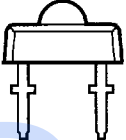



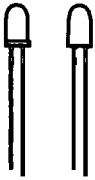
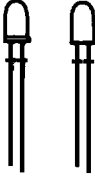
### Super Flux LEDs

Device		Description			Typical Luminous Flux @ 70 mA	Viewing Angle 2 $\theta$ <sup>1/2</sup>	Typical Forward Voltage @ 70 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Package	Lens				
	<i>New!</i> HPWR-M300	TS AlGaAs Red 643 nm	Square with 4 Leads	Untinted, Nondiffused, 3 mm Dia. Dome	800 mlm	90°	2.25 V	1-25
	<i>New!</i> HPWA-MH00	AS AlInGaP Red-Orange 615 nm			1250 mlm	90°		
	<i>New!</i> HPWA-DH00					60°		
	<i>New!</i> HPWA-ML00	AS AlInGaP Amber 590 nm			1250 mlm	90°		
	<i>New!</i> HPWA-DL00					60°		
	<i>New!</i> HPWT-MH00	TS AlInGaP Red-Orange 617 nm			2500 mlm	70°	2.65 V	
	<i>New!</i> HPWT-DH00					40°		
	<i>New!</i> HPWT-ML00	TS AlInGaP Amber 592 nm			2500 mlm	70°		
	<i>New!</i> HPWT-DL00					40°		

### T-13/4 (5 mm) High Performance AlInGaP LED Lamps


Device		Sunpower LED Lamps	Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta$ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens					
	<i>New!</i> HLMT-CL00	Amber 592 nm	Untinted, Nondiffused		8300 mcd	8°	2.0 V	1-37
	<i>New!</i> HLMT-CH00	Red-Orange 617 nm			9000 mcd			
	<i>New!</i> HLMT-DL00	Amber 592 nm			1500 mcd	24°		
	<i>New!</i> HLMT-DH00	Red-Orange 617 nm			1800 mcd			
	HLMA-CL00	Amber 590 nm			3500 mcd	7°	1.9 V	
	HLMA-CH00	Red-Orange 615 nm			3500 mcd			
	HLMA-DL00	Amber 590 nm			800 mcd	24°		
	HLMA-DH00	Red-Orange 615 nm			600 mcd			
	HLMA-DG00	Red-Orange 622 nm			500 mcd			

**T-1<sup>3</sup>/<sub>4</sub> (5 mm) Precision Optical Performance AlInGaP LED Lamps**


Device		Sunpower Series LEDs	Description			Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.		
Package Outline Drawing		Part No.	Color, λ <sub>d</sub>	Lens	*						
 <p>A B</p>	<i>New!</i>	HLMA-CL20	Amber 592 nm	Untinted, Nondiffused	A	4000 mcd	8°	1.9 V	1-31		
	<i>New!</i>	HLMA-GL20			B						
	<i>New!</i>	HLMA-CL22			C						
	<i>New!</i>	HLMA-GL22			D						
	<i>New!</i>	HLMA-CH20	Red-Orange 617 nm		A	4000 mcd					
	<i>New!</i>	HLMA-GH20			B						
	<i>New!</i>	HLMA-CH22			C						
	<i>New!</i>	HLMA-GH22			D						
	<i>New!</i>	HLMA-CL15	Red 630 nm		A	1700 mcd					
	<i>New!</i>	HLMA-GL15			B						
	<i>New!</i>	HLMA-CL17			C						
	<i>New!</i>	HLMA-GL17			D						
	 <p>C D</p>	<i>New!</i>	HLMA-CJ15		Amber 590 nm	A				1300 mcd	15°
		<i>New!</i>	HLMA-GJ15			B					
		<i>New!</i>	HLMA-CJ17			C					
		<i>New!</i>	HLMA-GJ17			D					
<i>New!</i>		HLMA-CH15	Red-Orange 617 nm	A	1300 mcd						
<i>New!</i>		HLMA-GH15		B							
<i>New!</i>		HLMA-CH17		C							
<i>New!</i>		HLMA-GH17		D							
<i>New!</i>		HLMA-CG15	Red 622 nm	A	800 mcd						
<i>New!</i>		HLMA-GG15		B							
<i>New!</i>		HLMA-CG17		C							
<i>New!</i>		HLMA-GG17		D							

\*Denotes package configuration.


