Red (626 nm) | T-1 3/4 Low Profile | Tinted Non-Diffused | 10.0 mcd @ 10 mA | 45° | 2.2 V @ 10 mA | 3-66 |
| | HLMP-3366 | | | | 18.0 mcd @ 10 mA | | | |
| | HLMP-3465 | Yellow (585 nm) | | | 12.0 mcd @ 10 mA | 2.2 V @ 10 mA | | |
| | HLMP-3466 | | | | 18.0 mcd @ 10 mA | | | |
| | HLMP-3567 | Green (569 nm) | | | 7.0 mcd @ 10 mA | 2.3 V @ 10 mA | | |
| | HLMP-3568 | | | | 15.0 mcd @ 10 mA | | | |

Diffused (Wide Angle) T-1 3/4 Low Profile Lamps


| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------------------|-----------------|----------------------------|---------------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3200 | Red (640 nm) | T-1 3/4 Low Profile | Tinted Diffused | 2.0 mcd @ 20 mA | 60° | 1.6 V @ 20 mA | 3-66 |
| | HLMP-3201 | | | | 4.0 mcd @ 20 mA | | | |
| | HLMP-3350 | High Efficiency Red (626 nm) | | | 3.5 mcd @ 10 mA | 50° | 2.2 V @ 10 mA | |
| | HLMP-3351 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-3450 | Yellow (585 nm) | | | 4.0 mcd @ 10 mA | 2.2 V @ 10 mA | | |
| | HLMP-3451 | | | | 10.0 mcd @ 10 mA | | | |
| | HLMP-3553 | Green (569 nm) | | | 3.2 mcd @ 10 mA | 2.3 V @ 10 mA | | |
| | HLMP-3554 | | | | 10.0 mcd @ 10 mA | | | |

Standard Red T-1 3/4 Lamps


| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|-----------------|---------|------------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3000 | Red (648 nm) | T-1 3/4 | Tinted Diffused | 2.0 mcd @ 20 mA | 60° | 1.6 V @ 20 mA | 3-71 |
| | HLMP-3001 | | | | 4.0 mcd @ 20 mA | | | |
| | HLMP-3002 | | | | 2.0 mcd @ 20 mA | | | |
| | HLMP-3003 | | | | 4.0 mcd @ 20 mA | | | |
|  | HLMP-3050 | | | Tinted Non-Diffused | 2.5 mcd @ 20 mA | 24° | | |

SOLID STATE LAMPS


T-1 3/4 Mounting Hardware

| Device | | Description | Page No. |
|---|-----------|--|----------|
| Package Outline Drawing | Part No. | | |
|  | HLMP-0103 | Mounting Clip and Ring for T-1 3/4 Lamps | 3-128 |


T-1 High Intensity Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------|----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1320 | High Efficiency Red (626 nm) | T-1 | Untinted Nondiffused | 12.0 mcd @ 10 mA | 45° | 2.2 V @ 10 mA | 3-73 |
| | HLMP-1321 | | | Tinted Nondiffused | | | | |
| | HLMP-1420 | Yellow (585 nm) | | Untinted Nondiffused | 12.0 mcd @ 10 mA | | 2.2 V @ 10 mA | |
| | HLMP-1421 | | | Tinted Nondiffused | | | | |
| | HLMP-1520 | Green (569 nm) | | Untinted Nondiffused | 12.0 mcd @ 10 mA | | 2.3 V @ 10 mA | |
| | HLMP-1521 | | | Tinted Nondiffused | | | | |

T-1 Diffused (Wide Angle) Lamps

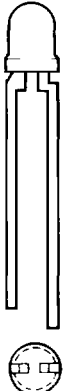
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1300 | High Efficiency Red (626 nm) | T-1 | Tinted Diffused | 5.0 mcd @ 10 mA | 60° | 2.2 V @ 10 mA | 3-77 |
| | HLMP-1301 | | | | 5.5 mcd @ 10 mA | | | |
| | HLMP-1302 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-1385 | | | | 10.0 mcd @ 10 mA | | | |
| | HLMP-K400 | Orange (602 nm) | | | 4.0 mcd @ 10 mA | | 2.2 V @ 10 mA | |
| | HLMP-K401 | | | | 5.0 mcd @ 10 mA | | | |
| | HLMP-K402 | | | | 6.5 mcd @ 10 mA | | | |

