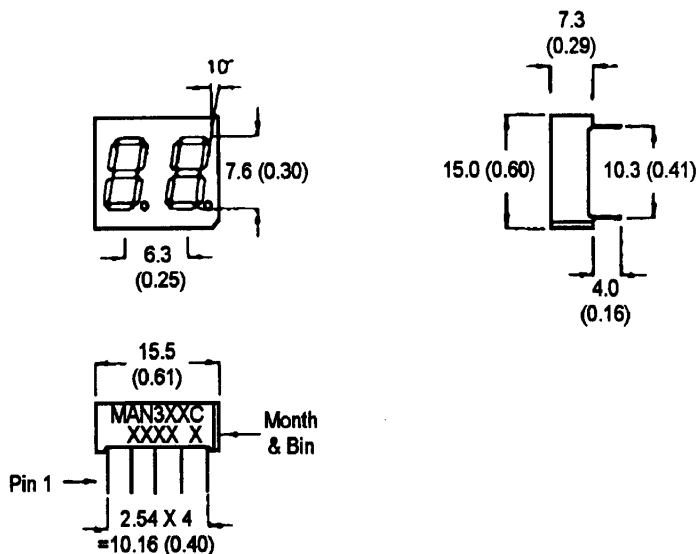


**BRIGHT RED MSD318C, MSD319C
GREEN MSD348C, MSD349C
HIGH EFF. RED MSD398C, MSD399C**

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

<u>Part number</u>	<u>Color</u>	<u>Description</u>
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 ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

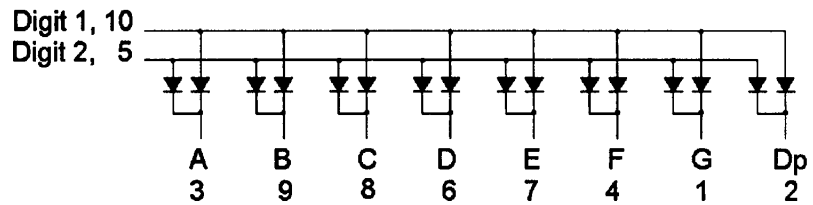
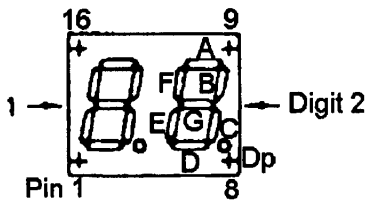
	B.Red MSD 318C 319C	Green MSD 348C 349C	High Eff. Red MSD 398C 399C	Unit
Part number				
Continuous forward current (I_f)				
Per Segment.....	15	25	25	mA
Peak forward current per die (I_f)..... (at $f = 10.0$ KHz, Duty factor = 1/10)	60	90	90	mA
Power dissipation (P_D).....	40*	70*	70*	mW
*Derate Linearly from 25°C	0.17	0.33	0.33	mW/ $^{\circ}\text{C}$
Reverse voltage per dice.....	5V			
Operating and Storage temperature range.....	- 40°C to $+85^{\circ}\text{C}$			
Lead soldering time (at 1/16 inch from the bottom of lamp).....	5 seconds @ 230°C			

ELECTRO - OPTICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise specified)

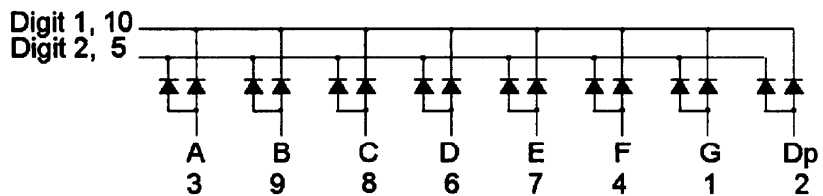
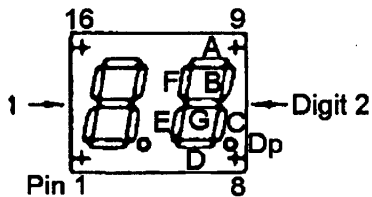
	B. Red MSD 318C 319C	Green MSD 348C 349C	High Eff. Red MSD 398C 399C	Test Condition
<u>Part number</u>				
Luminous intensity (ucd)				
minimum	210	540	800	$I_f = 20$ mA
typical	650	1600	2200	$I_f = 20$ mA
Forward voltage (V_f)				
typical	2.1	2.1	2.0	$I_f = 20$ mA
maximum	2.6	2.8	2.8	$I_f = 20$ mA
Peak 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