**T-13/4 (5 mm) High Performance AlInGaP, Tinted Diffused, LED Lamps**

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
 <i>New!</i>	HLMA-DL05	Amber 592 nm	Tinted, Diffused	100 mcd	65°	1.9 V	1-49
	<i>New!</i>	HLMA-DH05					


**T-13/4 (5 mm) High Performance TS AlGaAs Red LED Lamps**

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-8103	Deep Red 644 nm	Untinted, Nondiffused	3000 mcd	7°	1.85 V	1-44
	HLMP-8102			2000 mcd			
	HLMP-8100			1000 mcd	19°		
	HLMP-C100			750 mcd	30°		
	HLMP-C110			400 mcd	40°		


**T-13/4 (5 mm) High Performance TS AlGaAs, Tinted Diffused, Red LED Lamps**

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
 <i>New!</i>	HLMP-D115	Deep Red 644 nm	Tinted, Diffused	250 mcd	40°	1.85 V	1-49
	<i>New!</i>			HLMP-D120	350 mcd		


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) Wide Viewing Angle, High Intensity LED Lamps

Device		Description		Typical Luminous Intensity @ 40 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 40 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	<i>New!</i> HLMA-VL00	AS AlInGaP Amber 592 nm	Untinted, Nondiffused	460 mcd	60° Horizontal, 30° Vertical	1.90 V	1-56
	<i>New!</i> HLMA-VH00	AS AlInGaP Red-Orange 615 nm					
	<i>New!</i> HLMP-V100	TS AlGaAs Deep Red 644 nm		1000 mcd		1.85 V	
	<i>New!</i> HLMP-V500	GaP Green 570 nm		270 mcd		2.2 V	


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) SiC Blue LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-DB00	Blue 480 nm	Diffused	3 mcd	38°	3.5 V	1-62
	HLMP-DB15		Untinted, Nondiffused	12 mcd	15°		


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) High Intensity DH AlGaAs LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-D101	Deep Red 637 nm	Tinted, Diffused	70 mcd	65°	1.8 V	1-66
	HLMP-D105		Untinted, Nondiffused	240 mcd	24°		

### T-1<sup>3</sup>/<sub>4</sub> (5 mm) Low Current DH AlGaAs Lamps


Device		Description		Typical Luminous Intensity @ 1 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 1 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-D150	Deep Red 637 nm	Tinted, Diffused	3 mcd	65°	1.6 V	1-71
	HLMP-D155		Untinted, Nondiffused	10 mcd	24°		

### T-13/4 (5 mm) Very High Intensity DH AlGaAs Lamps\*


Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-4100	Deep Red 637 nm	Untinted, Nondiffused	750 mcd	8°	1.8 V	*
	HLMP-4101			1000 mcd			

\*Contact your local Hewlett-Packard components sales representative for information regarding these products.


### T-13/4 (5 mm) Super Ultra-Bright LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-8115	DH AlGaAs Deep Red 637 nm	Aspheric Dome, Untinted, Nondiffused	1000 mcd	10°	1.8 V	1-75
	HLMP-8109			500 mcd	20°		
	HLMP-8205	GaAsP/GaP HER 626 nm		350 mcd	10°	1.9 V	
	HLMP-8209			260 mcd	20°		
	HLMP-8305	GaAsP/GaP Yellow 585 nm		350 mcd	10°	2.1 V	
	HLMP-8309			260 mcd	20°		
	HLMP-8405	GaAsP/GaP Orange 602 nm		350 mcd	10°	1.9 V	
	HLMP-8409			260 mcd	20°		
	HLMP-8505	GaP/GaP Green 569 nm		400 mcd	10°	2.2 V	
	HLMP-8509			300 mcd	20°		
	HLMP-8605	GaP/GaP Emerald Green 560 nm		75 mcd	10°		

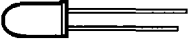
### T-13/4 (5 mm) Ultra-Bright LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-3750	GaAsP/GaP HER 626 nm	Standard Dome Untinted, Nondiffused	125 mcd	24°	1.9 V	1-83
	HLMP-3850	GaAsP/GaP Yellow 585 nm		140 mcd		2.1 V	
	HLMP-3950	GaP/GaP Green 569 nm		140 mcd		2.2 V	
	HLMP-D640	GaP/GaP Emerald Green 558 nm		21 mcd			
	HLMP-3390	GaAsP/GaP HER 626 nm	Low Profile Aspheric Dome, Untinted, Nondiffused	55 mcd	32°	1.9 V	
	HLMP-3490	GaAsP/GaP Yellow 585 nm				2.1 V	
	HLMP-3590	GaP/GaP Green 569 nm				2.2 V	

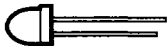
### T-1<sup>3</sup>/<sub>4</sub> (5 mm) High Intensity LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-3315	GaAsP/GaP	Tinted, Nondiffused	40 mcd	35°	1.9 V	1-88
	HLMP-3316	HER 626 nm		60 mcd			
	HLMP-3415	GaAsP/GaP		40 mcd		2.0 V	
	HLMP-3416	Yellow 585 nm		50 mcd	24°	2.1 V	
	HLMP-3517	GaP/GaP		50 mcd			
	HLMP-3519	Green 569 nm		70 mcd			