T-1 Diffused (Wide Angle) Lamps (Continued)

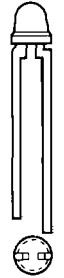
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|--------------------|---------|--------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1400 | Yellow (585 nm) | T-1 | Tinted Diffused | 5.0 mcd @ 10 mA | 60° | 2.2 V @ 10 mA | 3-77 |
| | HLMP-1401 | | | | 6.0 mcd @ 10 mA | | | |
| | HLMP-1402 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-1485 | | | | 10.0 mcd @ 10 mA | | | |
| | HLMP-1503 | Green (569 nm) | | | 5.0 mcd @ 10 mA | | 2.3 V @ 10 mA | |
| | HLMP-1523 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-1585 | | | | 8.5 mcd @ 10 mA | | | |

SOLID STATE LAMPS

T-1 Standard Red Lamps

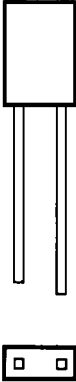
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|-----------------|-----------------------|-----------------------|----------------------------|---------------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1000 | Red (648 nm) | T-1 | Tinted Diffused | 1.0 mcd @ 20 mA | 60° | 1.6 V @ 20 mA | 3-81 |
| | HLMP-1002 | | | | 2.5 mcd @ 20 mA | | | |
| | HLMP-1080 | | | Untinted Diffused | 1.5 mcd @ 20 mA | | | |
| | HLMP-1071 | | | Untinted Non-Diffused | 2.0 mcd @ 20 mA | | | |
| | HLMP-1200 | T-1 Low Profile | Untinted Non-Diffused | 1.0 mcd @ 20 mA | 55° | 1.6 V @ 20 mA | | |
| | HLMP-1201 | | | 2.5 mcd @ 20 mA | | | | |

T-1 Low Profile Diffused Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|-----------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1350 | High Efficiency Red (626 nm) | T-1 Low Profile | Tinted Diffused | 2.0 mcd @ 10 mA | 55° | 2.2 V @ 10 mA | * |
| | HLMP-1450 | Yellow (585 nm) | | | | | 2.2 V @ 10 mA | |
| | HLMP-1550 | Green (569 nm) | | | | | 2.3 V @ 10 mA | |

*Contact your local Sales Representative for information regarding this product. (See Section 9.)

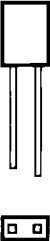
Rectangular Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|---------------------------------------|-------------|--------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-R100 | DH AlGaAs Red (637 nm) | Rectangular | Tinted Diffused | 7.5 mcd @ 20 mA | 100° | 1.8 V @ 20 mA | 3-83 |
| | HLMP-0300 | High Efficiency Red (626 nm) | | | 2.5 mcd @ 20 mA | | 2.2 V @ 20 mA | |
| | HLMP-0301 | | | | 5.0 mcd @ 20 mA | | | |
| | HLMP-0400 | Yellow (585 nm) | | | 2.5 mcd @ 20 mA | | 2.2 V @ 20 mA | |
| | HLMP-0401 | | | | 5.0 mcd @ 20 mA | | | |
| | HLMP-0503 | Green (569 nm) | | | 2.5 mcd @ 20 mA | | 2.3 V @ 20 mA | |
| | HLMP-0504 | | | | 5.0 mcd @ 20 mA | | | |

