



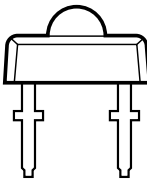
SnapLED 70 LEDs

Device		Description	Minimum Total Luminous Flux Φ_v (lm) @ 70 mA, 25°C	Typical Total Included Angle $\theta_{0.90v}$ °	Typical Forward Voltage @ 70 mA, 25°C	
Package Outline Drawing	Part No.	Color, λ_d				
	HPWT-FH00-F4000	TS-AlInGaP Red-Orange	3.0	70°	2.5 V	
	HPWT-FH00-G4000		3.5			
	HPWT-FH00-H4000		4.0			
	HPWT-FH00-J4000		5.0			
	HPWT-TH00-F4000		3.0			120°
	HPWT-TH00-G4000		3.5			
	HPWT-TH00-H4000		4.0			
	HPWT-TH00-J4000		5.0			
	HPWT-FL00-C4000	TS-AlInGaP Amber	1.5	70°	2.6 V	
	HPWT-FL00-D4000		2.0			
	HPWT-TL00-C4000		1.5			120°
	HPWT-TL00-D4000		2.0			
	HPWT-FL00-C4200	TS-AlInGaP ECE Amber	1.5	70°		
	HPWT-FL00-D4200		2.0			
	HPWT-TL00-C4200		1.5			120°
	HPWT-TL00-D4200		2.0			

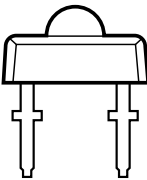
SnapLED 150 LEDs

Device		Description	Minimum Total Luminous Flux Φ_v (lm) @ 70 mA, 25°C	Typical Total Included Angle $\theta_{0.90v}$ °	Typical Forward Voltage @ 150 mA, 25°C	
Package Outline Drawing	Part No.	Color, λ_d				
	HPWS-FH00-L4000	TS-AlInGaP Red-Orange	6.0	70°	2.55 V	
	HPWS-FH00-M4000		8.0			
	HPWS-FH00-N4000		10.0			
	HPWS-TH00-L4000		6.0			120°
	HPWS-TH00-M4000		8.0			
	HPWS-TH00-N4000		10.0			
	HPWS-FL00-F4000	TS-AlInGaP Amber	3.0	70°	2.65 V	
	HPWS-TL00-F4000		3.0			120°
	HPWS-FL00-F4200	TS-AlInGaP ECE Amber	3.0	70°		
	HPWS-TL00-F4200		3.0			120°


Super Flux LEDs

Device		Description	Minimum Total Luminous Flux Φ_v (lm) @ 70 mA, 25°C	Typical Total Included Angle $\theta_{0.90v}$ °	Typical Forward Voltage @ 70 mA, 25°C
Package Outline Drawing	Part No.	Color, λ_d			
	HPWA-DH00-00000	AS-AlInGaP Red-Orange	0.6	75°	2.1 V
	HPWA-DH00-B4000		1.0		
	HPWA-DH00-C4000		1.5		
	HPWA-MH00-00000		0.6	95°	
	HPWA-MH00-B4000		1.0		
	HPWA-MH00-C4000		1.5		
	HPWT-BH00-00000	TS-AlInGaP Red-Orange	1.0	50°	2.5 V
	HPWT-BH00-E4000		2.5		
	HPWT-BH00-F4000		3.0		
	HPWT-BH00-G0000		3.5		
	HPWT-BH00-H4000		4.0		
	HPWT-BH00-J4000		5.0		
	HPWT-DH00-00000		1.0	70°	
	HPWT-DH00-E4000		2.5		
	HPWT-DH00-F4000		3.0		
	HPWT-DH00-G0000		3.5		
	HPWT-DH00-H4000		4.0		
	HPWT-DH00-J4000		5.0		
	HPWT-MH00-00000		1.0	100°	
	HPWT-MH00-E4000		2.5		
	HPWT-MH00-F4000		3.0		
	HPWT-MH00-G0000		3.5		
	HPWT-MH00-H4000		4.0		
	HPWT-MH00-J4000		5.0		
	HPWT-RH00-00000	1.0	44°X88°		
	HPWT-RH00-E4000	2.5			
	HPWT-RH00-F4000	3.0			
	HPWT-RH00-G0000	3.5			
	HPWT-RH00-H4000	4.0			
	HPWT-RH00-J4000	5.0			
	HPWT-BL00-00000	TS-AlInGaP Amber	1.0	50°	2.6 V
	HPWT-BL00-C4000		1.5		
HPWT-BL00-D4000	2.0				
HPWT-DL00-00000	1.0		70°		
HPWT-DL00-C4000	1.5				
HPWT-DL00-D4000	2.0				

Super Flux LEDs (Cont.)

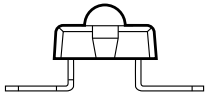
Device		Description	Minimum Total Luminous Flux Φ_v (lm) @ 70 mA, 25°C	Typical Total Included Angle $\theta_{0.90v}$ °	Typical Forward Voltage @ 70 mA, 25°C
Package Outline Drawing	Part No.	Color, λ_d			
	HPWT-ML00-00000	TS-AlInGaP Amber	1.0	100°	2.6 V
	HPWT-ML00-C4000		1.5		
	HPWT-ML00-D4000		2.0		
	HPWT-RL00-00000		1.0	44°X88°	
	HPWT-RL00-C4000		1.5		
	HPWT-RL00-D4000		2.0		
	HPWT-BL00-C4200	TS-AlInGaP ECE Amber	1.5	50°	2.6 V
	HPWT-BL00-D4200		2.0	70°	
	HPWT-DL00-C4200		1.5		
	HPWT-DL00-D4200		2.0		
	HPWT-ML00-C4200		1.5	100°	
	HPWT-ML00-D4200		2.0	44°X88°	
	HPWT-RL00-C4200		1.5		
	HPWT-RL00-D4200		2.0		
	HPWA-ML00-00000	AS AlInGaP Amber	750 mlm	90°	2.2 V
	HPWA-DL00-00000			60°	
	HPWT-RD00-00000	TS AlInGaP Red	3000 mlm	25°X68°	2.5 V
	HPWT-MD00-00000			70°	
HPWT-DD00-00000	40°				
HPWT-BD00-00000	30°				

Surface Mount High-Flux LEDs

Device		Description		Typical Luminous Intensity I_v (mcd) @ 20 mA	Viewing Angle $2\theta_{1/2}$ ° ¹⁾	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HSMB-HR00-R1T20	Red 630 nm	Flat, Clear	160	120°	3.00 V
	HSMB-HA00-R1T2H	Amber 590 nm	Flat, Clear	200		3.20 V

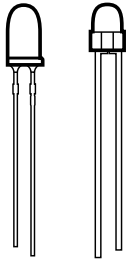
1. $\theta_{1/2}$ is the off-axis at which the luminous intensity is half the axial intensity.

SnapLED LEDs

Device		Description	Minimum Total Luminous Flux Φ_v (lm) @ 70 mA, 25°C	Typical Total Included Angle $\theta_{0.90v}$ °	Typical Forward Voltage @ 70 mA, 25°C
Package Outline Drawing	Part No.	Color, λ_d			
	HPWT-SH00-00000*	TS-AlInGaP Red-Orange	3.0	100°	2.5 V
	HPWT-PH00-00000*		3.0	70°	
	HPWT-SL00-00000*	TS AlInGaP Amber	1.5	100°	
	HPWT-PL00-00000*		1.5	70°	

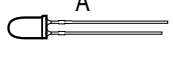
*Not recommended for new designs, obsolescence pending FY2000.

