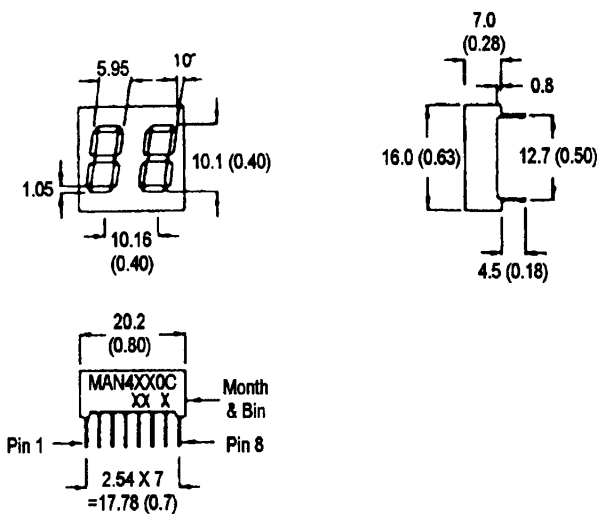


**BRIGHT RED MSD4110C, MSD4140C  
GREEN MSD4410C, MSD4440C  
HIGH EFF. RED MSD4910C, MSD4940C**

**PACKAGE DIMENSIONS**



**FEATURES**

- Easy to read digits.
- 2 digit common anode or cathode.
- Low power consumption.
- Bold segments that are highly visible.
- High brightness with high contrast
- White segments on a grey face.
- Directly compatible with integrated circuits.
- Rugged plastic/epoxy construction.

**APPLICATIONS**

- Digital readout displays.
- Instrument panels.

NOTES: Dimensions are in mm (inch).  
All pins are 0.5 (0.02) diameter  
Tolerances are ± 0.25 (0.1) unless otherwise noted.

**MODEL NUMBERS**

<u>Part number</u>	<u>Color</u>	<u>Description</u>
MSD4110C	Bright Red	2 Digit, Common Anode.
MSD4140C	Bright Red	2 Digit, Common Cathode.
MSD4410C	Green	2 Digit, Common Anode.
MSD4440C	Green	2 Digit, Common Cathode.
MSD4910C	High Eff. Red	2 Digit, Common Anode.
MSD4940C	High Eff. Red	2 Digit, Common Cathode.

(For other color options, contact your local area Sales Office)

#### ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C unless otherwise specified)

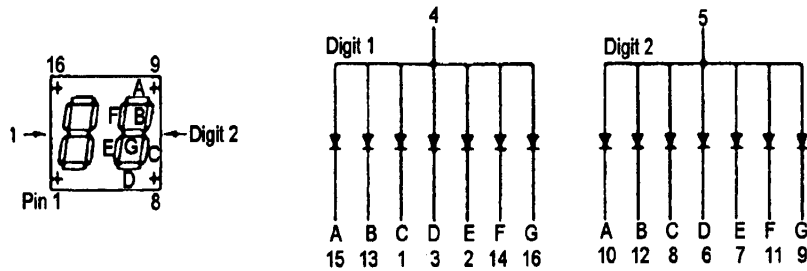
Part number	B.Red MST 4110C 4140C	Green MST 4410C 4440C	High Eff. Red MST 4910C 4940C	Unit
Continuous forward current (I <sub>f</sub> ) Per Segment.....	15	25	25	mA
Peak forward current per die (I <sub>f</sub> )..... (at f = 10.0 KHz, Duty factor = 1/10)	60	90	90	mA
Power dissipation (P <sub>D</sub> ).....	40*	70*	70*	mW
*Derate Linearly from 25°C.....	0.17	0.33	0.33	mW/°C
Reverse voltage per dice.....	5V			
Operating and Storage temperature range.....	- 40°C to +85°C			
Lead soldering time (at 1/16 inch from the bottom of lamp).....	5 seconds @ 230°C			

