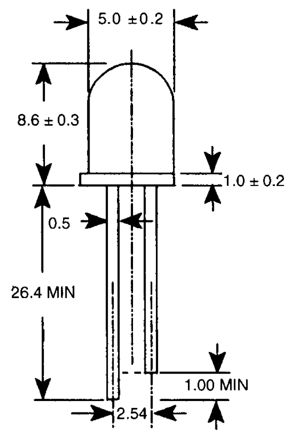
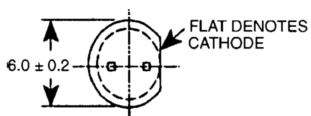
FAIRCHILD SEMICONDUCTOR™

SUPER BRIGHT T-1¾ (5 mm) LED LAMPS

SUPER RED MV8140 CLEAR SUPER RED MV8141 CLEAR SUPER RED MV8190 DIFFUSED SUPER RED MV8191 DIFFUSED

PACKAGE DIMENSIONS





ST1683

NOTES:
1. ALL DIMENSIONS ARE IN MM.
2. LEAD SPACING IS MEASURED WHERE THE LEADS EMERGE FROM THE PACKAGE.
3. PROTRUDED RESIN UNDER THE FLANGE IS 1.5 mm (0.059″) MAX.

DESCRIPTION

These T-1¾ super bright LEDs have a moderate 40° or 45° viewing angle. The MV8190/1 are 40° and the MV8140/1 are 45°. All are made with GaA1As LEDs on a GaA1As substrate. They are encapsulated in an epoxy package. The MV8140/1 have a water clear lens while the MV8190/1 have a red diffused lens.

FEATURES

- Outstanding material efficiency.
- Popular T-1¾ package.
- Low drive current.
- Solid state reliability.
- Super high brightness.
- Standard 1 mil. lead spacing.

ABSOLUTE MAXIMUM RATING (T_A=25°C Unless Otherwise Specified)

DC forward current (I_f)	40 mA
Operating temperature range	−40°C to +85°C
Storage temperature range	−40°C to +100°C
Lead soldering time (at 1⁄16 inch from the bottom of lamp)	5 seconds @ 260°C
Peak forward current (I_f) (at f=1.0 KHz, Duty factor= 1/10)	200 mA
Power dissipation (P_d)	110 mW
Recommended operating current (I_f Rec)	20 mA

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ELECTRO-OPTICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)

PART NUMBER	MV8190	MV8191	MV8140	MV8141	TEST CONDITIONS
Luminous intensity (mcd)					I_F=20 mA
minimum	63	100	120	250	
typical	100	200	220	370	
maximum					
Forward voltage (V_F)					I_F=20 mA
minimum			1.5		
typical			1.7		
maximum			2.4		
Peak wavelength (nm)			660		I_F=20 mA
Spectral line half width (nm)			40		I_F=20 mA
Reverse breakdown voltage (V_R)			5		I_F=10 μA
Viewing angle (°)	45	45	40	40	I_F=20 mA

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES (T_A=25°C)