High Intensity AlInGaP LED Lamps

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}$ °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens	Package			
	HLMP-WL12*	Amber	Clear	T-1 ^{3/4}	450	15°	2.02 V
	HLMP-WL27*				205	30°	
	HLMP-WL02				35	65°	
	HLMP-WH12*	Red-Orange	Clear	T-1 ^{3/4}	270	15°	1.94
	HLMP-WH27*				155	30°	
	HLMP-WH02				35	65°	
	HLMP-WG12*	Red	Clear	T-1 ^{3/4}	270	15°	1.90
	HLMP-WG27*				155	30°	
	HLMP-WG02				26	65°	
	HLMP-NL06	Amber	Clear	T-1	96.2	60°	2.02 V
HLMP-NH04	Red-Orange	90.2			1.94 V		
HLMP-NG07	Red	90.2			1.90 V		


*Not recommended for new designs. Parts pending obsolescence 12/31/99

T-1^{3/4} (5 mm) Precision Optical Performance White LED Lamps

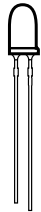
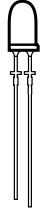
Device		Description			Typical Luminous Intensity @ 20 mA (mcd)	Viewing Angle $2\theta_{1/2}$	Typical Forward Voltage @ 70 mA	
Package Outline Drawing	Part No.	Color, λ_d	Lens	*				
	A	White	Untinted, Non-diffused	A	2000	15°	3.5 V	
	B							B
	B				A	800		30°
					B			

*Denotes package configuration.

Radiometrically Tested AlInGaP II LED Lamps

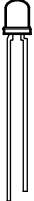
Device		Description		Typical Luminous Intensity @ 20 mA (mcd)	Viewing Angle $2\theta_{1/2}$	Typical Forward Voltage @ 70 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-ED80	White	Untinted Non-diffused	155 mcd	30°	2.0 V

T-1^{3/4} (5 mm) Precision Optical Performance InGaN LED Lamps

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}$	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens	*			
	HLMP-CB15	Blue 472 nm	Untinted, Non-diffused	A	1575 mcd	15°	3.5 V @ 20 mA
	HLMP-CB16			B			
	HLMP-CB30			A	560 mcd	30°	
	HLMP-CB31			B			
	HLMP-CM15	Green 526 nm		A	4700 mcd	15°	
	HLMP-CM16			B			
	HLMP-CM30			A	1750 mcd	30°	
	HLMP-CM31			B			
	HLMP-CE23	Bluish-Green 505 nm		A	1500 mcd	23°	3.5 V @ 70 mA
	HLMP-CE23-R0000				2100 mcd		
	HLMP-CE23-S0000				2300 mcd		
	HLMP-CE24			B	1500 mcd	30°	
	HLMP-CE24-R0000				2100 mcd		
	HLMP-CE24-S0000				2300 mcd		
	HLMP-CE30			A	1150 mcd	30°	
	HLMP-CE30-P0000				1900 mcd		
	HLMP-CE30-Q0000				2100 mcd		
	HLMP-CE31			B	1150 mcd	30°	
	HLMP-CE31-P0000				1900 mcd		
	HLMP-CE31-Q0000				2100 mcd		


*Denotes package configuration.

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

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-J100*	Deep Red 644 nm	Tinted Diffused Standard Current	175 mcd @ 20 mA	55°	1.9 V
	HLMP-J105*		Untinted Non-diffused Standard Current	340 mcd @ 20 mA	45°	
	HLMP-J150*	Tinted Diffused Low Current	3.0 mcd @ 5 mA	55°	1.6 V	
	HLMP-J155*	Untinted Non-diffused Low Current	6.0 mcd @ 5 mA	45°		


*Not recommended for new designs. Parts obsolescence pending 4Q00.

T-1^{3/4} (5 mm) High Performance, TS AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-C100*	TS AlGaAs Red	Untinted Non-diffused	750 mcd	30°	1.85 V
	HLMP-C110*			400 mcd	40°	

*Not recommended for new designs. Parts obsolescence pending 4Q00.


T-1³/₄ Super Ultra-bright LED Lamps

Device		Description		Typical Luminous Intensity I _v @ 20 mA ^[1] (mcd)	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-C115	DH AS AlGaAs Red	Tinted Non-Diffused	600	11°	1.8 V
	HLMP-C123			200	26°	
	HLMP-C215	High Efficiency Red		300	17°	1.9 V
	HLMP-C223			170	23°	
	HLMP-C315	Yellow		300	17°	2.1 V
	HLMP-C323			170	25°	
	HLMP-C415	Orange		300	17°	1.9 V
	HLMP-C423			170	23°	
	HLMP-C515	High Perf. Green		300	20°	2.2 V
	HLMP-C523			170	28°	
	HLMP-C615	Emerald Green		45	20°	2.2 V
	HLMP-C623			27	28°	
	HLMP-C116*	TS AlGaAs Red		2000	14°	1.9 V
	HLMP-C124*			1000	20°	

1. The luminous intensity, I_v, is measured at the mechanical axis of the lamp package.
The actual peak of the spatial radiation pattern may not be aligned with this axis.

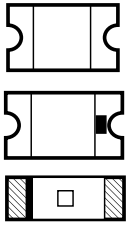

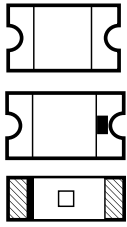
*Not recommended for new designs. Parts pending obsolescence 6/30/2000

T-1³/₄ (5 mm) Wide Viewing Angle High Intensity LED Lamps

Device		Description		Typical Luminous Intensity @ 40 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 70 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMA-VL00*	Amber 590 nm	Untinted Non-diffused	460	60°	1.90 V
	HLMA-VH00*	Red-Orange 615 nm				
	HLMP-V100*	Red 644 nm		1000	30°	1.85 V
	HLMP-V500*	Green 570 nm		270	vertical	2.20 V

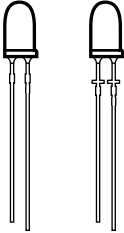
*Not recommended for new designs. Parts pending obsolescence 6/30/2000

Surface Mount High Performance Flip Chip LEDs


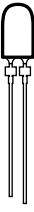
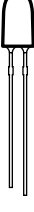

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA			
Package Outline Drawing	Part No.	Color, λ_d	Lens						
<p>A</p> 	HSMA-H690*	Amber 590 nm 7" Reel	Untinted Diffused	3.5	165°	2.0 V			
	HSMA-H670*		Untinted Non-diffused						
	HSMA-R661*								
	HSMA-H790*	Amber 590 nm 13" Reel	Untinted Diffused						
	HSMA-H770*		Untinted Non-diffused						
	HSMA-R761*								
	<p>B</p> 	HSML-H690*	Orange 605 nm 7" Reel			Untinted Diffused	3.5	165°	2.0 V
		HSML-H670*				Untinted Non-diffused			
		HSML-R661*							
HSML-H790*		Orange 605 nm 13" Reel	Untinted Diffused						
HSML-H770*			Untinted Non-diffused						
HSML-R761*									
<p>C</p> 	HSMC-H690*	Red 626 nm 7" Reel	Untinted Diffused	3.5	165°	1.9 V			
	HSMC-H670*		Untinted Non-diffused						
	HSMC-R661*								
	HSMC-H790*	Red 626 nm 3" Reel	Untinted Diffused						
	HSMC-H770*		Untinted Diffused						
	HSMC-R761*								

