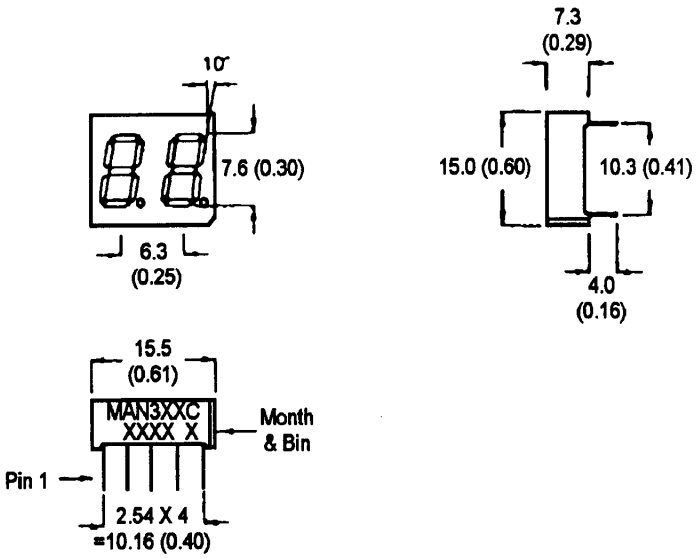
FAIRCHILD
SEMICONDUCTOR™

0.30 INCH (7.6MM) TWO DIGIT STICK DISPLAY

BRIGHT RED MSD318C, MSD319C
GREEN MSD348C, MSD349C
HIGH EFF. RED MSD398C, MSD399C

PACKAGE DIMENSIONS



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

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.

MODEL NUMBERS

Part number	Color	Description
MSD318C	Bright Red	2 Digit, Common Anode, RHDP.
MSD319C	Bright Red	2 Digit, Common Cathode, RHDP.
MSD348C	Green	2 Digit, Common Anode, RHDP.
MSD349C	Green	2 Digit, Common Cathode, RHDP.
MSD398C	High Eff. Red	2 Digit, Common Anode, RHDP.
MSD399C	High Eff. Red	2 Digit, Common Cathode, RHDP.

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

ABSOLUTE MAXIMUM RATING (T_A=25°C unless otherwise specified)

Part number	B.Red MSD 318C 319C	Green MSD 348C 349C	High Eff. Red MSD 398C 399C	Unit
Continuous forward current (I_f) Per Segment	15	25	25	mA
Peak forward current per die (I_f) (at f = 10.0 KHz, Duty factor = 1/10)	60	90	90	mA
Power dissipation (P_D)	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_A = 25°C unless otherwise specified)

Part number	B. Red MSD 318C 319C	Green MSD 348C 349C	High Eff. Red MSD 398C 399C	Test Condition
Luminous intensity (ucd)				
minimum	210	540	800	I_F = 20 mA
typical	650	1600	2200	I_F = 20 mA
Forward voltage (V_F)				
typical	2.1	2.1	2.0	I_F = 20 mA
maximum	2.6	2.8	2.8	I_F = 20 mA
Peak wavelength (nm)	697	570	635	I_F = 20 mA
Spectral line half width (nm)	90	30	45	I_F = 20 mA
Reverse breakdown voltage (V_R)	5	5	5	I_R =100 uA

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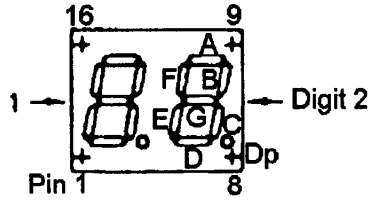
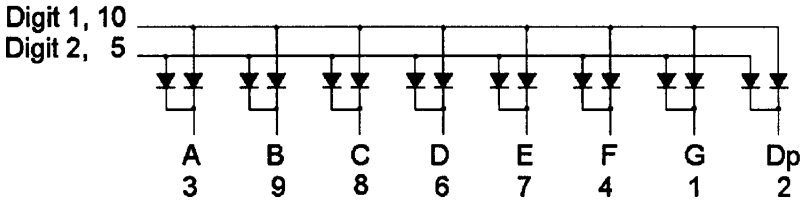
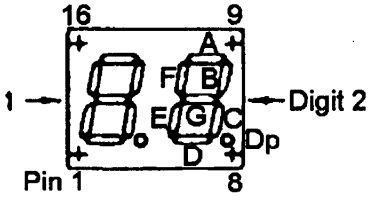
PINOUT