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) Diffused LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-3300	GaAsP/GaP	Tinted, Diffused	3.5 mcd	60°	1.9 V	1-94
	HLMP-3301	HER 626 nm		7 mcd			
	HLMP-3762			12 mcd			
	HLMP-D400	GaAsP/GaP		3.5 mcd		2.0 V	
	HLMP-D401	Orange 602 nm		7 mcd		2.1 V	
	HLMP-3400	GaAsP/GaP		4 mcd			
	HLMP-3401	Yellow 585 nm		8 mcd			
	HLMP-3862			12 mcd			
	HLMP-3502	GaP/GaP		2.4 mcd			
	HLMP-3507	Green 569 nm		5.2 mcd			
	HLMP-3962			14 mcd			
	HLMP-D600	GaP/GaP		3 mcd		Emerald Green 558 nm	


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) Low Profile LED Lamps (Non-Diffused)

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-3365	GaAsP/GaP	Aspheric Dome, Tinted, Nondiffused	10 mcd	45°	1.9 V	1-101
	HLMP-3366	HER 626 nm		18 mcd			
	HLMP-3465	GaAsP/GaP		12 mcd		2.0 V	
	HLMP-3466	Yellow 585 nm		18 mcd	40°	2.1 V	
	HLMP-3567	GaP/GaP		7 mcd			
	HLMP-3568	Green 569 nm		15 mcd			

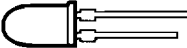
### T-1<sup>3</sup>/<sub>4</sub> (5 mm) Low Profile LED Lamps (Diffused)

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-3350	GaAsP/GaP	Aspheric, Tinted, Diffused	3.5 mcd	50°	1.9 V @ 10 mA	1-101
	HLMP-3351	HER 626 nm		7 mcd			
	HLMP-3450	GaAsP/GaP		4 mcd			
	HLMP-3451	Yellow 585 nm		10 mcd			
	HLMP-3553	GaP/GaP		3.2 mcd			
	HLMP-3554	Green 569 nm		10 mcd			


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) Low Current LED Lamps

Device		Description		Typical Luminous Intensity @ 2 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 2 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-4700	GaAsP/GaP HER 626 nm	Tinted, Diffused	2.3 mcd	50°	1.8 V	1-108
	HLMP-4719	GaAsP/GaP Yellow 585 nm		2.1 mcd		1.9 V	
	HLMP-4740	GaP/GaP Green 569 nm		2.3 mcd		1.8 V	



### T-1<sup>3</sup>/<sub>4</sub> (5 mm) 5 Volt, 12 Volt, Integrated Resistor LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Current, Voltage	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-3600	GaAsP/GaP HER 626 nm	Tinted, Diffused	8 mcd @ 5 V	60°	10 mA @ 5 V	1-113
	HLMP-3601					13 mA @ 12 V	
	HLMP-3650	GaAsP/GaP Yellow 585 nm		8 mcd @ 5 V		10 mA @ 5 V	
	HLMP-3651			8 mcd @ 12 V		13 mA @ 12 V	
	HLMP-3680	GaP/GaP Green 569 nm		8 mcd @ 5 V		10 mA @ 5 V	
	HLMP-3681			8 mcd @ 12 V		13 mA @ 12 V	


T-1<sup>3</sup>/<sub>4</sub> (5 mm) Bicolor LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2 $\theta$ <sup>1</sup> / <sub>2</sub>	Typical Forward Current @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	HLMP-4000	GaAsP/GaP HER 626 nm	Untinted, Diffused	5 mcd	65°	1.9 V	1-157
		GaP/GaP Green 569 nm		8 mcd		2.1 V	


T-1<sup>3</sup>/<sub>4</sub> (5 mm) LED Lamp Mounting Hardware

Device		Description	Page No.
Package Outline Drawing	Part No.		
	HLMP-5029	Right Angle Mount Housing	1-120
	HLMP-0104	Panel Mount Clip and Retaining Ring	1-122

## T-1 (3 mm) High Performance AS AlInGaP LED Lamps

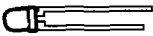
Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta$ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	HLMA-KL00	AlInGaP Amber 590 nm	Untinted, Nondiffused	200 mcd	45°	1.9 V	1-37
	HLMA-KH00	AlInGaP Red-Orange 615 nm					

## T-1 (3 mm) High Performance TS AlGaAs Red LED Lamps

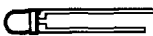
Device		Description		Typical Luminous Intensity	Viewing Angle 2 $\theta$ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	<i>New!</i> HLMP-J105	Deep Red 644 nm	Untinted, Nondiffused	340 mcd @ 20 mA	45°	1.9 V	1-124
	<i>New!</i> HLMP-J155 Low Current			6 mcd @ 0.5 mA		1.6 V	
	<i>New!</i> HLMP-J100	Tinted, Diffused	175 mcd @ 20 mA	55°	1.9 V		
	<i>New!</i> HLMP-J150 Low Current		3 mcd @ 0.5 mA		1.6 V		