*Not recommended for new designs. Parts pending obsolescence Q200

T-1³/₄ Precision Optical Performance AlInGaP II LED Lamps

Device		Description		Minimum Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA			
Package Outline Drawing	Part No.	Color, λd	Lens						
	HLMP-EL16-TU000	Amber 592 nm	Untinted, Non-diffused	2170	23°	2.15 V			
	HLMP-EL16-TUK00								
	HLMP-EL16-TV000								
	HLMP-EL16-TV400								
	HLMP-EL16-TVK00								
	HLMP-EL16-TW000								
	HLMP-EL16-TWK00								
	HLMP-EL16-UX000								
	HLMP-EH16-TW000						Red-Orange 615 nm	2170	2750
	HLMP-EH16-UX000								
	HLMP-ED16-TW000	Red 630 nm	2170	2750	2.00 V				
	HLMP-EL25-QR000	Amber 592 nm	1000		2.15 V				
	HLMP-EL25-QRK00								
	HLMP-EL25-QS000								
	HLMP-EL25-QS400								
	HLMP-EL25-QSK00								
	HLMP-EL25-QT000								
	HLMP-EL25-QTK00								
	HLMP-EL25-RU000					Red-Orange 615 nm	1000	1300	2.08 V
	HLMP-EL25-RUK00								
	HLMP-EL25-SV000								
	HLMP-EH25-QT000	Red 630 nm	1000	1650	2.00 V				
	HLMP-EH25-RU000								
	HLMP-EH25-SV000								
	HLMP-ED25-QT000	Amber 592 nm	1000		2.15 V				
	HLMP-ED25-RU000								
	HLMP-EL31-QR000					Red-Orange 615 nm	765	1000	2.08 V
	HLMP-EL31-QRK00								
	HLMP-EL31-QS000	Red 626 nm	765		2.00 V				
	HLMP-EL31-QS400								
	HLMP-EL31-QSK00								
	HLMP-EL31-QT000								
	HLMP-EL31-QTK00								
	HLMP-EH31-PS000								
	HLMP-EH31-QT000								
	HLMP-ED31-PQ000								
HLMP-ED31-PR000									
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HLMP-ED31-QT000									

T-1³/₄ (5 mm) Oval Precision Optical Performance LED Lamps

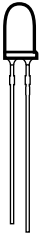
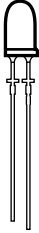
Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA		
Package Outline Drawing	Part No.	Color, λd	Lens	Package					
	HLMP-AL03*	Amber, 590 nm AlInGaP	Smoke Diffused	A	200 mcd	70° Major 35° Minor	2.02 V		
	HLMP-AL13*			B					
	HLMP-BL03*			C					
	HLMP-BL13*			D					
	HLMP-AL01		Amber Diffused	A				300 mcd	
	HLMP-AL11			B					
	HLMP-BL01			C					
	HLMP-BL11			D					
		HLMP-AL00*	Red, 626 nm AlInGaP	Clear Non-diffused	A	400 mcd		1.90 V	
		HLMP-AL10*			B				
		HLMP-BL00*			C				
		HLMP-BL10*			D				
		HLMP-AG00*		Red Diffused	A				400 mcd
		HLMP-AG10*			B				
		HLMP-BG00*			C				
		HLMP-BG10*			D				
	HLMP-AG01	Amber, 592 nm AlInGaP 2	Smoke Diffused	A	300 mcd	2.15 V			
	HLMP-AG11			B					
	HLMP-BG01			C					
	HLMP-BG11			D					
	HLMP-AL08*		Amber Diffused	A			700 mcd		
	HLMP-AL18*			B					
	HLMP-BL08*			C					
	HLMP-BL18*			D					
	HLMP-AL06		Amber Diffused	A	700 mcd				
	HLMP-AL16			B					
	HLMP-BL06			C					
	HLMP-BL16			D					
	HLMP-AL05*		Clear Non-diffused	A					
	HLMP-AL15*			B					
	HLMP-BL05*			C					
	HLMP-BL15*			D					

T-1^{3/4} (5 mm) Oval Precision Optical Performance LED Lamps (Cont.)

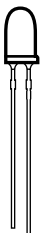

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens	Package			
	HLMP-AD05*	Red, 630 nm AlInGaP 2	Clear Non-diffused	A	600 mcd	70° Major 35° Minor	2.00 V
	HLMP-AD15*			B			
	HLMP-BD05*			C			
	HLMP-BD15*			D			
	HLMP-AD06		Red Diffused	A			
	HLMP-AD16			B			
	HLMP-BD06			C			
	HLMP-BD16			D			
	HLMP-AM01	Green, 526 nm InGaN	Green Diffused	A	1300 mcd	3.5 V	
	HLMP-AM11			B			
	HLMP-BM01			C			
	HLMP-BM11			D			
	HLMP-AB01	Blue, 472 nm InGaN	Blue Diffused	A	400 mcd	3.5 V	
	HLMP-AB11			B			
	HLMP-BB01			C			
	HLMP-BB11			D			

*Not recommended for new designs. Obsolescence pending 6/30/2000

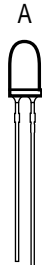

T-1³/₄ (5 mm) Precision Optical Performance AlInGaP LED Lamps

Device		Description			Minimum Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens	Package			
 	HLMP-EL08-SV000	Amber, 590 nm	Untinted Non-diffused	A	1650 mcd	6°	2.02 V
	HLMP-EL10-SV000			B			
	HLMP-EL08-TW000			A	2170 mcd		
	HLMP-EL10-TW000			B			
	HLMP-EL08-UW000			A	2750 mcd		
	HLMP-EL08-UWK00			A			
	HLMP-EL08-UX000			A			
	HLMP-EL10-UX000			B			
	HLMP-EL08-UXK00			A			
	HLMP-EL08-VW000			A	3600 mcd		
	HLMP-EL08-VWK00			A			
	HLMP-EL08-VX000			A			
	HLMP-EL08-VX400			A			
	HLMP-EL08-VXK00			A			
	HLMP-EL08-VY000	A					
	HLMP-EL10-VY000	B					
	HLMP-EL08-VYK00	A					
	HLMP-EJ08-TW000	A	Orange, 605 nm		A	2170 mcd	1.98 V
	HLMP-EJ10-TW000	B					
	HLMP-EJ08-UX000	A			2750 mcd		
	HLMP-EJ10-UX000	B					
	HLMP-EJ08-VY000	A			3600 mcd		
	HLMP-EJ10-VY000	B					
	HLMP-EJ08-WZ000	A	4700 mcd				
	HLMP-EJ10-WZ000	B					
	HLMP-EH08-SV000	A	Red-Orange, 615 nm		A	1650 mcd	1.94 V
	HLMP-EH10-SV000	B					
	HLMP-EH08-TW000	A			2170 mcd		
HLMP-EH10-TW000	B						

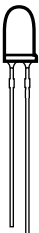

T-1³/₄ (5 mm) Precision Optical Performance AlInGaP LED Lamps (Cont.)

Device		Description			Minimum Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens	Package			
<p>A</p> 	HLMP-EH08-UX000	Red-Orange, 615 nm	Untinted Non-diffused	A	2750 mcd	6°	1.90 V
	HLMP-EH10-UX000			B			
	HLMP-EH08-VY000			A	3600 mcd		
	HLMP-EH10-VY000			B			
	HLMP-EG08-SV000	Red, 626 nm		A	1650 mcd		
	HLMP-EG10-SV000			B			
	HLMP-EG08-TW000			A	2170 mcd		
	HLMP-EG10-TW000			B			
	HLMP-EG08-UW000			A	2750 mcd		
	HLMP-EG08-UX000			A			
	HLMP-EG10-UX000			B			
	HLMP-EG08-VW000			A	3600 mcd		
	HLMP-EG08-VX000	A					
	HLMP-EG08-VY000	A					
HLMP-EG10-VY000	B						
<p>B</p> 	HLMP-EL15-PS000	Amber, 590 nm		A	765 mcd	15°	2.02 V
	HLMP-EL17-PS000			B			
	HLMP-EL15-QR000			A	1000 mcd		
	HLMP-EL15-QRK00			A			
	HLMP-EL15-QS000			A			
	HLMP-EL15-QS400			A			
	HLMP-EL15-QSK00			A			
	HLMP-EL15-QT000			A			
	HLMP-EL17-QT000			B			
	HLMP-EL15-QTK00			A			
	HLMP-EL15-RU000			A	1300 mcd		
	HLMP-EL17-RU000			B			
	HLMP-EL15-SV000			A	1650 mcd		
	HLMP-EL17-SV000			B			



T-1³/₄ (5 mm) Precision Optical Performance AlInGaP LED Lamps (Cont.)