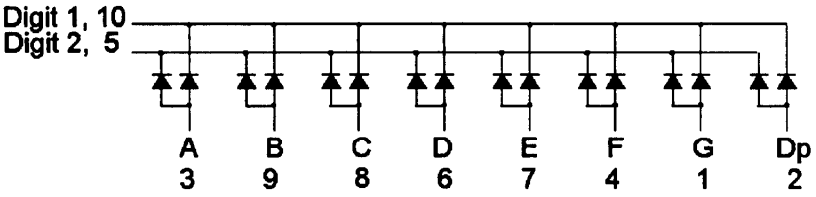
MSD3X8C - Common Anode





MSD3X9C - Common Cathode





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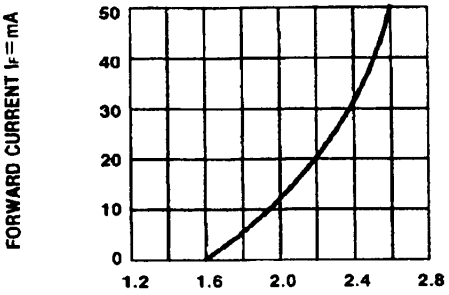
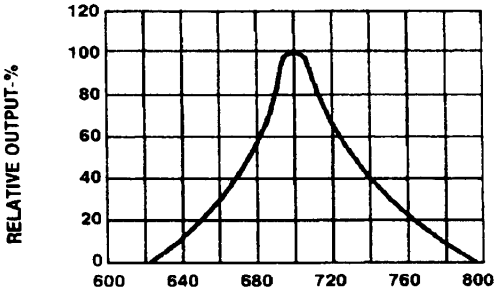
GRAPHICAL DETAIL: Bright Red (T_A = 25°C unless otherwise specified)



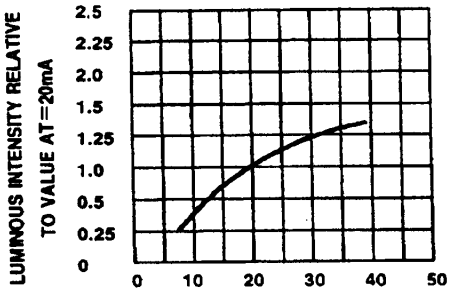
FORWARD VOLTAGE (V_F)-VOLTS

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



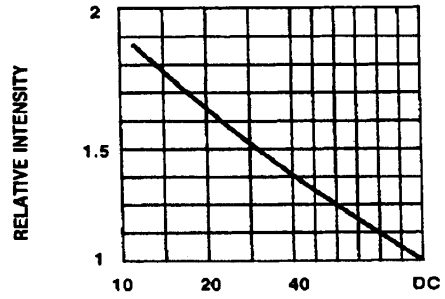
WAVELENGTH (λ)-nm

Fig.2 SPECTRAL RESPONSE



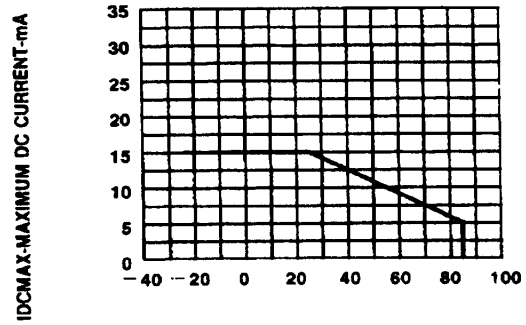
I_F-FORWARD CURRENT-mA

Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



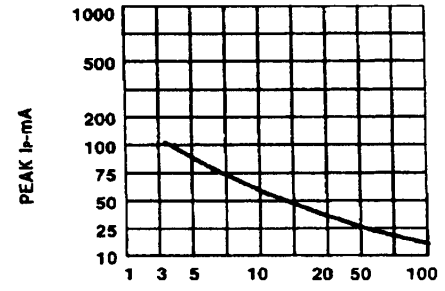
DUTY CYCLE % PER SEGMENT (AVERAGE I_F=10mA)

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



T_A AMBIENT TEMPERATURE °C

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



DUTY CYCLE %

Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)

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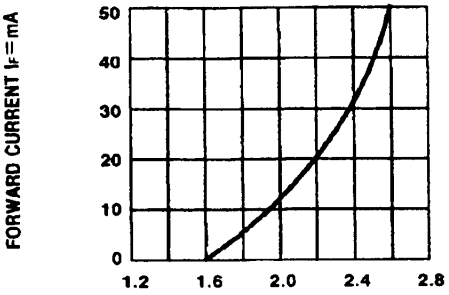
GRAPHICAL DETAIL: Bright Red (T_A = 25°C unless otherwise specified)



FORWARD VOLTAGE (V_F)-VOLTS

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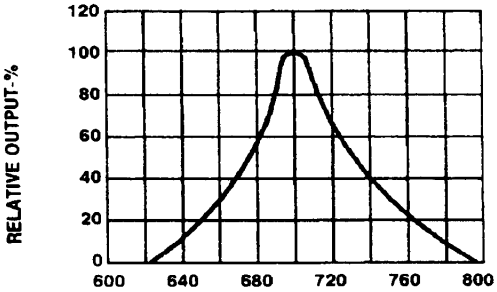
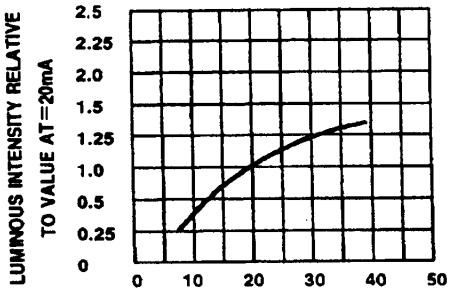