PINOUT

MSD3X8C - Common Anode



MSD3X9C - Common Cathode



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

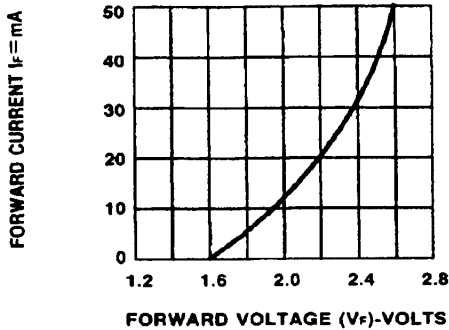


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

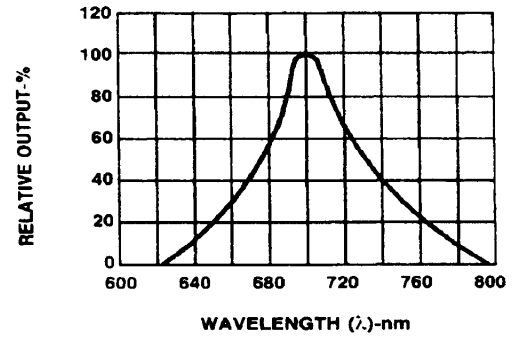


Fig.2 SPECTRAL RESPONSE

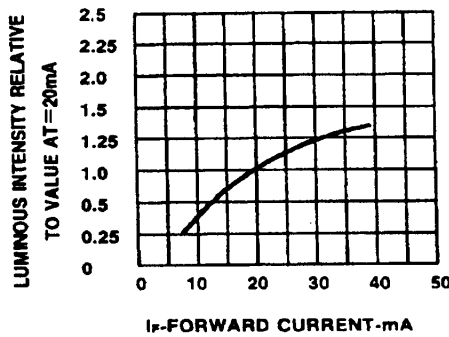


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

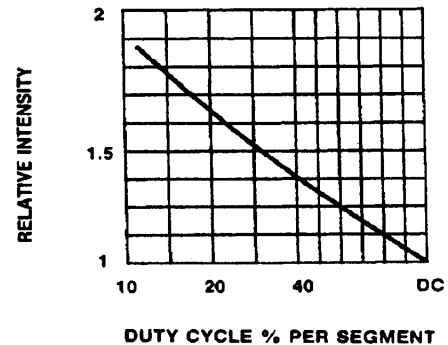


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

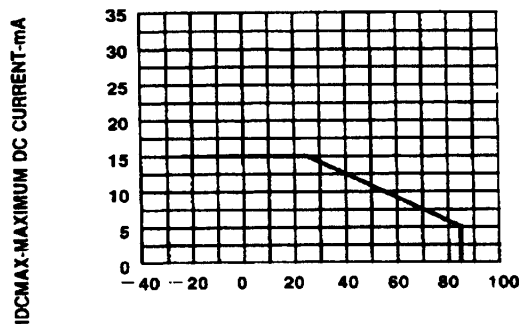


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

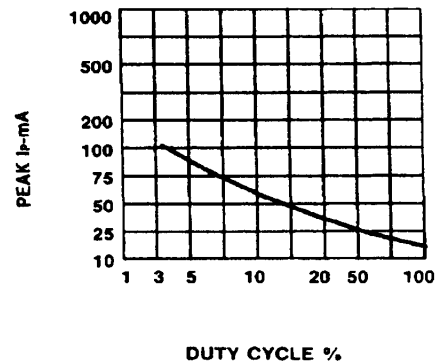


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1\text{ KHz}$)

