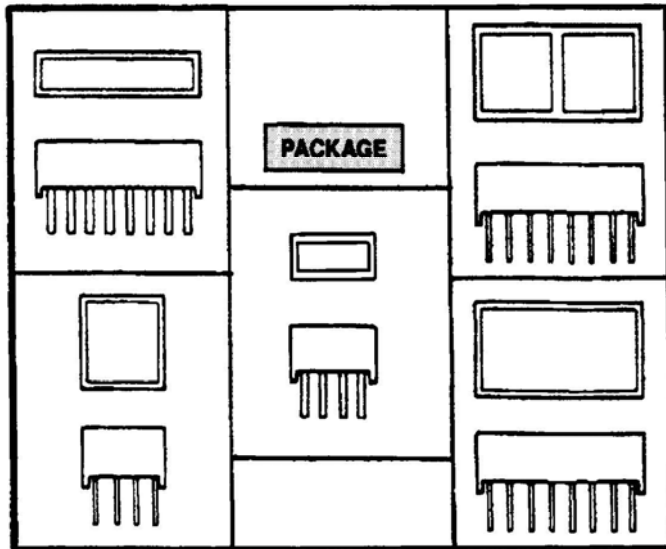


### HIGH EFFICIENCY RED **HLMP-2300/2600 SERIES** YELLOW **HLMP-2400/2700 SERIES** HIGH EFFICIENCY GREEN **HLMP-2500/2800 SERIES**



#### DESCRIPTION

These LED Light Bar series are bright, large emitting area, rectangular devices that are designed for backlighting legend/message annunciators.

These devices are offered in single-in-line and dual-in-line packages that contain single or segmented light-emitting area. Each package style is offered in High Efficiency Red, Yellow, or Green emission color.

#### FEATURES

- Large area, uniform, bright light-emitting surfaces
- Select from six package styles
- Choice of three colors
- Categorized for intensity and color
- X-Y stackable
- Easily driven with I.C.s
- Alternate source for popular backlighting components

#### MODEL NUMBERS

PART NO.	COLOR	DESCRIPTION		PACKAGE	PIN OUT
HLMP-2300 HLMP-2400 HLMP-2500	High Efficiency Red Yellow High Efficiency Green	2 LED Single-in-line 0.35 in. x 0.15 in. Area		A	A
HLMP-2350 HLMP-2450 HLMP-2550	High Efficiency Red Yellow High Efficiency Green	4 LED Single-in-line 0.75 in. x 0.15 in. Area		B	B
HLMP-2655 HLMP-2755 HLMP-2855	High Efficiency Red Yellow High Efficiency Green	4 LED Dual-in-line 0.35 in. x 0.35 in. Area		C	C
HLMP-2670 HLMP-2770 HLMP-2870	High Efficiency Red Yellow High Efficiency Green	Dual 0.35 in. x 0.35 in. Area Dual-in-line package		D	D
HLMP-2685 HLMP-2785 HLMP-2885	High Efficiency Red Yellow High Efficiency Green	8 LED 0.35 in. x 0.75 in. Area Dual-in-line package		E	D

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>A</sub>=25°C)  
HIGH EFFICIENCY RED**

PARAMETER	SYMBOL	HLMP					UNIT	TEST CONDITIONS	
		-2300	-2350	-2655	-2670	-2685			
Luminous Intensity	min.		6.0	13	13	13	22	mcd	I <sub>F</sub> =20 mA
	typ.	I <sub>V</sub>	23	45	43	45	80	mcd	I <sub>F</sub> =20 mA
	typ.		30	50	50	50	100	mcd	I <sub>F</sub> =60 mA pK, 1:3 D.F.
Forward voltage	max.	V <sub>F</sub>	2.6	2.6	2.6	2.6	2.6	V	I <sub>F</sub> =20 mA
	typ.		2.0	2.0	2.0	2.0	2.0		
Peak wavelength	typ.	λ <sub>p</sub>	630	630	630	630	630	nm	
Dominant wavelength	typ.	λ <sub>d</sub>	626	626	626	626	626	nm	
Capacitance	typ.	C	45	45	45	45	45	pF	V <sub>F</sub> =0, f=1 MHz
Reverse voltage	min.	V <sub>R</sub>	6	6	6	6	6	V	I <sub>R</sub> =100 μA
Thermal resistance	typ.	θ <sub>JL</sub>	150	150	150	150	150	°C/W/ LED chip	

