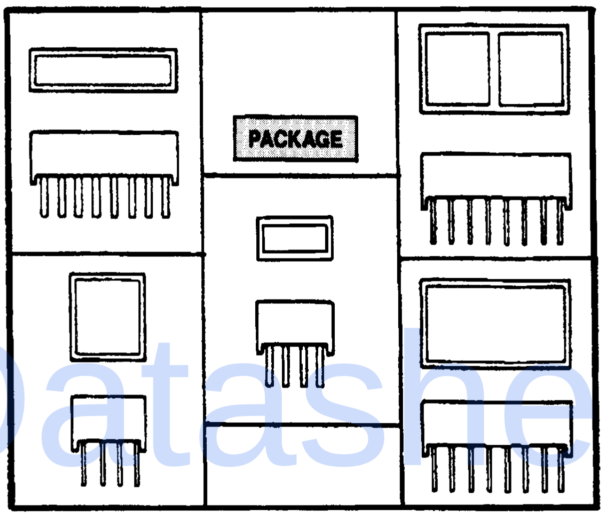
FAIRCHILD SEMICONDUCTOR™

LED LIGHT BARS

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



DESCRIPTION

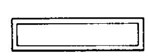
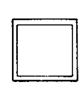
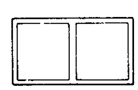
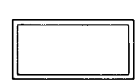
These LED Light Bar series are bright, large emitting area, rectangular devices that are designed for backlighting legend/message annunciators.

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.×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.×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.×0.35 in. Area		C	C
HLMP-2670 HLMP-2770 HLMP-2870	High Efficiency Red Yellow High Efficiency Green	Dual 0.35 in.×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.×0.75 in. Area Dual-in-line package		E	D

FAIRCHILD SEMICONDUCTOR™

LED LIGHT BARS

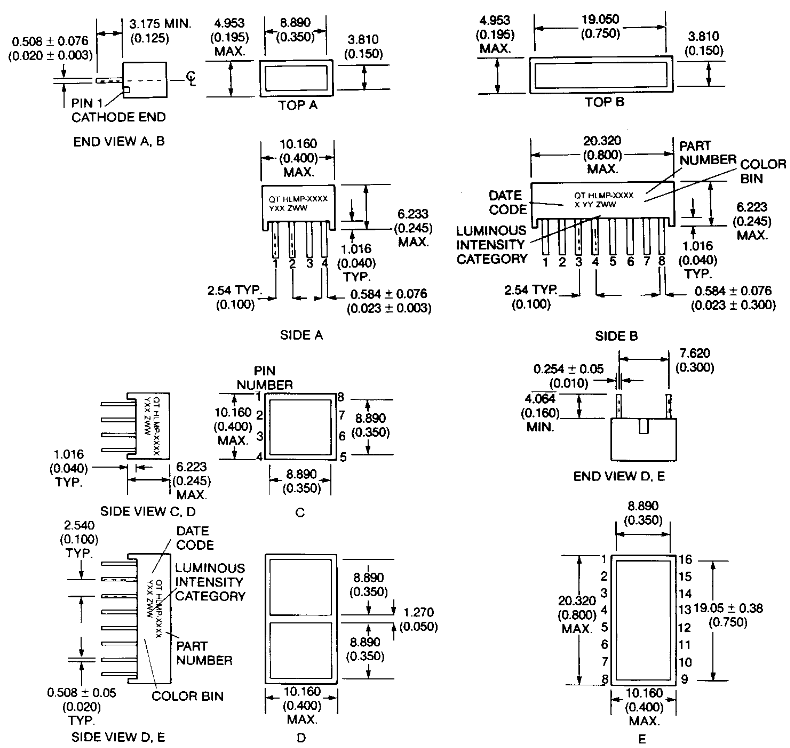
ABSOLUTE MAXIMUM RATINGS T_A=25°C (Unless Otherwise Stated)

	HIGH EFFICIENCY RED HIGH EFFICIENCY GREEN HLMP-2300/-2500 -2600/-2800 SERIES	YELLOW HLMP-2400/ -2700 SERIES
Power dissipation per LED chip (See Note 1)	135 mW	85 mW
Peak forward current per LED chip, T_A=50°C (max. pulse width=2 ms) (See Notes 1 and 2)	90 mA	60 mA
Average forward per LED chip pulsed conditions, T_A=50°C (See Note 2)	25 mA	20 mA
DC forward current per LED chip, T_A=50°C (See Note 3)	30 mA	25 mA
Reverse voltage per LED chip	6V	6V
Storage and operating temperature range	−40°C to +85°C	−40°C to +85°C
Soldering time at 260°C (See Note 4)	260°C for 3 sec.	260°C for 3 sec.