Bold Type – New Product

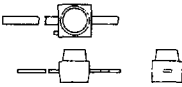
SOLID STATE LAMPS

2 mm x 5 mm Rectangular Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|------------------------------|-------------------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-S100 | DH AlGaAs Red (637 nm) | 2 mm x 5 mm Rectangular | Tinted Diffused | 7.5 mcd @ 20 mA | 110° | 1.8 V @ 20 mA | 3-87 |
| | HLMP-S200 | High Efficiency Red (626 nm) | | | 3.5 mcd @ 20 mA | | 2.2 V @ 20 mA | |
| | HLMP-S201 | | | | 4.8 mcd @ 20 mA | | | |
| | HLMP-S400 | Orange (602 nm) | | | 3.5 mcd @ 20 mA | | 2.2 V @ 20 mA | |
| | HLMP-S401 | | | | 4.8 mcd @ 20 mA | | | |
| | HLMP-S300 | Yellow (585 nm) | | | 2.1 mcd @ 20 mA | | 2.2 V @ 20 mA | |
| | HLMP-S301 | | | | 3.5 mcd @ 20 mA | | | |
| | HLMP-S500 | Green (569 nm) | | | 4.0 mcd @ 20 mA | | 2.3 V @ 20 mA | |
| | HLMP-S501 | | | | 5.8 mcd @ 20 mA | | | |

Bold Type – New Product

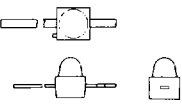
Subminiature Flat Top Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|------------------------------|-----------------------|-----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-P005 | Standard Red (640 nm) | Flat Top Subminiature | Untinted Non-diffused | 2.5 mcd @ 10 mA | 125° | 1.6 V @ 10 mA | 3-91 |
| | HLMP-P105 | DH AlGaAs Red (637 nm) | | | 45.0 mcd @ 20 mA | | 1.8 V @ 20 mA | |
| | HLMP-P205 | High Efficiency Red (626 nm) | | | 5.0 mcd @ 10 mA | | 1.8 V @ 10 mA | |
| | HLMP-P405 | Orange (602 nm) | | | 4.0 mcd @ 10 mA | | 1.9 V @ 10 mA | |
| | HLMP-P305 | Yellow (585 nm) | | | 4.0 mcd @ 10 mA | | 2.0 V @ 10 mA | |
| | HLMP-P505 | Green (569 nm) | | | 5.0 mcd @ 10 mA | | 2.0 V @ 10 mA | |

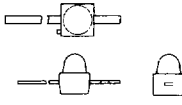
Bold Type – New Product

SOLID STATE LAMPS

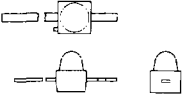
Subminiature Diffused Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|--------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-6000 | Standard Red (640 nm) | Subminiature | Tinted Diffused | 1.2 mcd @ 10 mA | 90° | 1.6 V @ 10 mA | 3-91 |
| | HLMP-6001 | | | | 3.2 mcd @ 10 mA | | 1.6 V @ 10 mA | |
| | HLMP-Q101 | DH AlGaAs Red (637 nm) | | | 45.0 mcd @ 20 mA | | 1.8 V @ 20 mA | |
| | HLMP-6300 | High Efficiency Red (626 nm) | | | 3.0 mcd @ 10 mA | | 1.8 V @ 10 mA | |
| | HLMP-Q400 | Orange (602 nm) | | | 3.0 mcd @ 10 mA | | 1.9 V @ 10 mA | |
| | HLMP-6400 | Yellow (585 nm) | | | 3.0 mcd @ 10 mA | | 2.0 V @ 10 mA | |
| | HLMP-6500 | Green (569 nm) | | | 3.0 mcd @ 10 mA | | 2.0 V @ 10 mA | |

Subminiature Nondiffused Lamps

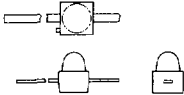
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|--------------|-----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-Q105 | DH AlGaAs Red (637 nm) | Subminiature | Untinted Non-diffused | 55.0 mcd @ 20 mA | 28° | 1.8 V @ 20 mA | 3-91 |
| | HLMP-6305 | High Efficiency Red (626 nm) | | | 12.0 mcd @ 10 mA | | 1.8 V @ 10 mA | |
| | HLMP-6405 | Yellow (585 nm) | | | 12.0 mcd @ 10 mA | | 2.0 V @ 10 mA | |
| | HLMP-6505 | Green (569 nm) | | | 12.0 mcd @ 10 mA | | 2.0 V @ 10 mA | |