#### ELECTRO - OPTICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)

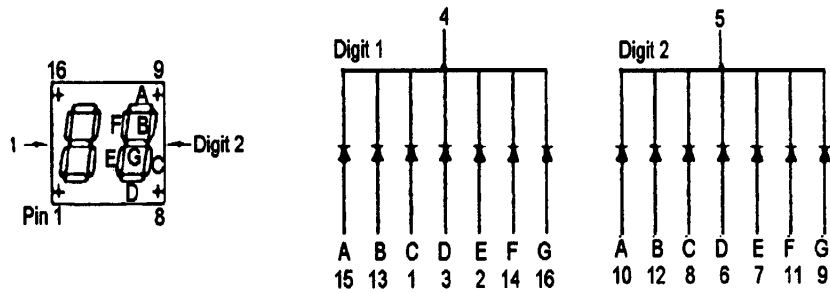
Part number	B. Red MST 4110C 4140C	Green MST 4410C 4440C	High Eff. Red MST 4910C 4940C	Test Condition
Luminous intensity (ucd)				
minimum	320	850	800	I <sub>f</sub> = 20 mA
typical	800	2200	2200	I <sub>f</sub> = 20 mA
Forward voltage (V <sub>f</sub> )				
typical	2.1	2.1	2.0	I <sub>f</sub> = 20 mA
maximum	2.6	2.8	2.8	I <sub>f</sub> = 20 mA
Peak wavelength (nm)	697	570	635	I <sub>f</sub> = 20 mA
Spectral line half width (nm)	90	30	45	I <sub>f</sub> = 20 mA
Reverse breakdown voltage (V <sub>R</sub> )	5	5	5	I <sub>r</sub> = 100 uA

**PINOUT**

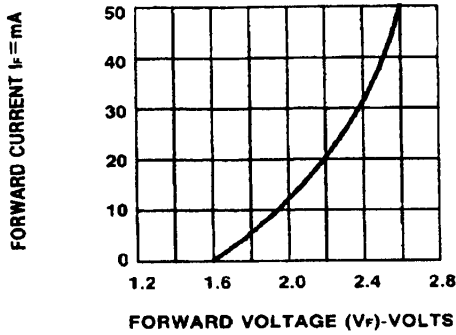
**MSD4X10C - Common Anode**



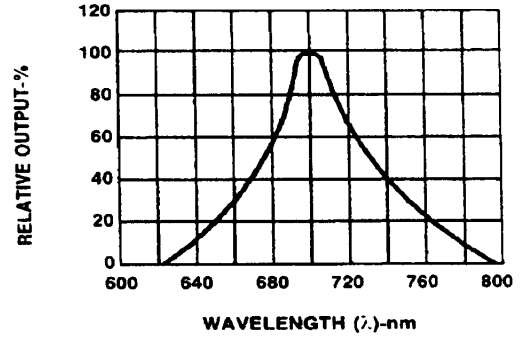
**MSD4X40C - Common Cathode**



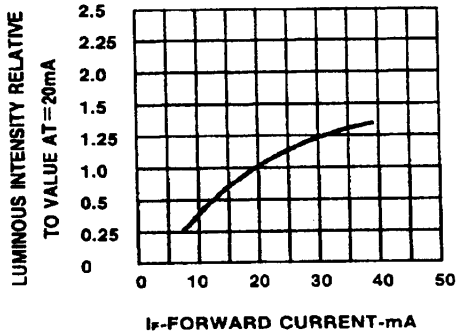
**GRAPHICAL DETAIL - Bright Red** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)



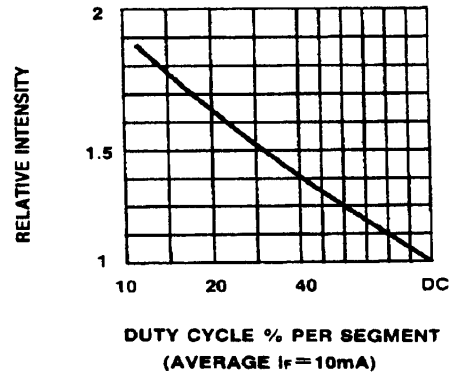
**Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.**