Device		Description			Minimum Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA	
Package Outline Drawing	Part No.	Color, λd	Lens	Package				
 	HLMP-EJ15-PS000	Orange, 605 nm	Untinted Non-diffused	A	765 mcd	15°	1.98 V	
	HLMP-EJ17-PS000			B				
	HLMP-EJ15-QT000			A				
	HLMP-EJ17-QT000			B				
	HLMP-EJ15-RU000			A				3600 mcd
	HLMP-EJ17-RU000			B				
	HLMP-EJ15-SV000			A				
	HLMP-EJ17-SV000			B				
	HLMP-EH15-PS000	Red-Orange, 615 nm		A	765 mcd	1.94 V		
	HLMP-EH17-PS000			B				
	HLMP-EH15-QT000			A	1000 mcd			
	HLMP-EH17-QT000			B				
	HLMP-EH15-RU000			A	1300 mcd			
	HLMP-EH17-RU000			B				
	HLMP-EH15-SV000			A	1650 mcd			
	HLMP-EH17-SV000			B				
	HLMP-EG15-PS000	Red, 626 nm		A	765 mcd	1.90 V		
	HLMP-EG17-PS000			B				
	HLMP-EG15-QT000			A	1000 mcd			
	HLMP-EG17-QT000			B				
	HLMP-EG15-RU000			A	1300 mcd			
	HLMP-EG17-RU000			B				
	HLMP-EG15-SV000			A	1650 mcd			
	HLMP-EG17-SV000			B				
HLMP-EL24-LP000	Amber, 590 nm		A	345 mcd	23°	2.02 V		
HLMP-EL26-LP000			B					
HLMP-EL24-MQ000			A	450 mcd				
HLMP-EL26-MQ000			B					
HLMP-EL24-NQ000			A	590 mcd				
HLMP-EL24-NQK00			A					

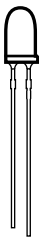

T-1^{3/4} (5 mm) Precision Optical Performance AlInGaP LED Lamps (Cont.)

Device		Description			Minimum Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta_{1/2}$ °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens	Package			
<p>A</p> 	HLMP-EL24-NR000	Amber, 590 nm	Untinted Non-diffused	A	590 mcd	23°	2.02 V
	HLMP-EL26-NR000			B			
	HLMP-EL24-NRK00			A			
	HLMP-EL24-PQ000			A	765 mcd		
	HLMP-EL24-PQK00			A			
	HLMP-EL24-PR000			A			
	HLMP-EL24-PR400			A			
	HLMP-EL24-PRK00			A			
	HLMP-EL24-PS000			A			
	HLMP-EL26-PS000			B			
	HLMP-EL24-PSK00			A			
	HLMP-EJ24-MQ000			A			
HLMP-EJ26-MQ000	B						
<p>B</p> 	HLMP-EJ24-NR000	Orange, 605 nm	Untinted Non-diffused	A	590 mcd	1.98 V	
	HLMP-EJ26-NR000			B			
	HLMP-EJ24-PS000			A	765 mcd		
	HLMP-EJ26-PS000			B			
	HLMP-EJ24-QT000			A	1000 mcd		
	HLMP-EJ26-QT000			B			
	HLMP-EH24-LP000			A	345 mcd		
	HLMP-EH26-LP000			B			
	HLMP-EH24-MQ000			A	450 mcd		
	HLMP-EH26-MQ000			B			
	HLMP-EH24-NR000			A	590 mcd		
	HLMP-EH26-NR000			B			


T-1³/₄ (5 mm) Precision Optical Performance AlInGaP LED Lamps (Cont.)

Device		Description			Minimum Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta_{1/2}$ °	Typical Forward Voltage @ 20 mA	
Package Outline Drawing	Part No.	Color, λ_d	Lens	Package				
<p>A</p> 	HLMP-EH24-PS000	Red-Orange, 615 nm	Untinted Non-diffused	A	765 mcd	23°	1.94 V	
	HLMP-EH26-PS000	Red, 626 nm		B				345 mcd
	HLMP-EG24-LP000	Red, 626 nm		A	450 mcd			
	HLMP-EG26-LP000			B				
	HLMP-EG24-MQ000			A	590 mcd			
	HLMP-EG26-MQ000			B				
	HLMP-EG24-NR000			A	765 mcd			
	HLMP-EG26-NR000			B				
	HLMP-EG24-PS000			A	345 mcd			
	HLMP-EG26-PS000			B				
<p>B</p> 	HLMP-EL30-LP000			Amber, 590 nm	A	450 mcd	30°	2.02 V
	HLMP-EL32-LP000				B			
	HLMP-EL30-MQ000	A			590 mcd			
	HLMP-EL32-MQ000	B						
	HLMP-EL30-NQ000	A			765 mcd			
	HLMP-EL30-NQK00	A						
	HLMP-EL30-NR000	A						
	HLMP-EL32-NR000	B						
	HLMP-EL30-NRK00	A						
	HLMP-EL30-PQ000	A			1000 mcd			
	HLMP-EL30-PQK00	A						
	HLMP-EL30-PR000	A						
	HLMP-EL30-PR400	A						
	HLMP-EL30-PRK00	A						
	HLMP-EL30-PS000	A						
	HLMP-EL32-PS000	B						
	HLMP-EL30-PSK00	A						
	HLMP-EJ30-MQ000	Orange, 605 nm	A					
	HLMP-EJ32-MQ000		B					
	HLMP-EJ30-NR000		A					
HLMP-EJ32-NR000	B							
HLMP-EJ30-PS000	A							
HLMP-EJ32-PS000	B							
HLMP-EJ30-QT000	A							
HLMP-EJ32-QT000	B							


T-1^{3/4} (5 mm) Precision Optical Performance AlInGaP LED Lamps (Cont.)

Device		Description			Minimum Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta_{1/2}^{\circ}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens	Package			
 	HLMP-EH30-KN000	Red-Orange, 615 nm	Untinted Non-diffused	A	270 mcd	30°	1.94 V
	HLMP-EH32-KN000			B			
	HLMP-EH30-LP000			A	345 mcd		
	HLMP-EH32-LP000			B			
	HLMP-EH30-MQ000			A	450 mcd		
	HLMP-EH32-MQ000			B			
	HLMP-EH30-NR000			A	590 mcd		
	HLMP-EH32-NR000			B			
	HLMP-EG30-KN000	Red, 626 nm		A	270 mcd		1.90 V
	HLMP-EG32-KN000			B			
	HLMP-EG30-LN000			A	345 mcd		
	HLMP-EG30-LP000			A			
	HLMP-EG32-LP000			B			
	HLMP-EG30-MN000			A	450 mcd		
	HLMP-EG30-MP000			A			
	HLMP-EG30-MQ000			A			
	HLMP-EG30-NR000	A	590 mcd				

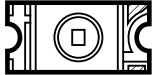
T-1 (3 mm) High Performance AlInGaP LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta_{1/2}^{\circ}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMA-KL00	AlInGaP Amber, 590/592 nm	Untinted Non-diffused	200 mcd	45°	1.9 V
	HLMA-KH00	AlInGaP Red-Orange, 615/617 nm				

T-1^{3/4} (5 mm) High Performance AlInGaP, Tinted Diffused, LED Lamps

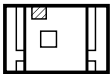
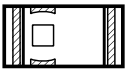
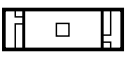
Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta_{1/2}^{\circ}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMA-DL05	Amber, 592 nm	Tinted Diffused	100 mcd	65°	1.90 V
	HLMA-DH05	Red-Orange, 615 nm				
	HLMA-KL05	Amber, 592 nm			60°	
	HLMA-KH05	Reddish-Orange, 615 nm				

Surface Mount Lensed High Performance Chip LEDs

Device		Description		Typical Luminous Intensity I_v (mcd) ^[1] @ 20 mA	Viewing Angle $2\theta_{1/2}$ ^[1]	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HSMA-L640	Amber, 590 nm	Diffused	130	70°	2.02 V
	HSML-L640	Orange, 605 nm				1.98 V
	HSMJ-L640	Red-Orange, 615 nm		100	1.94 V	
	HSMC-L640	Red, 626 nm			1.90 V	

1. The luminous intensity, I_v , is measured at the peak of the spatial radiation pattern.


Surface Mount Chip LED Indicators, High Performance – SunPower Series

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Package	Lens			
	HSMC-S660	Red, 626 nm	Right Angle Low Profile ^[1]	Diffused	50 mcd	155°	1.9 V
	HSMC-S670						
	HSMC-S690		Top Mount ^[2]				
	HSMD-S660	Orange, 605 nm	Top Mount Low Profile ^[1]	65 mcd	155°	165°	
	HSMD-S670						
	HSMD-S690						
	HSMA-S660	Amber, 590 nm			155°	165°	
	HSMA-S670						
	HSMA-S690						

1. Quantity: 3000 per 7-inch reel.

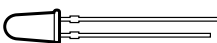
2. Quantity: 4000 per 7-inch.