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>A</sub>=25°C)  
YELLOW**

PARAMETER	SYMBOL	HLMP					UNIT	TEST CONDITIONS	
		-2400	-2450	-2755	-2770	-2785			
Luminous Intensity	min.		6	13	13	13	26	mcd	I <sub>F</sub> =20 mA
	typ.	I <sub>V</sub>	20	38	35	35	70	mcd	I <sub>F</sub> =20 mA
	typ.		33	60	60	60	115	mcd	I <sub>F</sub> =60 mA pK, 1:3 D.F.
Forward voltage	max.	V <sub>F</sub>	2.6	2.6	2.6	2.6	2.6	V	I <sub>F</sub> =20 mA
	typ.		2.1	2.1	2.1	2.1	2.1		
Peak wavelength	typ.	λ <sub>p</sub>	585	585	585	585	585	nm	
Dominant wavelength	typ.	λ <sub>d</sub>	588	588	588	588	588	nm	
Capacitance	typ.	C	35	35	35	35	35	pF	V <sub>F</sub> =0, f=1 MHz
Reverse voltage	min.	V <sub>R</sub>	6	6	6	6	6	V	I <sub>R</sub> =100 μA
Thermal resistance	typ.	θ <sub>JL</sub>	150	150	150	150	150	°C/W/ LED chip	

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>A</sub>=25°C)  
HIGH EFFICIENCY GREEN**

PARAMETER	SYMBOL	HLMP					UNIT	TEST CONDITIONS	
		-2500	-2550	-2855	-2870	-2885			
Luminous Intensity	min.		5	11	11	11	22	mcd	I <sub>F</sub> =20 mA
	typ.	I <sub>V</sub>	25	50	50	50	100	mcd	I <sub>F</sub> =20 mA
	typ.		38	75	75	75	150	mcd	I <sub>F</sub> =60 mA pK, 1:3 D.F.
Forward voltage	max.	V <sub>F</sub>	2.6	2.6	2.6	2.6	2.6	V	I <sub>F</sub> =20 mA
	typ.		2.2	2.2	2.2	2.2	2.2		
Peak wavelength	typ.	λ <sub>p</sub>	565	565	565	565	565	nm	
Dominant wavelength	typ.	λ <sub>d</sub>	567	567	567	567	567	nm	
Capacitance	typ.	C	40	40	40	40	40	pF	V <sub>F</sub> =0, f=1 MHz
Reverse voltage	min.	V <sub>R</sub>	6	6	6	6	6	V	I <sub>R</sub> =100 μA
Thermal resistance	typ.	θ <sub>JL</sub>	150	150	150	150	150	°C/W/ LED chip	

### TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES

(25°C Free Air Temperature Unless Otherwise Specified)

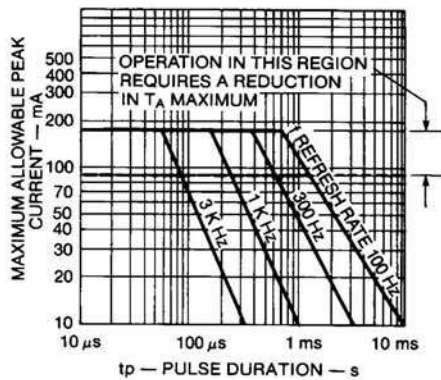


Fig. 1. Maximum Tolerable Peak Current per LED Chip vs. Pulse Duration for HLMP-23X0/-26XX/-25X0/-28XX

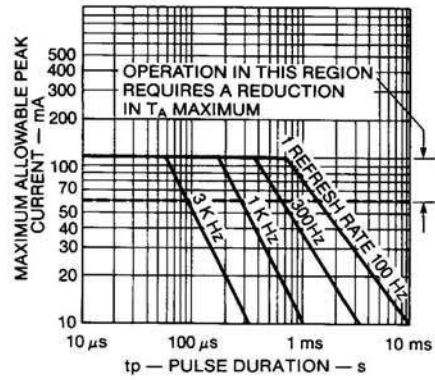


Fig. 2. Maximum Tolerable Peak Current per LED Chip vs. Pulse Duration for HLMP-24X0/-27XX Devices

