

# LOW CURRENT T-100 & T-1 $\frac{3}{4}$ SOLID STATE LAMPS

CHICAGO MINIATURE LAMP

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D T-41-21

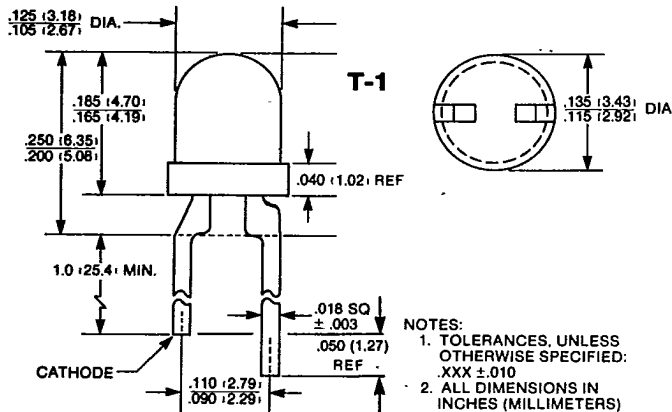


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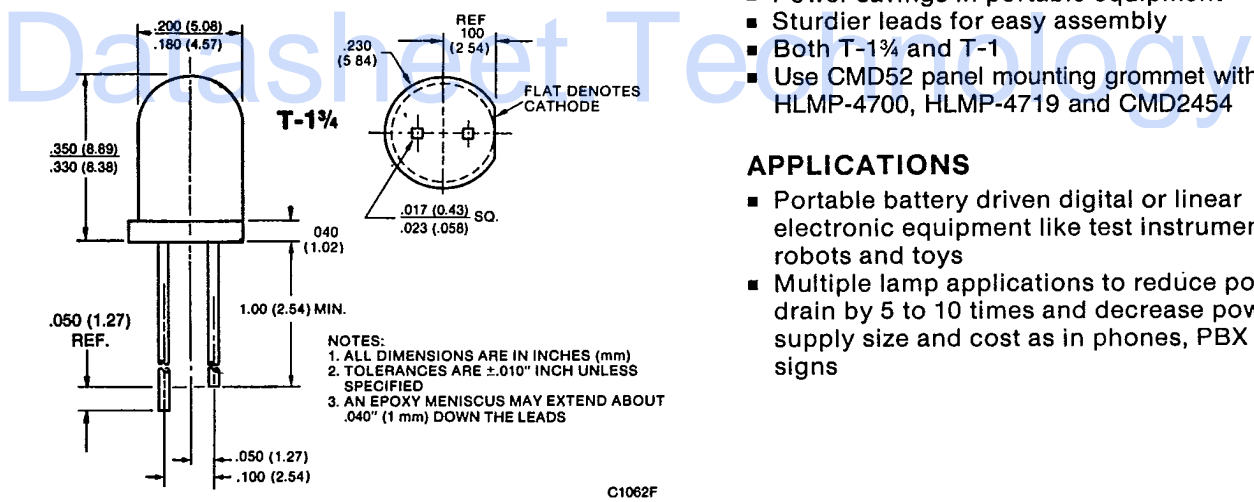
## 2 mA

**HIGH EFFICIENCY RED HLMP-1700 HLMP-4700**  
**YELLOW HLMP-1719 HLMP-4719**  
**HIGH EFFICIENCY GREEN HLMP-1790 CMD2454**

### PACKAGE DIMENSIONS



C1533G



C1062F

### DESCRIPTION

The T-1 $\frac{3}{4}$  HLMP-4700 Series and T-1 HLMP-1700 Series are direct pin-for-pin replacements for the Hewlett-Packard lamps with the same part numbers. All devices are tinted diffused with a medium-wide viewing angle. The design of the LED chips is optimized for low current applications and is far superior in Luminous Intensity compared to standard LED lamps at very low current.

These low current lamps are primarily intended for direct view.

### FEATURES

- Very low power — 4 mW
- 2 mA drive from low power TTL or CMOS
- All three colors
- Power savings in portable equipment
- Sturdier leads for easy assembly
- Both T-1 $\frac{3}{4}$  and T-1
- Use CMD52 panel mounting grommet with HLMP-4700, HLMP-4719 and CMD2454

### APPLICATIONS

- Portable battery driven digital or linear electronic equipment like test instruments, robots and toys
- Multiple lamp applications to reduce power drain by 5 to 10 times and decrease power supply size and cost as in phones, PBX and signs

### PHYSICAL CHARACTERISTICS

SIZE	TYPE	SOURCE COLOR	LENS EFFECT
T-1	HLMP-1700	High Efficiency Red	Red Diffused
	HLMP-1719	Yellow	Yellow Diffused
	HLMP-1790	High Efficiency Green	Green Diffused
T-1 $\frac{3}{4}$	HLMP-4700	High Efficiency Red	Red Diffused
	HLMP-4719	Yellow	Yellow Diffused
	CMD2454	High Efficiency Green	Green Diffused



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LOW CURRENT T-100 & T-1<sup>3/4</sup>  
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**HLMP-1700 HLMP-1719 HLMP-4700 HLMP-4719 CMD2454****ABSOLUTE MAXIMUM RATINGS** (T<sub>A</sub> = 25° C Unless Otherwise Specified)

PARAMETER	HI. EFF. RED	YELLOW	HI. EFF. GREEN	UNITS	NOTES
Power dissipation	27	24	27	mW	1
DC forward current	7.5	7.5	7.5	mA	
Peak forward current (PW ≤ 1 ms, DF ≤ 30%)	25	25	25	mA	
Lead soldering time at 260° C	5	5	5	sec	2
Operating and storage temperatures	-55° C to +100° C				

**NOTES**

- 1) Derate linearly from 92° C at 1 mA/° C.
- 2) At 1/16 inch (1.6 mm) from bottom of lamp.

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

PARAMETER	SYMBOL	T-1 <sup>3/4</sup>			T-1		T-1	UNITS	TEST COND.	
		HI. EFF. RED HLMP- 4700	YELLOW HLMP- 4719	HI. EFF. GREEN CMD2454	HI. EFF. RED HLMP- 1700	YELLOW HLMP- 1719	HI. EFF. GREEN HLMP- 1790			
Luminous Intensity	min.	lv	1.2	1.2	1.2*	1.0	1.0	1.0	mcd	I <sub>F</sub> = 2 mA
	typ.		2.0	2.0	3.0*	2.0	2.0	2.0	mcd	I <sub>F</sub> = 2 mA
Forward voltage	max.	V <sub>F</sub>	2.2	2.7	2.7	2.2	2.7	2.2	V	I <sub>F</sub> = 2 mA
	typ.		1.8	1.9	1.9	1.8	1.9	1.8	V	I <sub>F</sub> = 2 mA
Peak wavelength	typ.	λ <sub>p</sub>	635	585	565	635	585	565	nm	I <sub>F</sub> = 2 mA
Reverse breakdown voltage	min.	V <sub>BR</sub>	5	5	5	5	5	5	V	I <sub>R</sub> = 100 μA
Viewing angle (total)	typ.	2θ <sub>1/2</sub>	50	50	35	50	50	50	degrees	

\*CMD2454 Luminous Intensity is measured at 3.5 mA