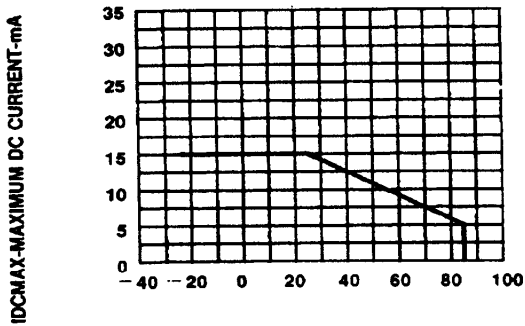
**Fig.2 SPECTRAL RESPONSE**



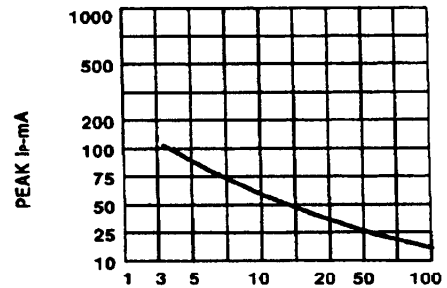
**Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT**



**Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE**



**Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.**



**Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE (REFRESH RATE  $f = 1\text{ KHz}$ )**

**GRAPHICAL DETAIL - Green** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

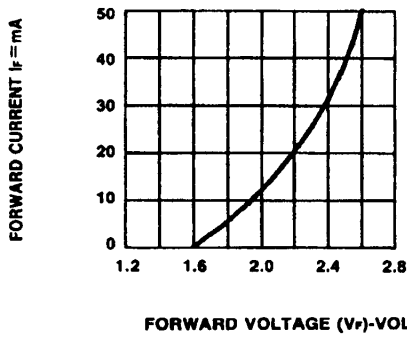


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

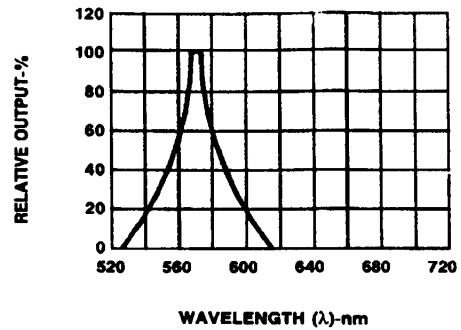


Fig.2 SPECTRAL RESPONSE

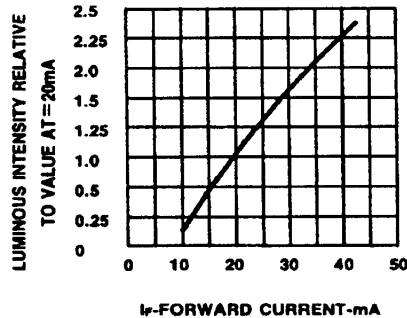


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

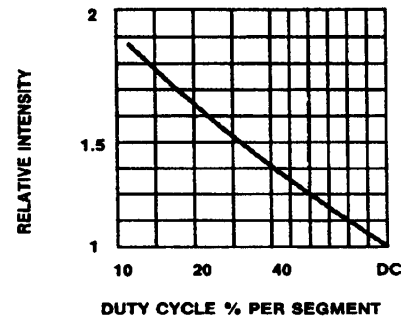


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

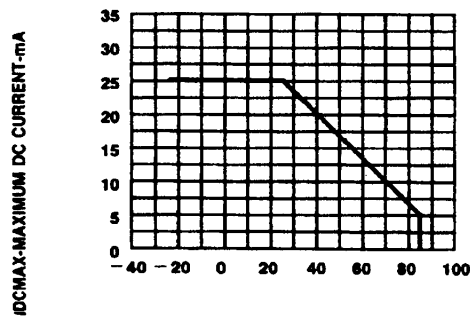