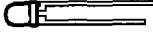
### T-1 (3 mm) High Intensity DH AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-K101	Deep Red 637 nm	Tinted, Diffused	45 mcd	60°	1.8 V	1-66
	HLMP-K105		Untinted, Nondiffused	65 mcd	45°		

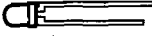
### T-1 (3 mm) Low Current DH AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 1 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 1 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-K150	Deep Red 637 nm	Tinted, Diffused	2 mcd	60°	1.6 V	1-71
	HLMP-K155		Untinted, Nondiffused	3 mcd	45°		

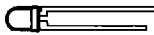
### T-1 (3 mm) Ultra-Bright LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-1340	GaAsP/GaP HER 626 nm	Untinted, Nondiffused	45 mcd	45°	1.9 V	1-83
	HLMP-1440					GaAsP/GaP Yellow 585 nm	
	HLMP-1540	GaP/GaP Green 569 nm		2.2 V			
	HLMP-K640	GaP/GaP Emerald Green 560 nm		21 mcd			

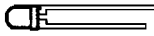
### T-1 (3 mm) High Intensity LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-1320	GaAsP/GaP HER 626 nm	Untinted, Nondiffused	30 mcd	45°	1.9 V	1-128
	HLMP-1321		Tinted, Nondiffused				
	HLMP-1420	GaAsP/GaP Yellow 585 nm	Untinted, Nondiffused	15 mcd		2.0 V	
	HLMP-1421		Tinted, Nondiffused				
	HLMP-1520	GaP/GaP Green 596 nm	Untinted, Nondiffused	22 mcd		2.1 V	
	HLMP-1521		Tinted, Nondiffused				

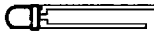
### T-1 (3 mm) Diffused LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-1300	GaAsP/GaP HER 626 nm	Tinted, Diffused	5 mcd	60°	1.9 V	1-134
	HLMP-1301			5.5 mcd			
	HLMP-1302			7 mcd			
	HLMP-1385			11 mcd			
	HLMP-K400	GaAsP/GaP Orange 602 nm		5 mcd		1.9 V	
	HLMP-K401			5.5 mcd			
	HLMP-K402			7 mcd			
	HLMP-1400	GaAsP/GaP Yellow 585 nm		5 mcd		2.0 V	
	HLMP-1401			6 mcd			
	HLMP-1402			7 mcd			
	HLMP-1485			10 mcd			
	HLMP-1503	GaP/GaP Green 569 nm		5 mcd		2.1 V	
	HLMP-1523			7 mcd			
	HLMP-1585	GaP/GaP Emerald Green 560 nm		8.5 mc		2.1 V	
HLMP-K600	4.5 mcd						


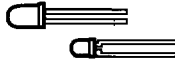
### T-1 (3 mm) Low Current LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 2 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-1700	GaAsP/GaP HER 626 nm	Tinted, Diffused	2.1 mcd	50°	1.8 V	1-108
	HLMP-1719			GaAsP/GaP Yellow 585 nm		1.6 mcd	
	HLMP-1790	GaP/GaP Green 569 nm		2.1 mcd		1.8 V	

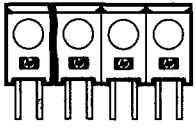
### T-1 (3 mm) 5 Volt, 12 Volt, Integrated Resistor LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle 2θ <sup>1/2</sup>	Typical Current, Voltage	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-1600	GaAsP/GaP HER 626 nm	Tinted, Diffused	8 mcd		10 mA @ 5 V	1-113
	HLMP-1601			8 mcd @ 12 V		13 mA @ 12 V	
	HLMP-1620	GaAsP/GaP Yellow 585 nm		8 mcd @ 5 V		10 mA @ 5 V	
	HLMP-1621			8 mcd @ 12 V		13 mA @ 12 V	
	HLMP-1640	GaP/GaP Green 569 nm		8 mcd @ 5 V		10 mA @ 5 V	
	HLMP-1641			8 mcd @ 12 V		13 mA @ 12 V	


### T-1<sup>3</sup>/<sub>4</sub> (5 mm) and T-1 (3 mm) Tape and Reel Options

Device		Description	Page No.
Package Outline Drawing	Option No.		
 5 mm (0.197 in) Formed Leads	001	T-1 <sup>3</sup> / <sub>4</sub> , with 5 mm (0.197 in) Formed Leads, 1300 Lamps per Reel.	1-140
 2.54 mm (0.100 in) Straight Leads	002	T-1 <sup>3</sup> / <sub>4</sub> , with 2.54 mm (0.100 in) Straight Leads, 1300 Lamps per Reel.	