Subminiature Low Current Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|------------------------------|--------------|----------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-Q150 | DH AlGaAs Red (637 nm) | Subminiature | Tinted Diffused | 1.8 mcd @ 1.0 mA | 90° | 1.6 V @ 1.0 mA | 3-91 |
| | HLMP-Q155 | | | Untinted Nondiffused | 4.0 mcd @ 1.0 mA | 28° | | |
| | HLMP-7000 | High Efficiency Red (626 nm) | | Tinted Diffused | 0.8 mcd @ 2.0 mA | 90° | 1.8 V @ 10.0 mA | |
| | HLMP-7019 | Yellow (585 nm) | | 0.6 mcd @ 2.0 mA | 2.0 V @ 10.0 mA | | | |
| | HLMP-7040 | Green | | 0.6 mcd | 2.0 V @ | | | |

Bold Type – New Product

Subminiature Resistor Lamps

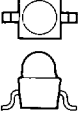
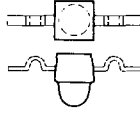
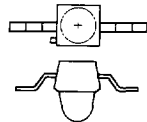
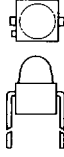

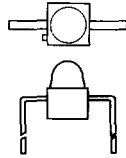
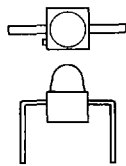
| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Current | Page No. |
|---|-----------|------------------------------|-----------------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-6600 | High Efficiency Red (626 nm) | Subminiature Resistor | Tinted Diffused | 5.0 mcd @ 5.0 V | 90° | 9.6 mA @ 5.0 V | 3-91 |
| | HLMP-6620 | | | | 2.0 mcd @ 5.0 V | | 3.5 mA @ 5.0 V | |
| | HLMP-6700 | Yellow (585 nm) | | | 5.0 mcd @ 5.0 V | | 9.6 mA @ 5.0 V | |
| | HLMP-6720 | | | | 2.0 mcd @ 5.0 V | | 3.5 mA @ 5.0 V | |
| | HLMP-6800 | Green (569 nm) | | | 5.0 mcd @ 5.0 V | | 9.6 mA @ 5.0 V | |
| | HLMP-6820 | | | | 2.0 mcd @ 5.0 V | | 3.5 mA @ 5.0 V | |

Subminiature Lamp Arrays

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. | |
|-------------------------|-----------|---------------------------------------|---------|------|----------------------------|--------------------|-------------------------|------------------|------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | | |
| | HLMP-6203 | Red (640 nm) | Array † | 3 | Tinted Diffused | 1.2 mcd @ 10 mA | 90° | 1.6 V @ 10 mA | 3-91 |
| | HLMP-6204 | | | 4 | | | | | |
| | HLMP-6205 | | | 5 | | | | | |
| | HLMP-6206 | | | 6 | | | | | |
| | HLMP-6208 | | | 8 | | | | | |
| | HLMP-6653 | High Efficiency Red (626 nm) | | 3 | | 3.0 mcd @ 10 mA | | 1.8 V @ 10 mA | |
| | HLMP-6654 | | | 4 | | | | | |
| | HLMP-6655 | | | 5 | | | | | |
| | HLMP-6656 | | | 6 | | | | | |
| | HLMP-6658 | | | 8 | | | | | |
| | HLMP-6753 | Yellow (585 nm) | | 3 | | | | 2.0 V @ 10 mA | |
| | HLMP-6754 | | | 4 | | | | | |
| | HLMP-6755 | | | 5 | | | | | |
| | HLMP-6756 | | | 6 | | | | | |
| | HLMP-6758 | | | 8 | | | | | |
| | HLMP-6853 | Green (569 nm) | | 3 | | | | 2.0 V @ 10 mA | |
| | HLMP-6854 | | | 4 | | | | | |
| | HLMP-6855 | | | 5 | | | | | |
| | HLMP-6856 | | | 6 | | | | | |
| | HLMP-6858 | | | 8 | | | | | |