T-1³/₄ (5 mm) AlInGaP Red LED Lamps

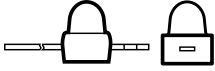

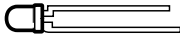
Device		Description		Typical Luminous Intensity I_v (mcd) ^[1] @ 20 mA	Viewing Angle $2\theta_{1/2}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-C025-P0000	AlInGaP Red, 626 nm	Water-Clear	1000 mcd	25°	1.90 V

1. The luminous intensity, I_v , is measured at the mechanical axis of the lamp package.

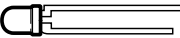
T-1³/₄ (5 mm) Double Heterojunction AlGaAs Very High Intensity Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-4100	Deep Red 637 nm	Untinted Non-diffused	750 mcd	8°	1.8 V
	HLMP-4101			1000 mcd		

T-1^{3/4}, T-1, 700 nm, 670 nm, and 940 nm High Radiant Emitters

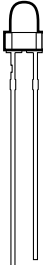
Device		Description Package	Features
Package Outline Drawing	Part No.		
	HEMT-6000	Subminiature 700 nm Deep Red High Intensity Emitter	! Visible (Near IR) emission facilitates alignment ! Compatible with most silicon phototransistors and photodiodes
	HEMT-3300	T-1 ^{3/4} (5 mm) 670 nm IR High Radiant Intensity Emitter	! High Efficiency ! Non-saturating output ! Narrow beam angle ! Visible flux aids alignment ! Bandwidth: DC to 3 MHz ! IC compatible/flow current requirement
	HEMT-3301	T-1 ^{3/4} (5 mm) 940 nm IR High Radiant Emitter	Efficiency at low currents ! Radiated spectrum matches response of silicon photodetectors ! Non-saturated, high radiant flux output
	HEMT-1001		

Low Profile T-1 (3 mm) LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2 $\theta_{1/2}$ ^[1]	Typical Forward Voltage @ 10 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-1350	High Efficiency Red, 626 nm	Tinted, Diffused	5.0	55°	1.90 V
	HLMP-1450	Yellow, 585 nm				2.0 V
	HLMP-1550	Green, 569 nm				2.1 V

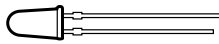
1. $\theta_{1/2}$ is the off-axis at which the luminous intensity is half the axial intensity.

T-1 (3 mm) Auto Insertable LED Lamps

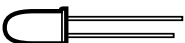
Device		Description		Typical Luminous Intensity I _v mcd	Typical Viewing Angle 2 $\theta_{1/2}$ ^[1]	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-E100	AS AlGaS Red	Tinted Diffused	42 @ 20 mA	60°	1.80 V @ 20 mA
	HLMP-E150			110 @ 20 mA	45°	1.80 V @ 10 mA
	HLMP-E200	Orange		22 @ 10 mA	60°	1.90 V @ 10 mA
	HLMP-E250			28 @ 10 mA	45°	
	HLMP-E300	High Efficiency Red		12 @ 10 mA	60°	
	HLMP-E350			38 @ 10 mA	45°	
	HLMP-E400	Yellow		15 @ 10 mA	60°	2.00 V @ 10 mA
	HLMP-E450			27 @ 10 mA	45°	
	HLMP-E500	High Performance Green		28 @ 10 mA	60°	2.10 V @ 10 mA
	HLMP-E550			48 @ 10 mA	45°	

1. 2 $\theta_{1/2}$ is the off axis angle where the luminous intensity is 1/2 the on axis intensity.

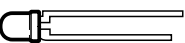
T-1^{3/4} (5 mm) Double Heterojunction AlGaAs Very High Intensity Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-4100	Deep Red, 637 nm	Untinted Non-diffused	750 mcd	8°	1.8 V


T-1^{3/4} (5 mm) High Intensity, Double Heterojunction AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-D101	AlGaAs Red 637 nm	Red Tinted Diffused	70 mcd	65°	1.80 V
	HLMA-D105		Red Untinted Non-diffused	240 mcd	24°	


T-1 (3 mm) High Intensity, Double Heterojunction AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-K101	AlGaAs Red 637 nm	Red Tinted Diffused	45 mcd	60°	1.80 V
	HLMA-K105		Red Untinted Non-diffused	65 mcd	45°	

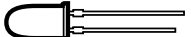
T-1^{3/4} (5 mm) Low Current, Double Heterojunction AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-D150	AlGaAs Red 637 nm	Red Tinted Diffused	3 mcd	65°	1.60 V
	HLMA-D155		Red Untinted Non-diffused	10 mcd	24°	


T-1 (3 mm) High Intensity, Double Heterojunction AlGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-K150	AlGaAs Red 637 nm	Red Tinted Diffused	2 mcd	60°	1.60 V
	HLMA-K155		Red Untinted Non-diffused	3 mcd	45°	

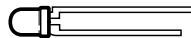
T-1^{3/4} (5 mm) Ultra-Bright LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-3750	HER	Clear Non-diffused	125 mcd	24°	1.9 V
	HLMP-3850	Yellow		140 mcd		2.1 V
	HLMP-3950	Green		265 mcd		2.2 V
	HLMP-D640	Emerald Green		21 mcd		2.2 V

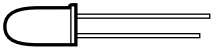
T-1^{3/4} (5 mm) Low Profile, Ultra-Bright LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-3390	HER	Clear Non-diffused	55 mcd	32°	1.9 V
	HLMP-3490	Yellow				2.1 V
	HLMP-3590	Green				2.2 V

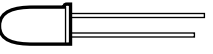
T-1 (3 mm) Ultra-Bright LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-1340	HER	Clear Non-diffused	45 mcd	45°	2.6 V
	HLMP-1440	Yellow				
	HLMP-1540	Green				
	HLMP-K640	Emerald Green		21 mcd		2.2 V

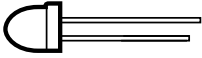
T-1³/₄ (5 mm) High Intensity LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2 $\theta_{1/2}$ °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-3315	HER 626 nm GaAsP on GaP	Tinted Non-diffused	40 mcd	35°	1.9 V
	HLMP-3316			60 mcd		
	HLMP-3415	Yellow 585 nm GaAsP on GaP		40 mcd		2.0 V
	HLMP-3416			50 mcd		
	HLMP-3517	Green 569 nm GaP		70 mcd	24°	2.1 V
	HLMP-3519					

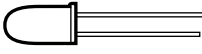
T-1³/₄ (5 mm) Diffused (Wide Angle) LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2 $\theta_{1/2}$ °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-3301-D0000	HER 626 nm GaAsP on GaP	Tinted Diffused	3.5 mcd	60°	1.9 V
	HLMP-3301			7.0 mcd		
	HLMP-3301-G0000			12.0 mcd		2.0 V
	HLMP-D401-D0000	Orange GaAsP on GaP		3.5 mcd		
	HLMP-D401			7.0 mcd		
	HLMP-3401	Yellow GaAsP on GaP		8.0 mcd	2.2 V	
	HLMP-3862			12.0 mcd		
	HLMP-3507	Green GaP 565 nm		5.2 mcd	2.1 V	
	HLMP-3507-F0000			14.0 mcd		
	HLMP-D600	Emerald Green GaP 558 nm		3.0 mcd		