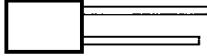
### T-1 (3 mm) Right Angle LED Indicator Array Options

Device		Description	Page No.
Package Outline Drawing	Option Code		
	102	2-Element Array	1-147
	103	3-Element Array	
	104	4-Element Array	
	105	5-Element Array	
	106	6-Element Array	
	107	7-Element Array	
	108	8-Element Array	


### 2.5 mm X 7.6 mm Rectangular LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1</sup> / <sub>2</sub>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-R100	DH AlGaAs Red 637 nm	Tinted, Diffused	11 mcd	100°	1.6 V	1-149
	HLMP-0300	GaAsP/GaP		2.5 mcd		1.9 V	
	HLMP-0301	HER 626 nm		5.3 mcd			
	HLMP-0400	GaAsP/GaP		2.5 mcd	2.1 V		
	HLMP-0401	Yellow 585 nm		5 mcd			
	HLMP-0503	GaP/GaP		2.5 mcd	2.2 V		
	HLMP-0504	Green 569 nm		8 mcd			

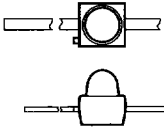
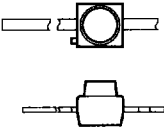
### 2 mm x 5 mm Rectangular LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-S100	DH AlGaAs Deep Red 637 nm	Tinted, Diffused	7.5 mcd	110°	1.8 V	1-153
	HLMP-S200	GaAsP/Ga HER 626 nm		3.5 mcd		1.9 V	
	HLMP-S201	HER 626 nm		7.5 mcd			
	HLMP-S400	GaAsP/GaP		3.5 mcd			
	HLMP-S401	Orange 602 nm		7.5 mcd			
	HLMP-S300	GaAsP/GaP		2.1 mcd		2.1 V	
	HLMP-S301	Yellow 585 nm		4 mcd			
	HLMP-S500	GaP/GaP		4 mcd		2.2 V	
	HLMP-S501	Green 569 nm		8 mcd			
HLMP-S600	GaP/GaP Emerald Green 560 nm	3 mcd					

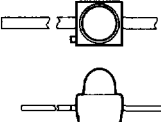
### 2 mm x 5 mm Rectangular Bicolor LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Current @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-0800	GaAsP/GaP HER 626 nm	Untinted, Diffused	3.5 mcd	100°	1.9 V	1-157
		GaP/GaP Green 569 nm		4 mcd		2.1 mA	

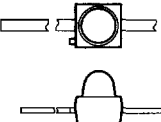
### Subminiature High Performance AlInGaP LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	<i>New!</i> HLMT-QL00	TS AlInGaP Amber 591 nm	Dome, Untinted, Nondiffused	1000 mcd	15°	1.9 V	1-161
	<i>New!</i> HLMA-QL00	As AlInGaP Amber 591 nm		500 mcd		2.0 V	
	<i>New!</i> HLMT-QH00	TS AlInGaP Red Orange 615 nm		800 mcd		1.9 V	
	<i>New!</i> HLMA-QH00	AS AlInGaP Red Orange 615 nm		500 mcd		2.0 V	
	<i>New!</i> HLMT-PL00	TS AlInGaP Amber 591 nm	Flat Top, Untinted, Nondiffused	150 mcd	125°	1.9 V	
	<i>New!</i> HLMA-PL00	AS AlInGaP Amber 591 nm		75 mcd		2.0 V	
	<i>New!</i> HLMT-PH00	TS AlInGaP Red Orange 615 nm		120 mcd		1.9 V	
	<i>New!</i> HLMA-PH00	AS AlInGaP Red Orange 615 nm		75 mcd		2.0 V	

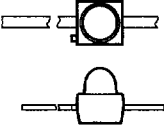
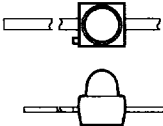
### Subminiature High Performance TS AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta$ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	<i>New!</i> HLMP-Q106	Deep Red 644 nm	Dome, Untinted, Nondiffused	530 mcd	15°	1.9 V	1-168
	<i>New!</i> HLMP-Q102		Dome, Tinted, Diffused	160 mcd	35°		
	<i>New!</i> HLMP-P106		Flat Top, Untinted, Nondiffused	130 mcd	75°		

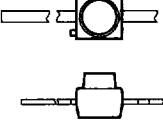
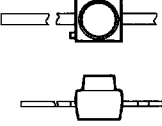
### Subminiature Low Current TS AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 0.5 mA	Viewing Angle 2 $\theta$ <sup>1/2</sup>	Typical Forward Voltage @ 0.5 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	<i>New!</i> HLMP-Q156	Deep Red 644 nm	Dome, Untinted, Nondiffused	7 mcd	15°	1.6 V	1-168
	<i>New!</i> HLMP-Q152		Dome, Tinted, Diffused	2 mcd	35°		
	<i>New!</i> HLMP-P156		Flat Top, Untinted, Nondiffused	2 mcd	75°		