NOTES

1. *For HLMP-2300/-2500/-2600/-2800 Series, derate above T_A=25°C at 1.8 mW/°C per LED chip. For HLMP-2400/-2700 Series, derate above T_A=50°C at 1.8 mW/°C per LED chip.*
2. *See Figure 1/2 to establish pulse operating conditions.*
3. *For HLMP-2300/-2500/-2600/-2800 Series, derate above T_A=50°C at 0.5 mA/°C per LED chip. For HLMP-2400/-2700 Series derate above T_A=60°C at 9.5 mA/°C per LED chip.*
4. *Lead immersed to 1/16 in. from body of the device. Maximum unit surface temperature is 140°C.*

PACKAGE DIMENSIONS



NOTE: DIMENSIONS IN MILLIMETERS (INCHES). TOLERANCES ± 0.25 (± 0.010) UNLESS OTHERWISE INDICATED

C2015

ELECTRO-OPTICAL CHARACTERISTICS (T_A=25°C)
HIGH EFFICIENCY RED

PARAMETER		SYMBOL	HLMP -2300	HLMP -2350	HLMP -2655	HLMP -2670	HLMP -2685	UNIT	TEST CONDITIONS
Luminous Intensity	min.	I_V	6.0	13	13	13	22	mcd	I_F=20 mA
	typ.		23	45	43	45	80	mcd	I_F=20 mA
	typ.		30	50	50	50	100	mcd	I_F=60 mA pK, 1:3 D.F.
Forward voltage	max.	V_F	2.6	2.6	2.6	2.6	2.6	V	I_F=20 mA
	typ.		2.0	2.0	2.0	2.0	2.0		
Peak wavelength	typ.	λ_p	630	630	630	630	630	nm	
Dominant wavelength	typ.	λ_d	626	626	626	626	626	nm	
Capacitance	typ.	C	45	45	45	45	45	pF	V_F=0, f=1 MHz
Reverse voltage	min.	V_R	6	6	6	6	6	V	I_R=100 μA
Thermal resistance	typ.	θ_{JL}	150	150	150	150	150	°C/W/ LED chip	

ELECTRO-OPTICAL CHARACTERISTICS (T_A=25°C)
YELLOW

PARAMETER		SYMBOL	HLMP -2400	HLMP -2450	HLMP -2755	HLMP -2770	HLMP -2785	UNIT	TEST CONDITIONS
Luminous Intensity	min.	I_V	6	13	13	13	26	mcd	I_F=20 mA
	typ.		20	38	35	35	70	mcd	I_F=20 mA
	typ.		33	60	60	60	115	mcd	I_F=60 mA pK, 1:3 D.F.
Forward voltage	max.	V_F	2.6	2.6	2.6	2.6	2.6	V	I_F=20 mA
	typ.		2.1	2.1	2.1	2.1	2.1		
Peak wavelength	typ.	λ_p	585	585	585	585	585	nm	
Dominant wavelength	typ.	λ_d	588	588	588	588	588	nm	
Capacitance	typ.	C	35	35	35	35	35	pF	V_F=0, f=1 MHz
Reverse voltage	min.	V_R	6	6	6	6	6	V	I_R=100 μA
Thermal resistance	typ.	θ_{JL}	150	150	150	150	150	°C/W/ LED chip	

ELECTRO-OPTICAL CHARACTERISTICS (T_A=25°C)
HIGH EFFICIENCY GREEN

PARAMETER		SYMBOL	HLMP -2500	HLMP -2550	HLMP -2855	HLMP -2870	HLMP -2885	UNIT	TEST CONDITIONS
Luminous Intensity	min.	I_V	5	11	11	11	22	mcd	I_F=20 mA
	typ.		25	50	50	50	100	mcd	I_F=20 mA
	typ.		38	75	75	75	150	mcd	I_F=60 mA pK, 1:3 D.F.
Forward voltage	max.	V_F	2.6	2.6	2.6	2.6	2.6	V	I_F=20 mA
	typ.		2.2	2.2	2.2	2.2	2.2		
Peak wavelength	typ.	λ_p	565	565	565	565	565	nm	
Dominant wavelength	typ.	λ_d	567	567	567	567	567	nm	
Capacitance	typ.	C	40	40	40	40	40	pF	V_F=0, f=1 MHz
Reverse voltage	min.	V_R	6	6	6	6	6	V	I_R=100 μA
Thermal resistance	typ.	θ_{JL}	150	150	150	150	150	°C/W/ LED chip	

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES

(25°C Free Air Temperature Unless Otherwise Specified)

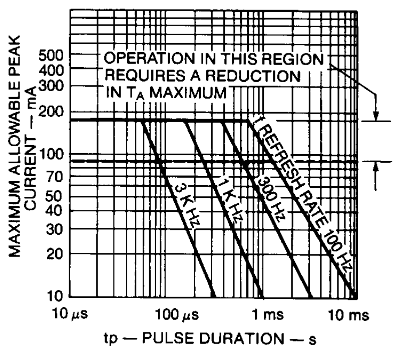


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Fig. 1. Maximum Tolerable Peak Current per LED Chip vs. Pulse Duration for HLMP-23X0/-26XX/-25X0/-28XX