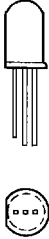
†Array length

Lead Bend Options, Subminiature Lamps

| Device | | Description | Page No. |
|---|------------|--|----------|
| Package Outline Drawing | Option No. | | |
|  | 011 | Gull Wing, Tape and Reel, 1500 Lamps per Reel | 3-91 |
| | 012 | Gull Wing, Bulk Packaging | |
| | 013 | Gull Wing Array, Shipping Tube | |
|  | 021 | Yoke Lead, Tape and Reel, 1500 Lamps per Reel | |
| | 022 | Yoke Lead, Bulk Packaging | |
|  | 031 | Z-Bend, Tape and Reel, 1500 Lamps per Reel | |
| | 032 | Z-Bend, Bulk Packaging | |
|  | 1L1 | 2.54 mm (0.100 in) Rt. Angle Bend, Long Leads | |
|  | 1S1 | 2.54 mm (0.100 in) Rt. Angle Bend, Short Leads | |
|  | 2L1 | 5.08 mm (0.200 in) Rt. Angle Bend, Long Leads | |
|  | 2S1 | 5.08 mm (0.200 in) Rt. Angle Bend, Short Leads | |

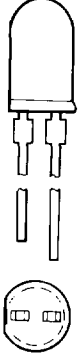
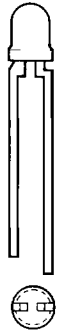
SOLID STATE LAMPS

Bicolor Solid State Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|------------------|------------------------------|-------------------------|------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-0800 | High Efficiency Red (626 nm) | 2 mm x 5 mm Rectangular | Untinted Difused | 3.5 mcd @ 20 mA | 100° | 2.1 V @ 10 mA | 3-111 |
| | | Green (569 nm) | | | 4.0 mcd @ 20 mA | | 2.3 V @ 10 mA | |
|  | HLMP-4000 | High Efficiency Red (626 nm) | T-1 3/4 | Untinted Difused | 5.0 mcd @ 10 mA | 65° | 2.1 V @ 10 mA | |
| | | Green (569 nm) | | | 8.0 mcd @ 10 mA | | 2.3 V @ 10 mA | |

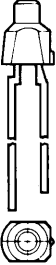
Bold Type – New Product

T-1 3/4 and T-1 Integrated Resistor Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Current | Page No. |
|--|-----------|---------------------------------------|---------|--------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-3105 | Red (648 nm) | T-1 3/4 | Tinted Diffused | 3.0 mcd @ 5 V | 60° | 13 mA @ 5 V | 3-115 |
| | HLMP-3112 | | | | 3.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-3600 | High Efficiency Red (626 nm) | | | 8.0 mcd @ 5 V | | 10 mA @ 5 V | |
| | HLMP-3601 | | | | 8.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-3650 | Yellow (585 nm) | | | 8.0 mcd @ 5 V | | 10 mA @ 5 V | |
| | HLMP-3651 | | | | 8.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-3680 | Green (569 nm) | | | 8.0 mcd @ 5 V | | 12 mA @ 5 V | |
| | HLMP-3681 | | | | 8.0 mcd @ 12 V | | 13 mA @ 12 V | |
|  | HLMP-1100 | Red (648 nm) | T-1 | Tinted Diffused | 2.5 mcd @ 5 V | 60° | 13 mA @ 5 V | |
| | HLMP-1120 | | | | | | | |
| | HLMP-1600 | High Efficiency Red (626 nm) | | Tinted Diffused | 8.0 mcd @ 5 V | | 10 mA @ 5 V | |
| | HLMP-1601 | | | | 8.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-1620 | Yellow (585 nm) | | Tinted Diffused | 8.0 mcd @ 5 V | | 10 mA @ 5 V | |
| | HLMP-1621 | | | | 8.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-1640 | Green (569 nm) | | Tinted Diffused | 8.0 mcd @ 5 V | | 12 mA @ 5 V | |
| | HLMP-1641 | | | | 8.0 mcd @ 12 V | | 13 mA @ 12 V | |