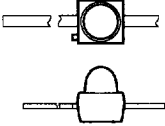
### Subminiature Dome LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 10 mA	Page No.	
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens					
	HLMP-6000	GaAsP Red	Dome, Tinted, Diffused	1.2 mcd	90°	1.6 V	1-174	
	HLMP-6001	640 nm		3.2 mcd				
	HLMP-Q101	DH AlGaAs Deep Red 637 nm		45 mcd @ 20 mA				1.8 V @ 20 mA
	HLMP-6300	GaAsP/GaP HER 626 nm		7 mcd				
	HLMP-Q400	GaAsP/GaP Orange 602 nm		3 mcd				1.9 V
	HLMP-6400	GaAsP/GaP Yellow 585 nm						2.0 V
	HLMP-6500	GaP/GaP Green 569 nm						2.1 V
	HLMP-Q600	GaP/GaP Emerald Green 560 nm		1.5 mcd				2.2 V
	HLMP-Q105	DH AlGaAs Deep Red 637 nm	Dome, Untinted, Nondiffused	55 mcd @ 20 mA	28°	1.8 V @ 20 mA		
	HLMP-6305	GaAsP/GaP HER 626 nm		12 mcd		1.8 V		
	HLMP-6405	GaAsP/GaP Yellow 585 nm				2.0 V		
	HLMP-6505	GaP/GaP Green 569 nm				2.1 V		

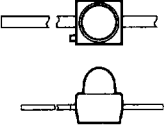
### Subminiature Flat Top LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Lens				
	HLMP-P105	DH AlGaAs Deep Red 637 nm	Flat Top Untinted, Nondiffused	30 mcd @ 20 mA	125°	1.8 V @ 20 mA	1-174
	HLMP-P205	GaAsP/GaP HER 626 nm		5 mcd		1.8 V	
	HLMP-P405	GaAsP/GaP Orange 602 nm		4 mcd		1.9 V	
	HLMP-P305	GaAsP/GaP Yellow 585 nm		4 mcd		2.0 V	
	HLMP-P505	GaP/GaP Green 569 nm		5 mcd		2.1 V	
	HLMP-P605	GaP/GaP Emerald Green 560 nm		1.5 mcd		2.2 V	
	HLMP-P102	DH AlGaAs Deep Red 637 nm	Flat Top, Untinted, Diffused	20 mcd @ 20 mA	125°	1.8 V @ 20 mA	
	HLMP-P202	GaAsP/GaP HER 626 nm		5 mcd		1.8 V	
	HLMP-P402	GaAsP/GaP Orange 602 nm		4 mcd		1.9 V	
	HLMP-P302	GaAsP/GaP Yellow 585 nm		3 mcd		2.0 V	
	HLMP-P502	GaP/GaP Green 569 nm		6 mcd		2.1 V	

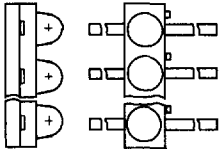
### Subminiature Low Current LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta^{1/2}$	Typical Forward Voltage	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	HLMP-Q150	DH AlGaAs Deep Red 637 nm	Dome, Tinted, Diffused	1.8 mcd @ 1 mA	90°	1.6 V @ 1 mA	1-174
	HLMP-Q155		Dome, Untinted, Nondiffused	4 mcd @ 1 mA	28°		
	HLMP-7000	GaAsP/GaP HER 626 nm	Dome, Tinted, Diffused	1 mcd @ 2 mA	90°	1.8 V @ 10 mA	
	HLMP-7019	GaAsP/GaP Yellow 585 nm		0.6 mcd @ 2 mA		2.0 V @ 10 mA	
	HLMP-7040	GaP/GaP Green 569 nm		0.6 mcd @ 2 mA			

### Subminiature Resistor LED Lamps









Device		Description		Typical Luminous Intensity @ 5.0 V	Viewing Angle $2\theta^{1/2}$	Typical Forward Current @ 5.0 V	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Lens				
	HLMP-6600	GaAsP/GaP	Dome, Tinted, Diffused	5 mcd	90°	10 mA	1-174
	HLMP-6620	HER 626 nm		2 mcd		4 mA	
	HLMP-6700	GaAsP/GaP		5 mcd		10 mA	
	HLMP-6720	Yellow 585 nm		2 mcd		4 mA	
	HLMP-6800	GaP/GaP		5 mcd		10 mA	
	HLMP-6820	Green 569 nm		2 mcd		4 mA	