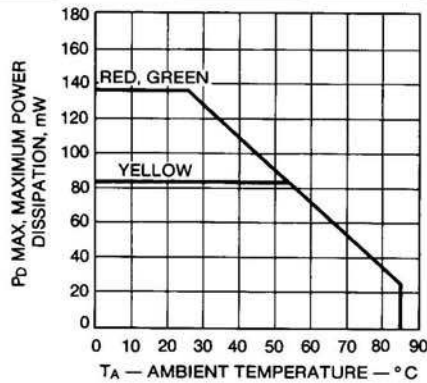


Fig. 3. Maximum Power Dissipation per LED vs. Ambient Temperature

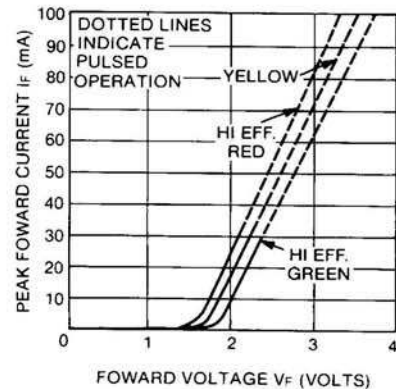


Fig. 4. Forward Current vs. Forward Voltage

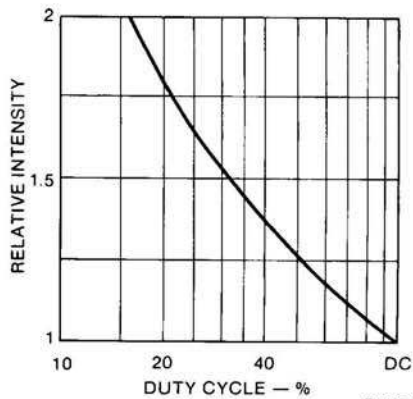


Fig. 5. Luminous Intensity vs. Duty Cycle

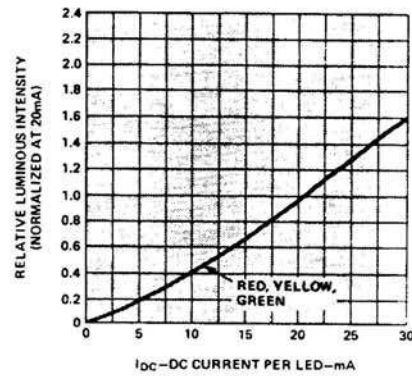


Fig. 6. Luminous Intensity vs. Forward Current





**LED LIGHT BARS**

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

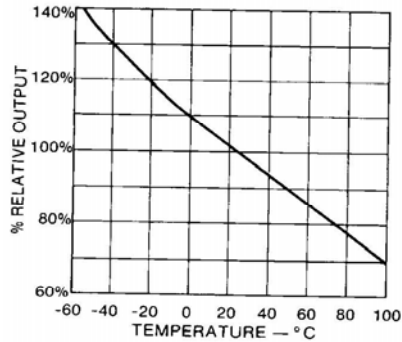


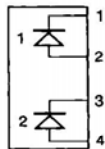
Fig. 7. Output vs. Temperature

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**PIN CONNECTIONS TO ELECTRICAL SCHEMATIC**

PIN	ELECTRICAL CONNECTION			
	HLMP-2X00	HLMP-2X50	HLMP-2X55	HLMP-2X70/-2X85
1	1 Cathode	1 Cathode	1 Cathode	1 Cathode
2	1 Anode	1 Anode	1 Anode	1 Anode
3	2 Cathode	2 Cathode	2 Cathode	2 Cathode
4	2 Anode	2 Anode	2 Anode	2 Anode
5		3 Cathode	3 Cathode	3 Cathode
6		3 Anode	3 Anode	3 Anode
7		4 Cathode	4 Anode	4 Anode
8		4 Anode	4 Cathode	4 Cathode
9				5 Cathode
10				5 Anode
11				6 Anode
12				6 Cathode
13				7 Cathode
14				7 Anode
15				8 Anode
16				8 Cathode

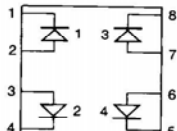
**ELECTRICAL SCHEMATIC**



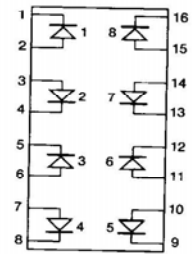
HLMP - 2X00



HLMP - 2X50



HLMP - 2X55



HLMP - 2X70

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## LED LIGHT BARS

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