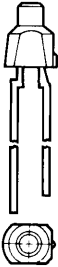
SOLID STATE LAMPS

2 mm Round Flat Top Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-------------------------|------------------------------|---------------------------------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1800 | High Efficiency Red (626 nm) | 2 mm Flat Top, Round Emitting Surface | Tinted Diffused | 1.8 mcd @ 10 mA | 140° | 2.2 V @ 10 mA | * |
| | HLMP-1801 | | | | 2.9 mcd @ 10 mA | | | |
| | HLMP-1819 | Yellow (585 nm) | | | 1.5 mcd @ 10 mA | | 2.2 V @ 10 mA | |
| | HLMP-1820 | | | | 2.5 mcd @ 10 mA | | | |
| | HLMP-1840 | Green (569 nm) | | | 2.0 mcd @ 10 mA | | 2.3 V @ 10 mA | |
| | HLMP-1841 | | | | 3.0 mcd @ 10 mA | | | |
| | HLMP-1740 (Low Current) | High Efficiency Red (626 nm) | | | 0.5 mcd @ 2 mA | | 1.8 V @ 2 mA | |
| | HLMP-1760 (Low Current) | Yellow (585 nm) | | | 0.4 mcd @ 2 mA | | 1.9 V @ 2 mA | |


*Contact your local Sales Representative for information regarding this product. (See Section 9.)

2 mm Round Integrated Resistor Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------------------------------------|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-1660 | High Efficiency Red (626 nm) | 2 mm Flat Top, Round Emitting Surface | Tinted Diffused | 1.0 mcd @ 5 V | 140° | 10 mA @ 5 V | * |
| | HLMP-1661 | | | | 1.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-1674 | Yellow (585 nm) | | | 1.0 mcd @ 5 V | | 10 mA @ 5 V | |
| | HLMP-1675 | | | | 1.0 mcd @ 12 V | | 13 mA @ 12 V | |
| | HLMP-1687 | Green (569 nm) | | | 1.0 mcd @ 5 V | | 10 mA @ 5 V | |
| | HLMP-1688 | | | | 1.0 mcd @ 12 V | | 13 mA @ 12 V | |

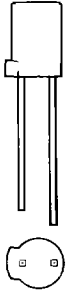
SOLID STATE LAMPS

2 mm Square Flat Top Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|--|-----------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-L250 | High Efficiency Red (626 nm) | 2 mm Flat Top, Square Emitting Surface | Tinted Diffused | 1.8 mcd @ 10 mA | 140° | 2.2 V @ 10 mA | * |
| | HLMP-L251 | | | | 2.9 mcd @ 10 mA | | | |
| | HLMP-L350 | Yellow (585 nm) | | | 1.5 mcd @ 10 mA | | 2.2 V @ 10 mA | |
| | HLMP-L351 | | | | 2.5 mcd @ 10 mA | | | |
| | HLMP-L550 | Green (569 nm) | | | 2.0 mcd @ 10 mA | | 2.3 V @ 10 mA | |
| | HLMP-L551 | | | | 3.0 mcd @ 10 mA | | | |

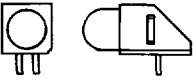
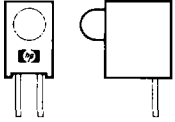
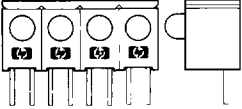
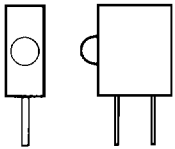
*Contact your local Sales Representative for information regarding this product. (See Section 9.)

4 mm Round Flat Top Lamps

| Device | | Description | | | Typical Luminous Intensity | 2θ 1/2 | Typical Forward Voltage | Page No. |
|---|-----------|------------------------------|---------------|---------------------|----------------------------|--------|-------------------------|----------|
| Package Outline Drawing | Part No. | Color | Package | Lens | | | | |
|  | HLMP-M200 | High Efficiency Red (626 nm) | 4 mm Flat Top | Tinted Diffused | 5.0 mcd @ 20 mA | 135° | 2.2 V @ 10 mA | * |
| | HLMP-M201 | | | | 7.0 mcd @ 20 mA | | | |
| | HLMP-M250 | | | Tinted Non-Diffused | 5.0 mcd @ 10 mA | 80° | | |
| | HLMP-M251 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-M300 | Yellow (585 nm) | | Tinted Diffused | 5.0 mcd @ 20 mA | 135° | 2.2 V @ 10 mA | |
| | HLMP-M301 | | | | 7.0 mcd @ 20 mA | | | |
| | HLMP-M350 | | | Tinted Non-Diffused | 5.0 mcd @ 10 mA | 80° | | |
| | HLMP-M351 | | | | 7.0 mcd @ 10 mA | | | |
| | HLMP-M500 | Green (569 nm) | | Tinted Diffused | 7.0 mcd @ 20 mA | 135° | 2.3 V @ 10 mA | |
| | HLMP-M501 | | | | 10.0 mcd @ 20 mA | | | |
| | HLMP-M550 | | | Tinted Non-Diffused | 10.0 mcd @ 10 mA | 80° | | |
| | HLMP-M551 | | | | 16.0 mcd @ 10 mA | | | |