### Subminiature LED Lamp Arrays

Device		Description			Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Current @ 10 mA	Page No.
Package Outline Drawing	Part No.	*	Color, λ <sub>d</sub>	Lens				
	HLMP-6203	3	GaAsP Red 640 nm	Dome, Tinted, Diffused	1.2 mcd	90°	1.6 V	1-174
	HLMP-6204	4						
	HLMP-6205	5						
	HLMP-6206	6						
	HLMP-6208	8						
	HLMP-6653	3	GaAsP/GaP HER 626 nm		3 mcd	1.8 V		
	HLMP-6654	4						
	HLMP-6655	5						
	HLMP-6656	6						
	HLMP-6658	8						
	HLMP-6753	3	GaAsP/GaP Yellow 585 nm		3 mcd	2.0 V		
	HLMP-6754	4						
	HLMP-6755	5						
	HLMP-6756	6						
	HLMP-6758	8						
	HLMP-6853	3	GaP/GaP Green 569 nm		3 mcd	2.0 V		
	HLMP-6854	4						
	HLMP-6855	5						
HLMP-6856	6							
HLMP-6858	8							


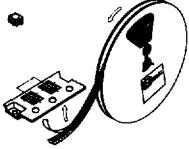
\*Number of LED Emitters per Array

### Standard SMT and Through Hole Lead Bend Options for Subminiature LED Lamps

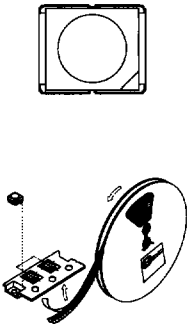
Device		Page No.
Package Outline Drawing	Option Code	
	011	1-188
	012	
	013	
	021	
	022	
	031	
	032	
	1L1	
	1S1	
	2L1	
	2S1	



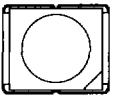
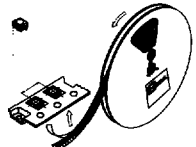
### Surface Mount High Performance AlInGaP LED Indicators

Device		Description			Typical Luminous Intensity @ 10 mA	Viewing Angle 2 $\theta$ <sup>1/2</sup>	Typical Forward Voltage @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Package	Lens				
 	<i>New!</i> HSMA-T425	Amber 590 nm	12 mm Tape, 7" reel, 2000 devices	Flat Circle, Untinted, Nondiffused	25 mcd	120°	1.9 V	1-199
	<i>New!</i> HSMA-T525		12 mm Tape, 13" reel, 8000 devices					
	<i>New!</i> HSMA-T625		8 mm Tape, 7" reel, 2000 devices					
	<i>New!</i> HSMA-T725		8 mm Tape, 13" reel, 8000 devices					
	<i>New!</i> HSMD-T425		Orange 603 nm					
	<i>New!</i> HSMD-T525	12 mm Tape, 13" reel, 8000 devices						
	<i>New!</i> HSMD-T625	8 mm Tape, 7" reel, 2000 devices						
	<i>New!</i> HSMD-T725	8 mm Tape, 13" reel, 8000 devices						
	<i>New!</i> HSMJ-T425	Red- Orange 615 nm	12 mm Tape, 7" reel, 2000 devices					
	<i>New!</i> HSMJ-T525		12 mm Tape, 13" reel, 8000 devices					
	<i>New!</i> HSMJ-T625		8 mm Tape, 7" reel, 2000 devices					
	<i>New!</i> HSMJ-T725		8 mm Tape, 13" reel, 8000 devices					

**Surface Mount LED Indicators**

Device		Description			Typical Luminous Intensity @ 10 mA	Viewing Angle 2 $\theta$ 1/2	Typical Forward Voltage @ 10 mA	Page No.
Package Outline Drawing	Part No.	Color, $\lambda_d$	Package	Lens				
	HSMH-T400	DH AlGaAs Deep Red 637 nm	12 mm Tape, 7" reel, 2000 devices	Flat Circle, Untinted, Nondiffused	17 mcd	120°	1.8 V	1-204
	HSMH-T500		12 mm Tape, 13" reel, 8000 devices					
	HSMH-T600		8 mm Tape, 7" reel, 2000 devices					
	HSMH-T700		8 mm Tape, 13" reel, 8000 devices					
	HSMS-T400	GaAsP/GaP HER 626 nm	12 mm Tape, 7" reel, 2000 devices		6 mcd	1.9 V		
	HSMS-T500		12 mm Tape, 13" reel, 8000 devices					
	HSMS-T600		8 mm Tape, 7" reel, 2000 devices					
	HSMS-T700		8 mm Tape, 13" reel, 8000 devices					
	HSMD-T400	GaAsP/GaP Orange 602 nm	12 mm Tape, 7" reel, 2000 devices	5 mcd	1.9 V			
	HSMD-T500		12 mm Tape, 13" reel, 8000 devices					
	HSMD-T600		8 mm Tape, 7" reel, 2000 devices					
	HSMD-T700		8 mm Tape, 13" reel, 8000 devices					

Surface Mount LED Indicators (contd.)