T-1^{3/4} (5 mm) Diffused Low Profile LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 10 mA
Package Outline Drawing	Part No.	Color, λ d	Lens			
	HLMP-3351-D000	HER 626 nm GaAsP on GaP	Tinted Diffused Wide Angle	4.0 mcd	50°	260 V
	HLMP-3351			5.4 mcd		
	HLMP-3365	Orange GaAsP on GaP	Tinted Non-diffused Narrow Angle	8.6 mcd	45°	
	HLMP-3366			13.8 mcd		
	HLMP-3451-D0000	Yellow GaAsP on GaP	Tinted Diffused Wide Angle	4.0 mcd	50°	2.0 V
	HLMP-3451			5.7 mcd		
	HLMP-3465	Green GaP 565 nm	Tinted Non-Diffused Narrow Angle	18 mcd	45°	
	HLMP-3466					
	HLMP-3554	Emerald Green GaP 558 nm	Tinted Non-diffused Narrow Angle	10 mcd	50°	2.1 V
HLMP-3568	15 mcd			40°		

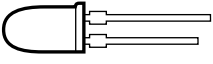
T-1^{3/4} (5 mm) Low Current LED Lamps

Device		Description		Typical Luminous Intensity @ 2 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 2 mA
Package Outline Drawing	Part No.	Color, λ d	Lens			
	HLMP-4700	Red	Tinted Diffused	2.3 mcd	50°	1.8 V
	HLMP-4719	Yellow		2.1 mcd		
	HLMP-4740	Green		2.3 mcd		

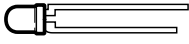
T-1 (3 mm) Low Current LED Lamps

Device		Description		Typical Luminous Intensity @ 2 mA	Viewing Angle 2θ _{1/2} °	Typical Forward Voltage @ 2 mA
Package Outline Drawing	Part No.	Color, λ d	Lens			
	HLMP-1700	Red	Tinted Diffused	2.1 mcd	50°	1.8 V
	HLMP-1719	Yellow		1.6 mcd		
	HLMP-1790	Green		2.1 mcd		

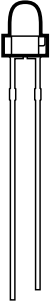
T-1^{3/4} (5 mm) 5 Volt, 12 Volt, Integrated Resistor LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^{\circ}$	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-3600	HER GaAsP on GaP	Tinted Diffused	8.0 mcd @ 5 V	60°	10 mA @ 5 V
	HLMP-3601			8 mcd @ 12 V		13 mA @ 12 V
	HLMP-3650	Yellow GaAsP on GaP		8 mcd @ 5 V		10 mA @ 5 V
	HLMP-3651			8 mcd @ 12 V		13 mA @ 12 V
	HLMP-3680	High Performance Green GaP on GaP		8 mcd @ 5 V		12 mA @ 5 V
	HLMP-3681			8 mcd @ 12 V		13 mA @ 12 V

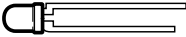
T-1 (3 mm) 5 Volt, 12 Volt, Integrated Resistor LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^{\circ}$	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-1600	HER GaAsP on GaP	Tinted Diffused	8.0 mcd @ 5 V	60°	10 mA @ 5 V
	HLMP-1601			8 mcd @ 12 V		13 mA @ 12 V
	HLMP-1620	Yellow GaAsP on GaP		8 mcd @ 5 V		10 mA @ 5 V
	HLMP-1621			8 mcd @ 12 V		13 mA @ 12 V
	HLMP-1640	High Performance Green GaP on GaP		8 mcd @ 5 V		10 mA @ 1.9 V
	HLMP-1641			8 mcd @ 12 V		10 mA @ 2.1 V


T-1 (3 mm) Auto Insertable LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-NG05	AllnGaP Red, 626 nm	Tinted Non-diffused	250 @ 20 mA	45°	1.90 V
	HLMP-NH01	AllnGaP Red-Orange, 615 nm	Clear Non-diffused			
	HLMP-NJ01	AllnGaP Orange, 605 nm	Clear Non-diffused	265 @ 20 mA		1.98 V
	HLMP-NL05	AllnGaP Amber, 590 nm	Tinted Non-diffused	260 @ 20 mA	2.02 V	
	HLMP-N100	DH AS AlGaAs Red, 637 nm	Tinted Diffused	42 @ 20 mA	60°	1.80 V
	HLMP-N105		Tinted Non-diffused	110 @ 20 mA	45°	
	HLMP-N200	High Efficiency Red, 626 nm	Tinted Diffused	12 @ 10 mA	60°	1.90 V
	HLMP-N205		Tinted Non-diffused	38 @ 10 mA	45°	
	HLMP-N300	Yellow, 626 nm	Tinted Diffused	15 @ 10 mA	60°	2.00 V
	HLMP-N305		Tinted Non-diffused	27 @ 10 mA	45°	
	HLMP-N400	Orange, 604 nm	Tinted Diffused	22 @ 10 mA	60°	1.90 V
	HLMP-N405		Tinted Non-diffused	28 @ 10 mA	45°	
	HLMP-N500	High Performance Green, 570 nm	Tinted Diffused		60°	2.10 V
	HLMP-N505		Tinted Non-diffused	48 @ 10 mA	45°	
	HLMP-N600	Emerald Green 560 nm	Tinted Diffused	12 @ 10 mA	60°	
HLMP-N605	Tinted Non-diffused		4.5 @ 10 mA	45°		

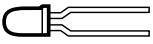
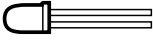
T-1 (3 mm) High Intensity LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-1340-G0000	HER GaAsP/GaP	Untinted Non-diffused	30 mcd	45°	1.9 V
	HLMP-1321		Tinted Non-diffused			
	HLMP-1420	Yellow GaAsP/GaP	Untinted Non-diffused	15 mcd		2.0 V
	HLMP-1421		Tinted Non-diffused			
	HLMP-1520	Green GaP	Untinted Non-diffused	22 mcd		2.1 V
	HLMP-1521		Tinted Non-diffused			

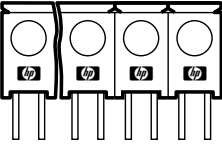
T-1 (3 mm) Diffused LED Lamps

Device		Description		Typical Luminous Intensity @ 10 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 10 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-1301	High Efficiency Red GaAsP/GaP, 626 nm	Tinted Diffused	5.5 mcd	60°	1.9 V
	HLMP-1301-G0000			6.0 mcd		
	HLMP-K400	Orange GaAsP/GaP, 602 nm		5.0 mcd		
	HLMP-K401			5.5 mcd		
	HLMP-1401	Yellow GaAsP/GaP, 585 nm		6 mcd		2.0 V
	HLMP-1401-E0000			6.5 mcd		
	HLMP-1503	Green GaP/GaP, 602 nm		5.0 mcd		2.1 V
	HLMP-1503-D0000			5.5 mcd		
	HLMP-K600	Emerald Green GaP/GaP, 560 nm		4.5 mcd		

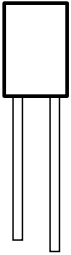
T-1^{3/4} (5 mm) and T-1 (3 mm) Tape and Reel Options

Device		Description
Package Outline Drawing	Option No.	
	01	T-1 ^{3/4} with 5 mm (0.197 in.) formed leads, 1300 lamps per reel.
		T-1 with 5 mm (0.197 in.) formed leads, 1800 lamps per reel.
	02	T-1 ^{3/4} with 2.54 mm (0.100 in.) straight leads, 1300 lamps per reel.
		T-1 with 2.54 mm (0.100 in.) straight leads, 1800 lamps per reel.