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

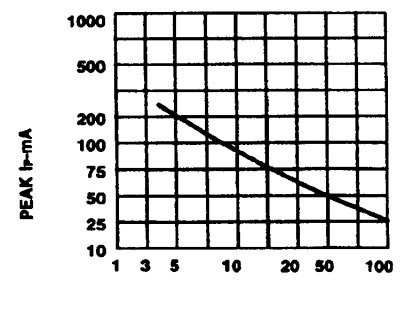


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

**GRAPHICAL DETAIL - High Efficiency Red** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

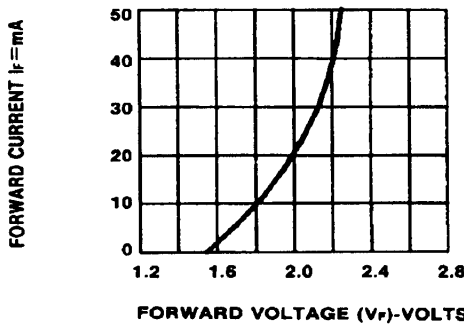


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

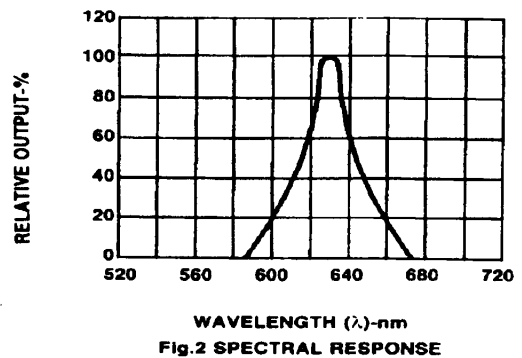


Fig.2 SPECTRAL RESPONSE

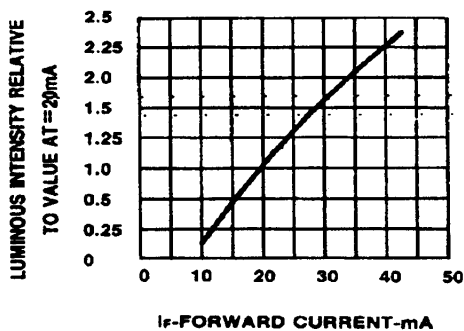


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

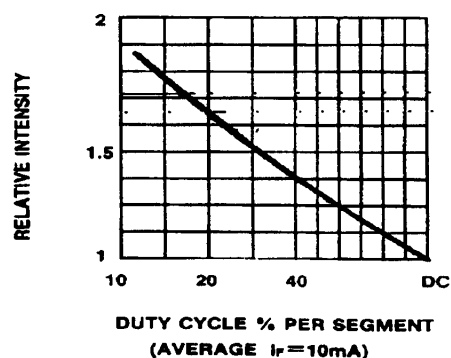


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

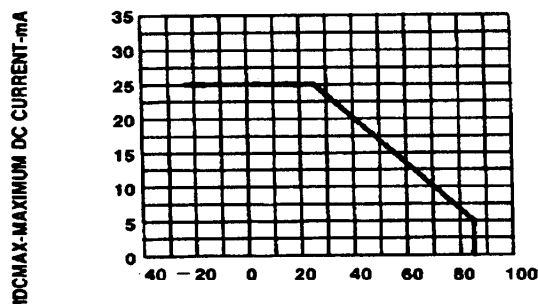


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

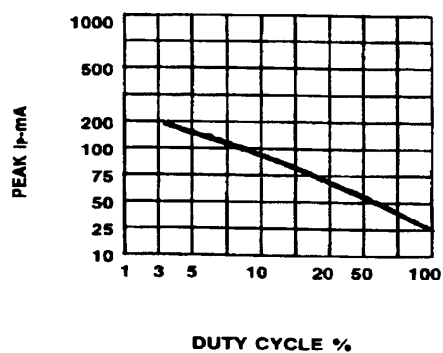


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f=1\text{ KHz}$ )

**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.