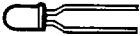
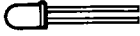
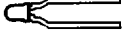
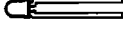
*Contact your local Sales Representative for information regarding this product. (See Section 9.)

Right Angle Lamp Options

| Device | | Option No. | Description | Page No. |
|---|-----|--|-------------|----------|
| Package Outline Drawing | | | | |
|  | 010 | T-1 3/4 Rt. Angle, Leads Sheared Even | 3-123 | |
| | 100 | T-1 3/4 Rt. Angle, Leads Sheared Uneven | | |
|  | 101 | T-1 Rt. Angle, Leads Sheared Even | 3-125 | |
| | 010 | T-1 Rt. Angle, Leads Sheared Uneven | | |
|  | 102 | T-1 Rt. Angle, 2 Element Array | 3-126 | |
| | 103 | T-1 Rt. Angle, 3 Element Array | | |
| | 104 | T-1 Rt. Angle, 4 Element Array | | |
| | 105 | T-1 Rt. Angle, 5 Element Array | | |
| | 106 | T-1 Rt. Angle, 6 Element Array | | |
| | 107 | T-1 Rt. Angle, 7 Element Array | | |
| | 108 | T-1 Rt. Angle, 8 Element Array | | |
|  | 010 | Subminiature Rt. Angle, Leads Sheared Even | 3-127 | |

SOLID STATE LAMPS

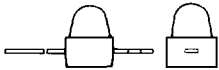
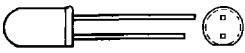
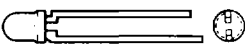
Tape and Reel Lamp Options

| Device | | Description | Page No. |
|---|------------|---|----------|
| Package Outline Drawing | Option No. | | |
|  | 001 | T-1 3/4, 5 mm (0.197 in) Formed Leads, 1300 Lamps per Reel | 3-119 |
|  | 002 | T-1 3/4, 2.54 mm (0.100 in) Formed Leads, 1300 Lamps per Reel | |
|  | 001 | T-1, 5 mm (0.197 in) Formed Leads, 1800 Lamps per Reel | |
|  | 002 | T-1, 2.54 mm (0.100 in) Formed Leads, 1800 Lamps per Reel | |


Intensity Selected Lamps

| Device | | Description | Page No. |
|-------------------------|------------|---|----------|
| Package Outline Drawing | Option No. | | |
| | S02 | This option provides the selection of lamps from two adjacent luminous intensity categories | * |

Emitter Components

| Device | | Description | Features | Page No. |
|---|-----------|---|---|----------|
| Package Outline Drawing | Part No. | | | |
|  | HEMT-6000 | 700 nm High Intensity Subminiature Emitter | <ul style="list-style-type: none"> • Visible (Near IR) emission facilitates alignment. • Compatible with most silicon phototransistors and photodiodes. | * |
|  | HEMT-3301 | 940 nm T-1 3/4 High Radiant Emitter | <ul style="list-style-type: none"> • Efficiency at Low Currents • Radiated spectrum matches response of silicon photodetectors • Non-saturated, high radiant flux output | |
|  | HEMT-1001 | 940 nm T-1 High Radiant Emitter | | |

T-1 3/4 Mounting Hardware

| Device | | Description | Page No. |
|---|-----------|---------------------------------------|----------|
| Package Outline Drawing | Part No. | | |
|  | HLMP-5029 | Right Angle Housing for T-1 3/4 Lamps | * |

*Contact your local Sales Representative for information regarding this product. (See Section 9.)

Hermetic Lamps Selection Guide (see page 3-131).