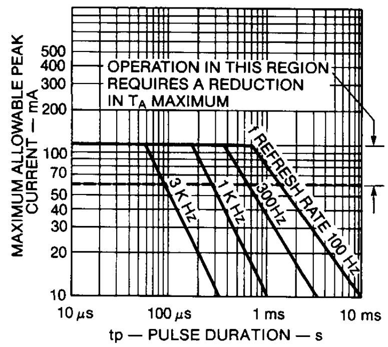

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Fig. 2. Maximum Tolerable Peak Current per LED Chip vs.Pulse Duration for HLMP-24X0/-27XX Devices

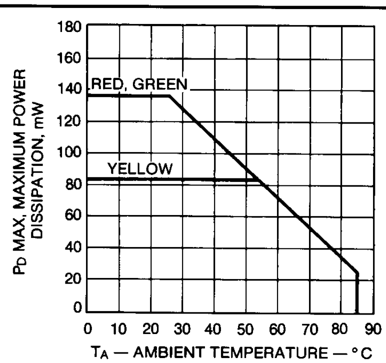

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Fig. 3. Maximum Power Dissipation per LED vs. Ambient Temperature

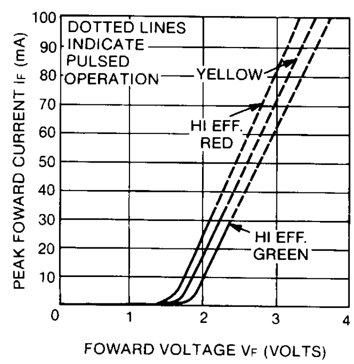

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Fig. 4. Forward Current vs. Forward Voltage

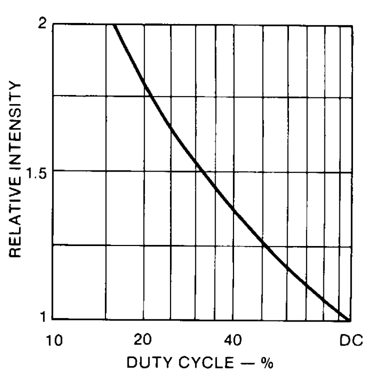

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Fig. 5. Luminous Intensity vs. Duty Cycle

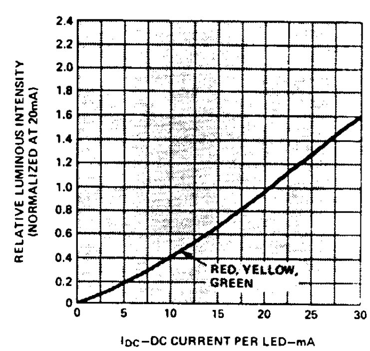

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Fig. 6. Luminous Intensity vs. Forward Current

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TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES

(25°C Free Air Temperature Unless Otherwise Specified) (Cont'd)

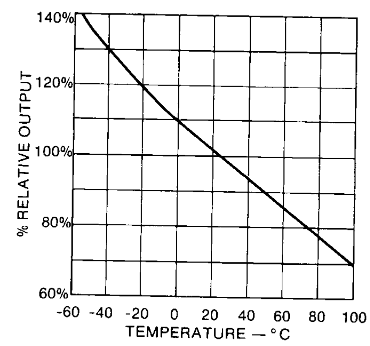
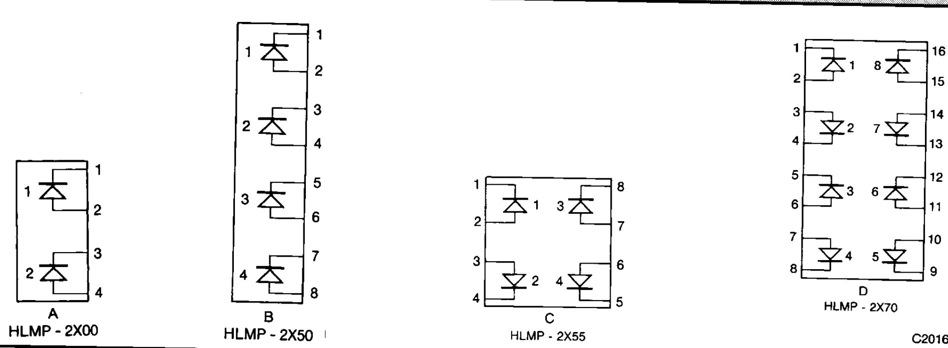


Fig. 7. Output vs. Temperature

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 Anode	2 Anode
4	2 Anode	2 Anode	2 Cathode	2 Cathode
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



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