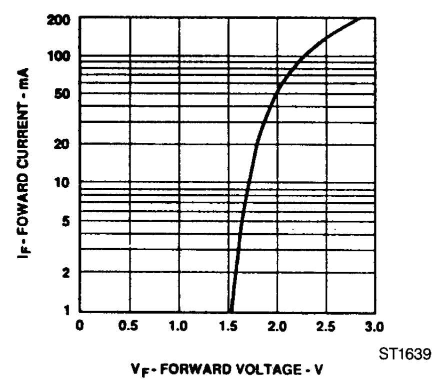

Fig. 1. Forward Current vs. Forward Voltage

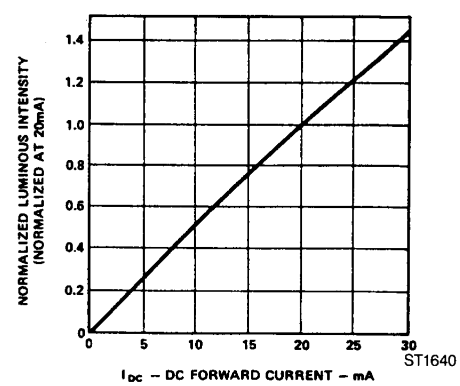

Fig. 2. Relative Luminous Intensity vs. Forward Current

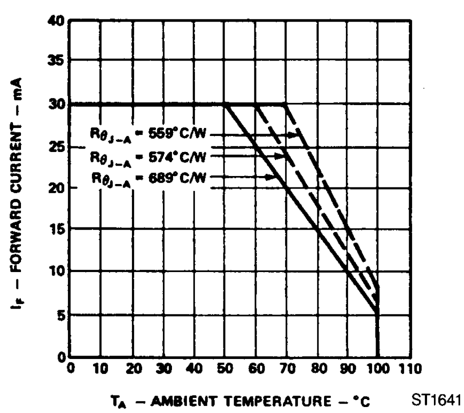

Fig. 3. Maximum Forward DC Current vs. Ambient Temperature Derating based on Tj MAX=110°.

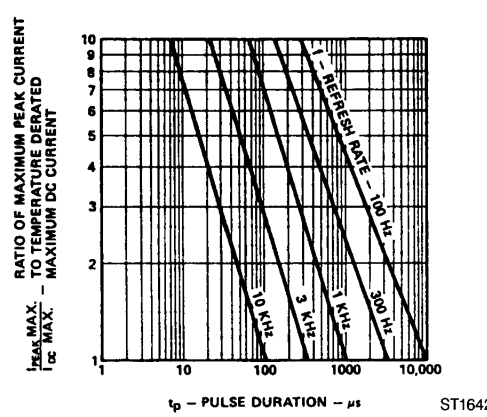

Fig. 4. Maximum Peak Current vs. Pulse Duration

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES (T_A=25°C)

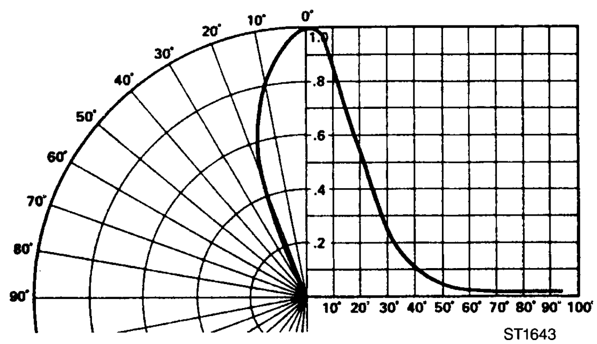

Fig. 5. Relative Luminous Intensity vs. Angular Displacement MV8190/1

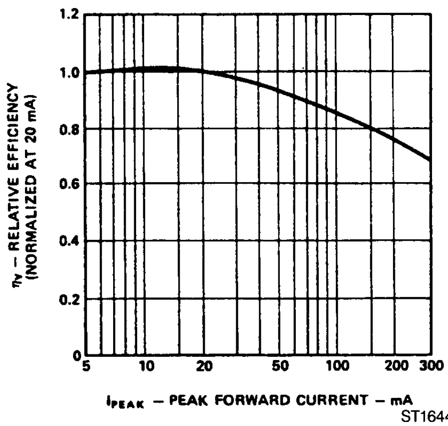

Figure 6. Relative Efficiency vs. Peak Forward Current

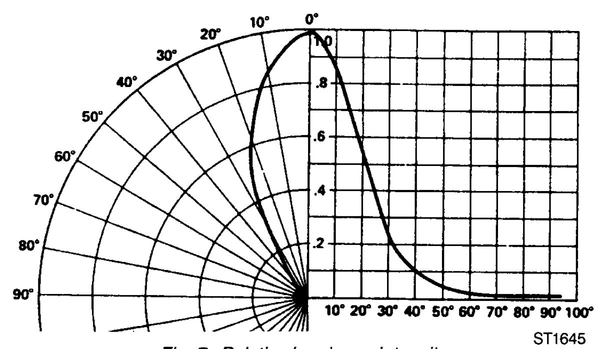

Fig. 7. Relative Luminous Intensity vs. Angular Displacement MV8140/1

FAIRCHILD SEMICONDUCTOR™

SUPER BRIGHT T-1 3/4 (5mm) LED LAMPS

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