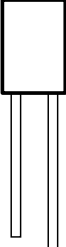
T-1 (3 mm) Right Angle LED Indicator Array Options

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

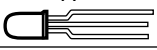

2.5 mm x 7.6 mm Rectangular LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle 2 $\theta_{1/2}$ °	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-R100	DH AlGaAs Red, 637 nm	Tinted Diffused	11 mcd	100°	1.8 V
	HLMP-0301-C0000	GaAsP/GaP High Efficiency Red, 626 nm		2.5 mcd		1.9 V
	HLMP-0301			5.3 mcd		
	HLMP-0401-B0000	GaAsP/GaP Yellow, 585 nm		2.5 mcd		2.1 V
	HLMP-0401			5.0 mcd		
	HLMP-0504-B0000	High Performance Green, 569 nm		2.5 mcd		2.2 V
	HLMP-0504			8.0 mcd		

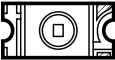
2 mm x 5 mm Rectangular LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-S100	AlGaAs Red, 637 nm	Tinted Diffused	7.5 mcd	110°	1.8 V
	HLMP-S201-D0000	High Efficiency Red, 626 nm		3.5 mcd		1.9 V
	HLMP-S201			7.5 mcd		
	HLMP-S400	GaAsP/GaP Orange, 602 nm		3.5 mcd		
	HLMP-S401			7.5 mcd		
	HLMP-S301-B0000	GaAsP/GaP Yellow, 585 nm		2.1 mcd		2.1 V
	HLMP-S301			4.0 mcd		
	HLMP-S501-C0000	GaP/GaP Green, 569 nm		4.0 mcd		2.2 V
	HLMP-S501			8.0 mcd		
HLMP-S600	GaP/GaP Emerald Green 560 nm	3.0 mcd				

T-3/4 (5 mm) 2 mm x 5 mm Rectangular Bicolor LED Lamps

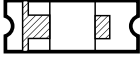
Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-4000	HER/High Perf. Green	Untinted Diffused	5.0 mcd	65° @ 10 mA Red	1.9 V Red
	HLMP-0800			3.5 mcd		100° @ 20 mA Green

Surface Mount Lensed Chip LEDs

Device		Description		Typical Luminous Intensity I_v (mcd) ^[1] @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HSMH-L640	Dh AlGaAs Red		32	70°	1.8 V
	HSMS-L640	High Efficiency Red		10		1.9 V
	HSMD-L640	Orange				2.1 V
	HSMY-L640	Yellow				2.1 V
	HSMG-L640	Green		18		2.2 V

1. The luminous intensity I_v is measured at the peak of the spatial radiation pattern.

Surface Mount Flip Chip LED Indicators, Standard Performance

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Package	Lens			
	HSMS-H630	High Efficiency Red, 626 nm	Reverse Mount ^[2]	Diffused	5.0 mcd	165°	1.9 V
	HSMS-H730						
	HSMS-R661		Right Angle Low Profile ^[1]				
	HSMS-R761						
	HSMS-H670		Top Mount ^[2]				
	HSMS-H770						
	HSMS-H690		Top Mount Low Profile ^[1]				
	HSMS-H790						
	HSMD-H630	Orange, 605 nm	Reverse Mount ^[2]		4.0 mcd		
	HSMD-H730						
	HSMD-R661		Right Angle Low Profile ^[1]				
	HSMD-R761						
	HSMD-H670		Top Mount ^[2]				
	HSMD-H770						
	HSMD-H690		Top Mount Low Profile ^[1]				
	HSMD-H790						
	HSMY-H630	Yellow, 584 nm	Reverse Mount ^[2]		5.0 mcd		2.1 V
	HSMY-H730						
	HSMY-R661		Right Angle Low Profile ^[1]				
	HSMY-R761						
	HSMY-H670		Top Mount ^[2]				
	HSMY-H770						
	HSMY-H690		Top Mount Low Profile ^[1]				
	HSMY-H790						
	HSMG-H630	Green, 571 nm	Reverse Mount ^[2]		9.0 mcd		2.3 V
	HSMG-H730						
	HSMG-R661		Right Angle Low Profile ^[1]				
	HSMG-R761						
HSMG-H670	Top Mount ^[2]						
HSMG-H770							
HSMG-H690	Top Mount Low Profile ^[1]						
HSMG-H790							

1. Quantity: 4000 per 7-inch reel; 18,000 per 13-inch reel.

2. Quantity: 3000 per 7-inch reel; 12,000 per 13-inch reel.



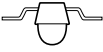




Surface Mount Chip LED Indicators, Standard Performance

Device		Description			Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^{(1)}$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Package ⁽¹⁾	Lens			
	HSMH-C650	Deep Red 644 nm	Top Mount	Diffused	16.0 mcd	155°	1.8 V
	HSMH-C660		Right Angle	Non-diffused		165°	
	HSMH-C670		Top Mount	Diffused		155°	
	HSMS-C650	High Efficiency Red, 626 nm	Top Mount	Diffused	5.0 mcd	155°	1.9 V
	HSMS-C660		Right Angle	Non-diffused		165°	
	HSMS-C670		Top Mount	Diffused		155°	
	HSMD-C650	Orange, 604 nm	Top Mount	Diffused	4.0 mcd	155°	2.1 V
	HSMD-C660		Right Angle	Non-diffused		165°	
	HSMD-C670		Top Mount	Diffused		155°	
	HSMY-C650	Yellow, 584 nm	Top Mount	Diffused	5.0 mcd	155°	2.2 V
	HSMY-C660		Right Angle	Non-diffused		165°	
	HSMY-C670		Top Mount	Diffused		155°	
	HSMG-C650	Green, 571 nm	Top Mount	Diffused	9.0 mcd	155°	
	HSMG-C660		Right Angle	Non-diffused		165°	
	HSMG-C670		Top Mount	Diffused		155°	

Surface Mount Chip LED Indicators, Bicolor, Standard Performance

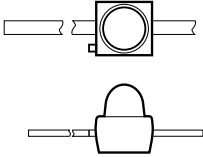
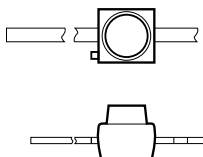
Device		Description		Typical Luminous Intensity I_v (mcd) @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HSMF-C655	High Efficiency Red/Green	Diffused	1.6 HER 4.0 Green	155°	1.9 V HER 2.2 V Green
	HSMF-C656	Yellow/Green		1.6 Yellow 4.0 Green		2.1 V Yellow 2.2 V Green
	HSMF-C657	Orange/Green		1.6 Orange 4.0 Green		2.1 V Orange 2.2 V Green

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

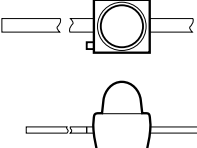
Device		Description
Package Outline Drawing	Option No.	
	011	SMT Gull Wing Lead, Lamp, Tape and Reel, 1500 Lamps per Reel
	012	SMT Gull Wing Lead, Lamp, Bulk Packaging
	013	
	021	SMT Yoke Lead, Lamp, Tape and Reel, 1500 Lamps per Reel
	022	SMT Yoke Lead, Lamp, Bulk Packaging
	031	SMT Z-Bend Lead, Tape and Reel, 1500 Lamps per Reel
	032	SMT Z-Bend Lead, Lamp, Bulk Packaging
	1L1*	Through Hole, 2.54 mm (0.100 in.) Right Angle Bend, Long Leads
	1S1*	Through Hole, 2.54 mm (0.100 in.) Right Angle Bend, Short Leads
	2L1*	Through Hole, 5.08 mm (0.200 in.) Right Angle Bend, Long Leads
	2S1*	Through Hole, 5.08 mm (0.200 in.) Right Angle Bend, Short Leads

*Note: This option is not available on AllnGaP Subminiature LED Lamps.