Device		Description			Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 10 mA	Page No.	
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Package	Lens					
 	HSMY-T400	GaAsP/GaP Yellow 585 nm	12 mm Tape, 7" reel, 2000 devices	Flat Circle, Untinted, Nondiffused	5 mcd	120°	2.0 V	1-204	
	HSMY-T500		12 mm Tape, 13" reel, 8000 devices						
	HSMY-T600		8 mm Tape, 7" reel, 2000 devices						
	HSMY-T700		8 mm Tape, 13" reel, 8000 devices						
	HSMG-T400	GaP/GaP Green 572 nm	12 mm Tape, 7" reel, 2000 devices		10 mcd	2.0 V			
	HSMG-T500		12 mm Tape, 13" reel, 8000 devices						
	HSMG-T600		8 mm Tape, 7" reel, 2000 devices						
	HSMG-T700		8 mm Tape, 13" reel, 8000 devices						
	<i>New!</i>	HSM E-T400	GaP/GaP Emerald Green 560 nm	12 mm Tape, 7" reel, 2000 devices		1.5 mcd			2.2 V
	<i>New!</i>	HSM E-T500		12 mm Tape, 13" reel, 8000 devices					
	<i>New!</i>	HSM E-T600		8 mm Tape, 7" reel, 2000 devices					
	<i>New!</i>	HSM E-T700		8 mm Tape, 13" reel, 8000 devices					



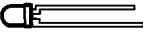
### Surface Mount Chip LEDs

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ <sup>1/2</sup>	Typical Forward Voltage @ 20 mA	Page No.
Package Outline Drawing	Part No.	Color, λ <sub>d</sub>	Package Size	Lens				
<p>-C670 (805)</p> <p>-C650 (1206)</p> <p>-C655 (1210)</p>	HSMH-C650	DH AlGaAs Deep Red	1206	Cube, Diffused	16 mcd	155°	1.8 V	1-212
	HSMH-C670	637 nm	805		5 mcd			
	HSMS-C650	GaAsP/GaP HER	1206		5 mcd	1.9 V		
	HSMS-C670	626 nm	805		4 mcd	2.1 V		
	HSMC-C650	GaAsP/GaP Orange	1206		5 mcd	2.1 V		
	HSMC-C670	604 nm	805		9 mcd	2.2 V		
	HSMY-C650	GaAsP/GaP Yellow	1206		5 mcd	1.9 V		
	HSMY-C670	584 nm	805		9 mcd	2.2 V		
	HSMG-C650	GaP/GaP Green	1206		5 mcd	1.9 V		
	HSMG-C670	571 nm	805		9 mcd	2.2 V		
	HSMF-C655	Bicolor HER 626 nm Green 571 nm	1210	5 mcd 9 mcd	1.9 V 2.2 V			

### T-1<sup>3/4</sup> (5 mm), T-1 (3 mm), and Subminiature LED Lamp Mounting Options

Device		Description	Page No.
Package Outline Drawing	Option No.		
	007	T-1 <sup>3/4</sup> Standard Dome, with HLMP-0104 Clip and Ring.	1-122
	010	T-1 <sup>3/4</sup> Standard Dome, Right Angle, Leads Sheared Even.	1-118
	100	T-1 <sup>3/4</sup> Standard Dome, Right Angle, Leads Unsheared, Uneven. Anode Longer.	
	101	T-1, Right Angle, Leads Sheared Even.	1-145
	010	T1, Right Angle, Leads Unsheared, Uneven, Anode Longer.	
	010	Subminiature Right Angle, Leads Sheared Even.	1-197

### Emitter Components\*

Device		Description		Features	Page No.
Package Outline Drawing	Part No.	Package			
	HEMT-6000	Subminiature 700 nm Deep Red High Intensity Emitter		<ul style="list-style-type: none"> <li>• Visible (Near IR) emission facilitates alignment.</li> <li>• Compatible with most silicon phototransistors and photodiodes.</li> </ul>	
	HEMT-3301	T-1 <sup>3/4</sup> (5 mm) 940 nm IR High Radiant Emitter		<ul style="list-style-type: none"> <li>• Efficiency at low currents.</li> <li>• Radiated spectrum matches response of silicon photodetectors.</li> </ul>	
	HEMT-1001	T-1 (3 mm) 940 nm IR High Radiant Emitter		<ul style="list-style-type: none"> <li>• Non-saturated, high radiant flux output.</li> </ul>	

\*Contact your local Hewlett-Packard components sales representative for information regarding these products.

### Standard Intensity and Color Binning Options for LED Lamps

Device	Description	Page No.
Option Code		
S02	This option provides the selection of lamps from two adjacent luminous intensity, $I_v$ , categories.	1-219
S20	Devices selected to two color bin, $\lambda_d$ , categories.	
S22	Devices selected to two luminous intensity, $I_v$ , categories and two color bin, $\lambda_d$ , categories.	