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

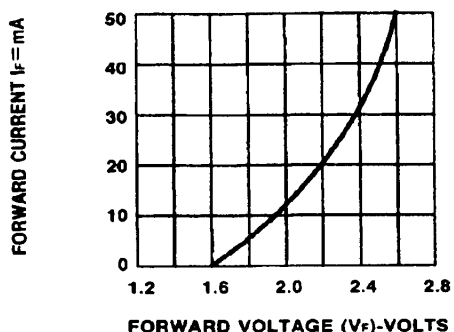


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

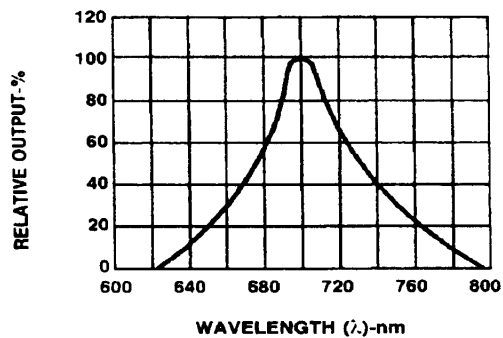


Fig.2 SPECTRAL RESPONSE

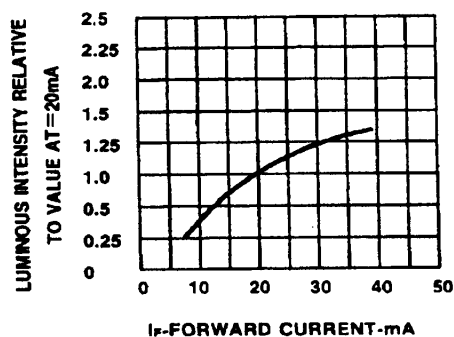


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

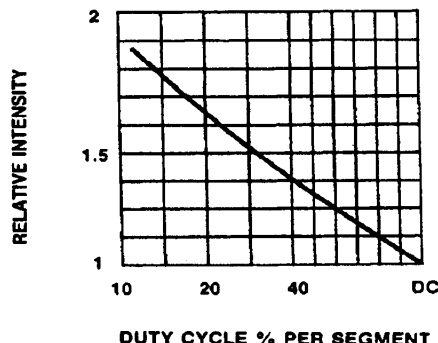


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

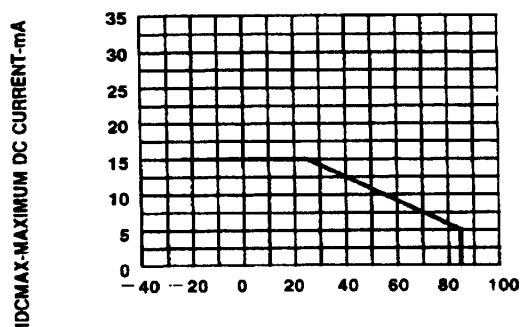


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

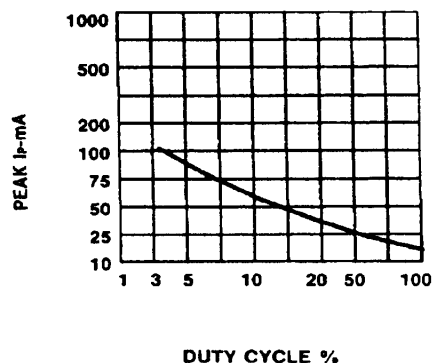


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

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

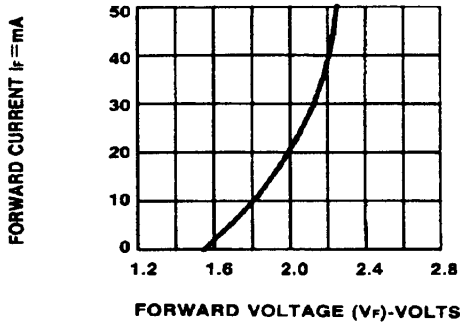


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

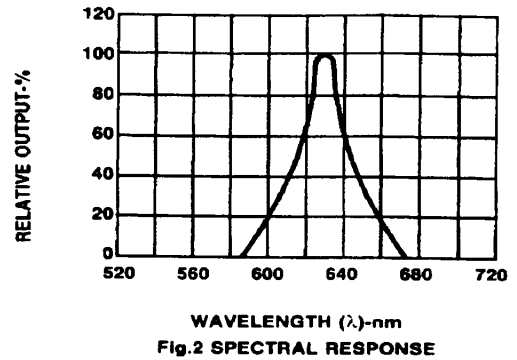


Fig.2 SPECTRAL RESPONSE

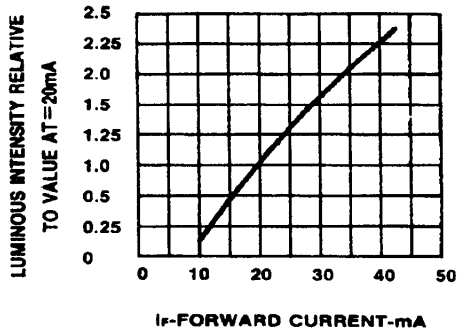


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

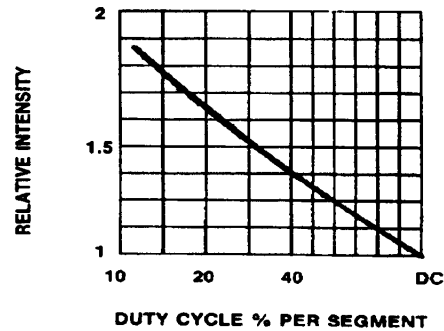


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

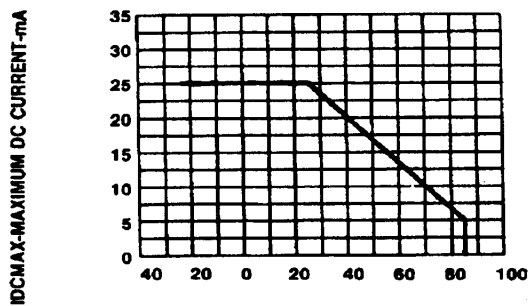


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

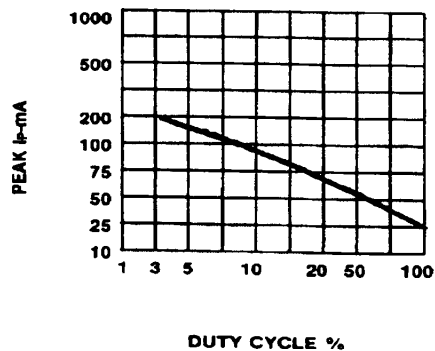


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f=1\text{ KHz}$)

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