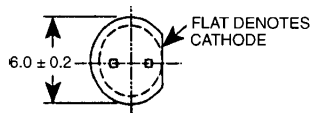
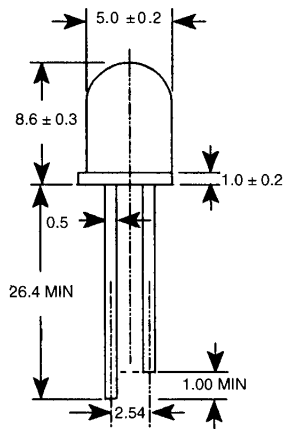


**SUPER RED MV8140 CLEAR    SUPER RED MV8190 DIFFUSED**  
**SUPER RED MV8141 CLEAR    SUPER RED MV8191 DIFFUSED**

**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 GaAlAs LEDs on a GaAlAs 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.

<b>ABSOLUTE MAXIMUM RATING</b> (T <sub>a</sub> =25°C Unless Otherwise Specified)	
DC forward current (I <sub>f</sub> )	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 <sub>p</sub> ) (at f=1.0 KHz, Duty factor= 1/10)	200 mA
Power dissipation (P <sub>a</sub> )	110 mW
Recommended operating current (I <sub>f</sub> Rec)	20 mA

<b>ELECTRO-OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)					
PART NUMBER	MV8190	MV8191	MV8140	MV8141	TEST CONDITIONS
Luminous intensity (mcd)					$I_F = 20\text{ mA}$
minimum	63	100	120	250	
typical	100	200	220	370	
maximum					
Forward voltage ( $V_F$ )					$I_F = 20\text{ mA}$
minimum			1.5		
typical			1.7		
maximum			2.4		
Peak wavelength (nm)			660		$I_F = 20\text{ mA}$
Spectral line half width (nm)			40		$I_F = 20\text{ mA}$
Reverse breakdown voltage ( $V_R$ )			5		$I_F = 10\ \mu\text{A}$
Viewing angle ( $^\circ$ )	45	45	40	40	$I_F = 20\text{ mA}$

**TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES** ( $T_A = 25^\circ\text{C}$ )

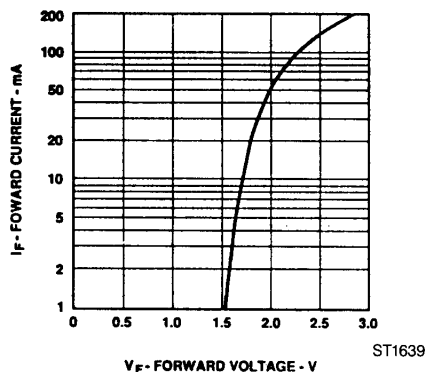


Fig. 1. Forward Current vs. Forward Voltage

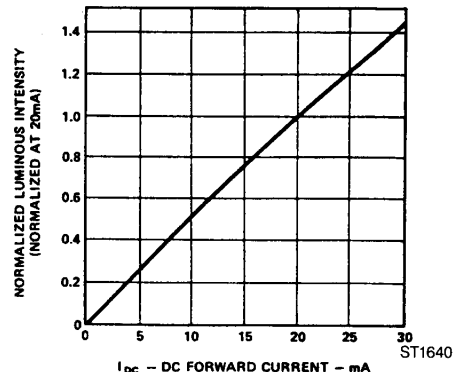


Fig. 2. Relative Luminous Intensity vs. Forward Current

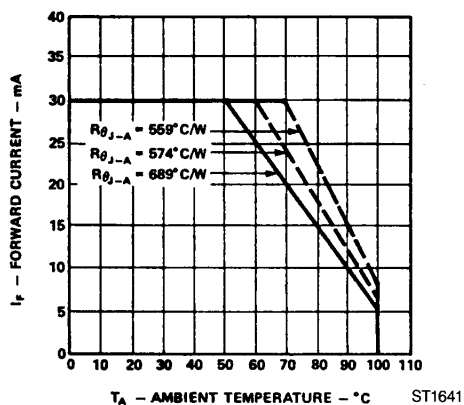


Fig. 3. Maximum Forward DC Current vs. Ambient Temperature Derating based on  $T_J \text{ MAX} = 110^\circ$ .

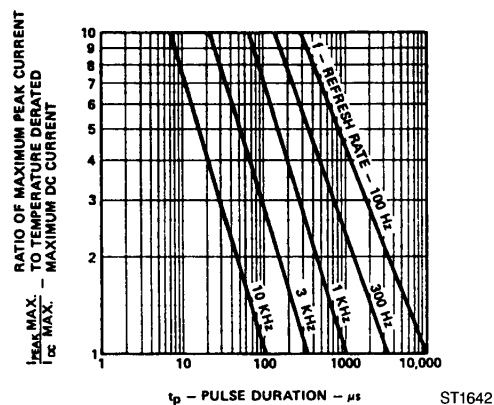


Fig. 4. Maximum Peak Current vs. Pulse Duration

**TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES (T<sub>A</sub>=25°C)**

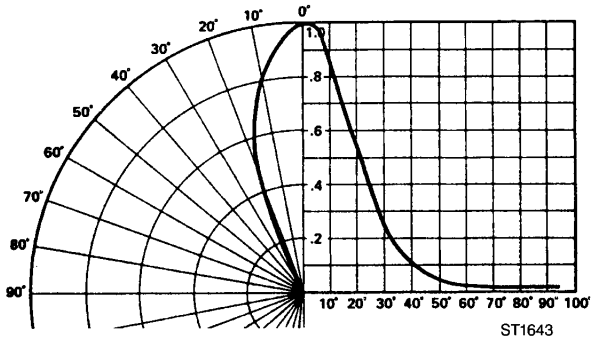


Fig. 5. Relative Luminous Intensity vs. Angular Displacement MV8190/1

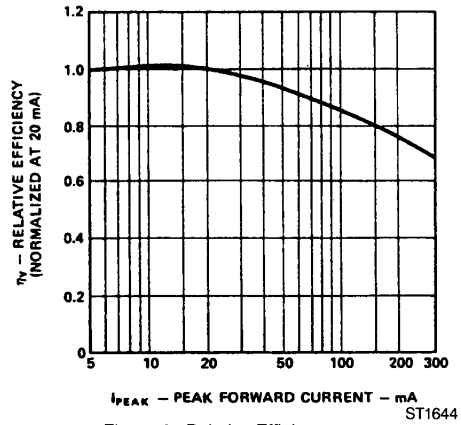


Figure 6. Relative Efficiency vs. Peak Forward Current

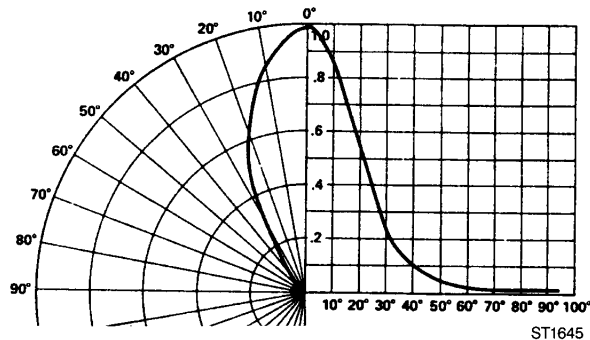


Fig. 7. Relative Luminous Intensity vs. Angular Displacement MV8140/1



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

---

### **DISCLAIMER**

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

### **LIFE SUPPORT POLICY**

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.