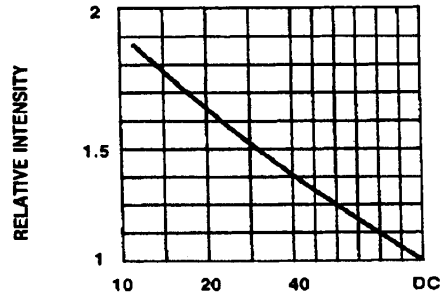
WAVELENGTH (λ)-nm

Fig.2 SPECTRAL RESPONSE



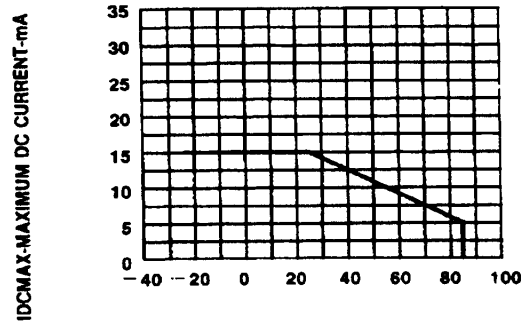
I_F-FORWARD CURRENT-mA

Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



DUTY CYCLE % PER SEGMENT (AVERAGE I_F=10mA)

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



T_A AMBIENT TEMPERATURE °C

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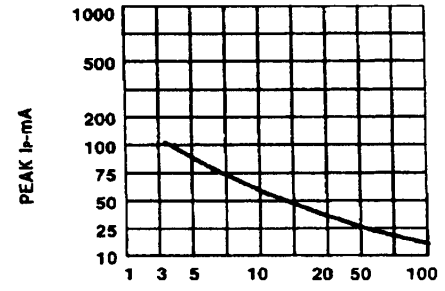

DUTY CYCLE %

Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)

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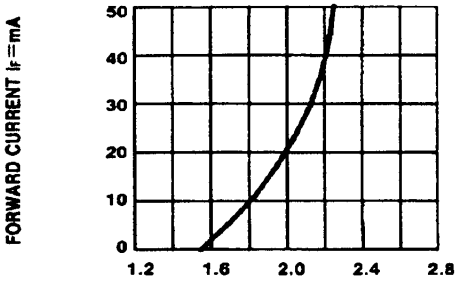
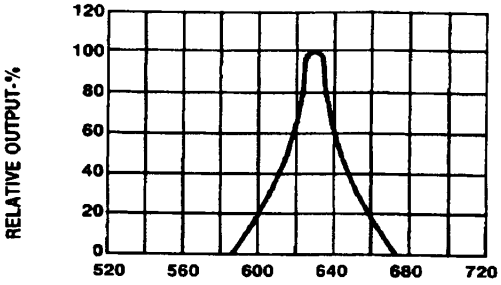
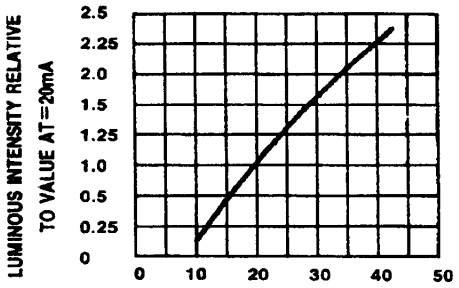
GRAPHICAL DETAIL: High Efficiency Red (T_A = 25°C unless otherwise specified)



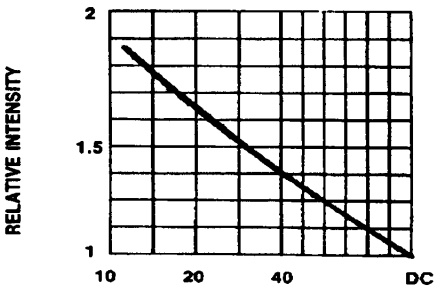
FORWARD VOLTAGE (V_F)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



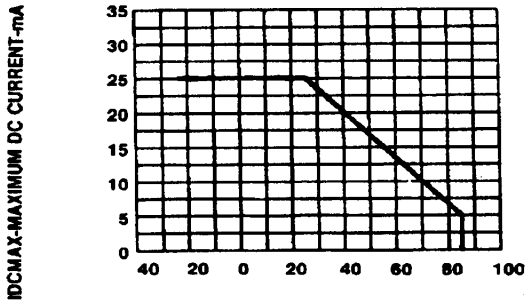
WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



I_F-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



DUTY CYCLE % PER SEGMENT (AVERAGE I_F=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



T_A AMBIENT TEMPERATURE °C
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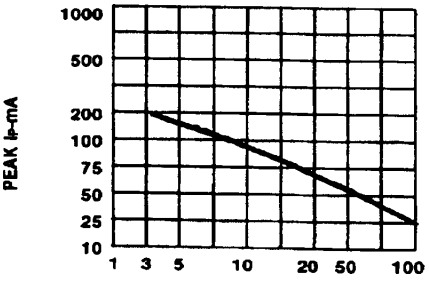

DUTY CYCLE %
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)

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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.