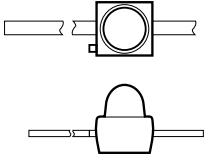
Subminiature High Performance AllnGaP LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMT-QL00	TS AllnGaP Amber, 590 nm	Dome Untinted Non-diffused	1000 mcd	15°	2.0 V
	HLMA-QL00	AS AllnGaP Amber, 590 nm		500 mcd		1.9 V
	HLMT-QH00	TS AllnGaP Red-Orange, 615 nm		800 mcd		2.0 V
	HLMA-QH00	AS AllnGaP Red-Orange, 615 nm		500 mcd		1.9 V
	HLMT-PL00	TS AllnGaP Amber, 590 nm	Flat Top Untinted Non-diffused	150 mcd	125°	2.0 V
	HLMA-PL00	AS AllnGaP Amber, 590 nm		75 mcd		1.9 V
	HLMT-PH00	TS AllnGaP Red-Orange, 615 nm		120 mcd		2.0 V
	HLMA-PH00	AS AllnGaP Red-Orange, 615 nm		75 mcd		1.9 V

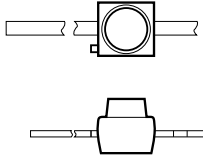
Subminiature High Performance TSAIGaAs Red LED Lamps

Device		Description		Typical Luminous Intensity @ 20 mA	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 20 mA
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-Q102	Deep Red, 644 nm	Dome Tinted Diffused Standard Current	1000 mcd	35°	1.9 V
	HLMP-Q152		Tinted Diffused Low Current	500 mcd		1.6 V
	HLMP-Q106		Dome Untinted Non-diffused Standard Current	800 mcd	15°	1.9 V
	HLMA-Q156		Dome Untinted Non-diffused, Low Current	500 mcd		1.6 V
	HLMP-P106		Flat Top Untinted Non-diffused Standard Current		75°	1.9 V
	HLMP-P156		Flat Top Untinted Non-diffused Low Current			1.6 V

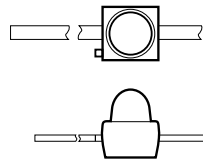
Subminiature Domed LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^{\circ}$	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-Q101	DH AlGaAs Deep Red, 637 nm	Dome Tinted Diffused	45 mcd @ 20 mA	90°	1.8 V @ 20 mA
	HLMP-6300	GaAsP/GaP High Efficiency Red, 626 nm		10 mcd @ 10 mA		1.8 V @ 10 mA
	HLMP-Q400	GaAsP/GaP Orange, 602 nm		8 mcd @ 10 mA		1.9 V @ 10 mA
	HLMP-6400	GaAsP/GaP Yellow, 585 nm		9 mcd @ 10 mA		2.0 V @ 10 mA
	HLMP-6500	GaP/GaP Green, 569 nm		7 mcd @ 10 mA		2.1 V @ 10 mA
	HLMP-Q600	GaP/GaP Emerald Green, 560 nm		Dome Untinted Non-diffused		1.5 mcd @ 10 mA
	HLMP-Q105	DH AlGaAs Deep Red, 637 nm	55 mcd @ 20 mA		28°	1.8 V @ 20 mA
	HLMP-6305	GaAsP/GaP High Efficiency Red, 626 nm	24 mcd @ 10 mA			1.8 V @ 10 mA
	HLMP-6405	GaAsP/GaP Yellow, 585 nm	20 mcd @ 10 mcd			2.0 V @ 10 mA
	HLMP-6505	GaP/GaP Green, 569 nm				2.1 V @ 10 mA

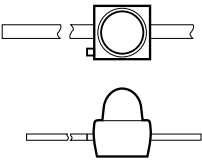
Subminiature Flat Top LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-P105	DH AlGaAs Deep Red, 637 nm	Flat Top Untinted Non-diffused	30 mcd @ 20 mA	90°	1.8 V @ 20 mA
	HLMP-P205	GaAsP/GaP High Efficiency Red, 626 nm		8 mcd @ 10 mA		1.8 V @ 10 mA
	HLMP-P405	GaAsP/GaP Orange, 602 nm		6 mcd @ 10 mA		1.9 V @ 10 mA
	HLMP-P305	GaAsP/GaP Yellow, 585 nm		4 mcd @ 10 mA		2.0 V @ 10 mA
	HLMP-P505	GaP/GaP Green, 569 nm		5 mcd @ 10 mA		2.1 V @ 10 mA
	HLMP-P605	GaP/GaP Emerald Green, 560 nm		1.5 mcd @ 10 mA		2.2 V @ 10 mA
	HLMP-P102	DH AlGaAs Deep Red, 637 nm	Flat Top Untinted Diffused	20 mcd @ 20 mA	90°	1.8 V @ 20 mA
	HLMP-P202	GaAsP/GaP High Efficiency Red, 626 nm		5 mcd @ 10 mA		1.8 V @ 10 mA
	HLMP-P402	GaAsP/GaP Orange, 602 nm		4 mcd @ 10 mA		1.9 V @ 10 mA
	HLMP-P302	GaAsP/GaP Yellow, 585 nm		3 mcd @ 10 mA		2.0 V @ 10 mA
	HLMP-P502	GaP/GaP Green, 569 nm		3 mcd @ 10 mA		2.1 V @ 10 mA

Subminiature Low Current LED Lamps

Device		Description		Typical Luminous Intensity	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage
Package Outline Drawing	Part No.	Color, λ_d	Lens			
	HLMP-Q150	DH AlGaAs Deep Red, 637 nm	Dome Tinted Diffused	1.8 mcd @ 1 mA	90°	1.6 V @ 1 mA
	HLMP-Q155		Dome Untinted Nondiffused	4 mcd @ 1 mA		
	HLMP-7000	GaAsP/GaP High Efficiency Red, 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		2.1 V @ 10 mA




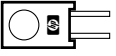

Subminiature Resistor LED Lamps

Device		Description		Typical Luminous Intensity @ 5.0 V	Viewing Angle $2\theta_{1/2}^\circ$	Typical Forward Voltage @ 5.0 V
Package Outline Drawing	Part No.	Color, λd	Lens			
	HLMP-6600	GaAsP/GaP High Efficiency Red, 626 nm	Dome Tinted Diffused	5 mcd	90°	9.6 mA
	HLMP-6620			2 mcd		3.5 mA
	HLMP-6700	GaAsP/GaP Yellow, 585 nm		5 mcd		9.6 mA
	HLMP-6720			2 mcd		3.5 mA
	HLMP-6800	GaP/GaP Green, 569 nm		5 mcd		9.6 mA
	HLMP-6820			2 mcd		3.5 mA

Standard Intensity and Color Binning Options for LED Lamps



Device Option Code	Description
S02	This option provides the selection of lamps from two adjacent luminous intensity Iv categories.
S20	Devices selected to two color bind, λd categories.
S22	Devices selected to two luminous intensity, Iv categories.

T-1^{3/4} (5mm) LED Lamp Mounting Options

Device		Description
Package Outline Drawing	Option No.	
	007 (HLMP-0104)	Black mounting clip and retaining ring designed to panel mount HP's solid state high profile T-1 ^{3/4} size lamps
	HLMP-5029-B2	Right angle mount housing for T-1 ^{3/4} lamps, sheared, even leads
	HLMP-5029-B1	Right angle mount housing for T-1 ^{3/4} lamps, unsheared, uneven leads
	B2	T-1 ^{3/4} standard dome, right angle, leads sheared even in a black plastic housing
	B1	T-1 ^{3/4} standard dome, right angle, leads unsheared, uneven, anode longer, in a black plastic housing
	A1	T-1, right angle, unsheared, uneven leads
	A2	T-1, right angle, sheared, even leads
	010*	Subminiature right angle, leads sheared even

*This option is not available on AlInGaP Subminiature LED Lamps.

T-1 (3mm) and Subminiature LED Lamp Mounting Options

Device		Description
Package Outline Drawing	Option No.	
	A1	T-1, right angle, unsheared, uneven leads
	A2	T-1, right angle, sheared, even leads
	010*	Subminiature right angle, leads sheared even

*This option is not available on AlInGaP Subminiature LED Lamps.