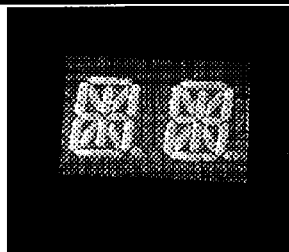


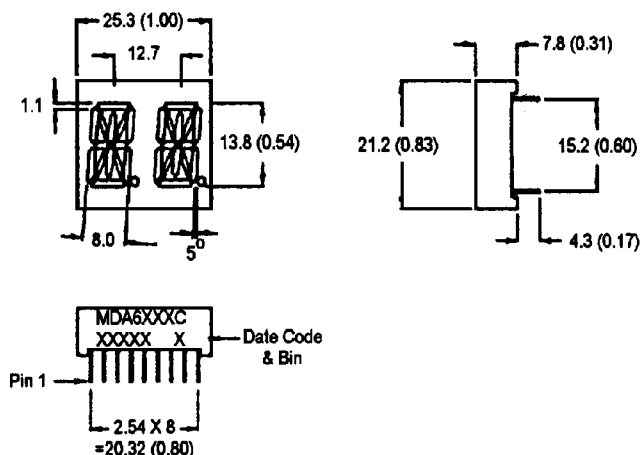


# 0.54 INCH (13.7MM) 14 SEGMENT, DUAL DIGIT ALPHA - NUMERIC STICK DISPLAY



**BRIGHT RED** MDA6110C, MDA6140C  
**YELLOW** MDA6310C, MDA6340C  
**GREEN** MDA6410C, MDA6440C  
**HIGH EFF. RED** MDA6910C, MDA6940C

## PACKAGE DIMENSIONS



**NOTES:** Dimensions are in mm (inch).  
 All pins are 0.5 (0.02) diameter  
 Tolerances are  $\pm 0.25$  (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>                        |
|--------------------|---------------|-------------------------------------------|
| MDA6110C           | Bright Red    | 2 Digit; Common Anode; Rt. Hand Decimal   |
| MDA6140C           | Bright Red    | 2 Digit; Common Cathode; Rt. Hand Decimal |
| MDA6310C           | Yellow        | 2 Digit; Common Anode; Rt. Hand Decimal   |
| MDA6340C           | Yellow        | 2 Digit; Common Cathode; Rt. Hand Decimal |
| MDA6410C           | Green         | 2 Digit; Common Anode; Rt. Hand Decimal   |
| MDA6440C           | Green         | 2 Digit; Common Cathode; Rt. Hand Decimal |
| MDA6910C           | High Eff. Red | 2 Digit; Common Anode; Rt. Hand Decimal   |
| MDA6940C           | High Eff. Red | 2 Digit; Common Cathode; Rt. Hand Decimal |

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



# 0.54 INCH (13.7MM) 14 SEGMENT, DUAL DIGIT ALPHA - NUMERIC STICK DISPLAY

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

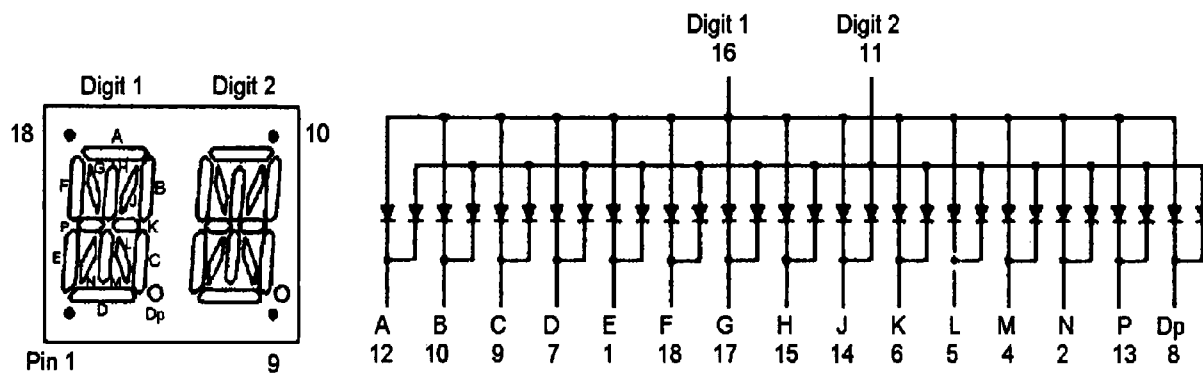
| Part number                                                                             | B.Red<br>MDA<br>6110C<br>6140C | Yellow<br>MDA<br>6310C<br>6340C | Green<br>MDA<br>6410C<br>6440C | High Eff. Red<br>MDA<br>6910C<br>6940C | Unit              |
|-----------------------------------------------------------------------------------------|--------------------------------|---------------------------------|--------------------------------|----------------------------------------|-------------------|
| Continuous forward current (I <sub>F</sub> )                                            |                                |                                 |                                |                                        |                   |
| Per Segment.....                                                                        | 15                             | 20                              | 30                             | 30                                     | mA                |
| Peak forward current per die (I <sub>P</sub> ).<br>(at f = 1.0 KHz, Duty factor = 1/10) | 50                             | 80                              | 90                             | 160                                    | mA                |
| Power dissipation (P <sub>D</sub> ).....                                                | 40*                            | 70*                             | 70*                            | 90*                                    | mW                |
| *Derate Linearly From 25°C.....                                                         | 0.17                           | 0.25                            | 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)

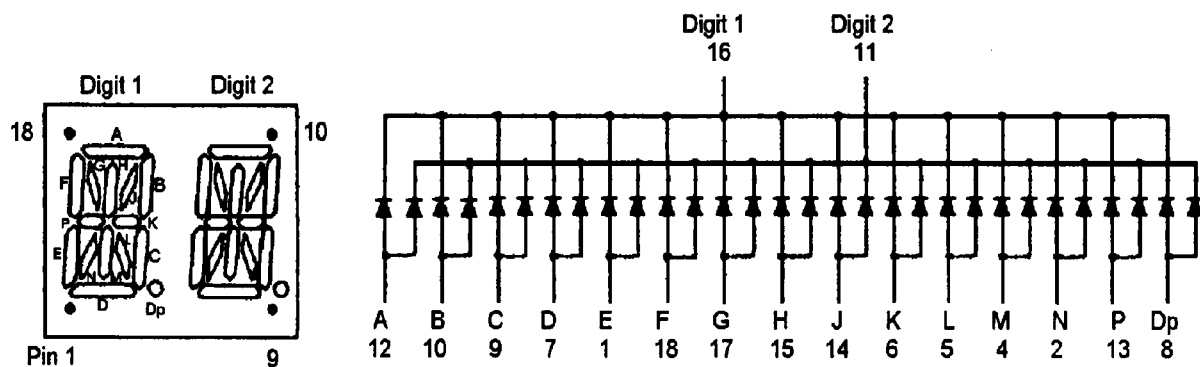
| Part number                                 | B. Red<br>MDA<br>6110C<br>6140C | Yellow<br>MDA<br>6310C<br>6340C | Green<br>MDA<br>6410C<br>6440C | High Eff. Red<br>MDA<br>6910C<br>6940C | Test<br>Condition       |
|---------------------------------------------|---------------------------------|---------------------------------|--------------------------------|----------------------------------------|-------------------------|
| Luminous intensity (ucd)                    |                                 |                                 |                                |                                        | I <sub>F</sub> = 20 mA  |
| minimum                                     | 500                             | 1000                            | 750                            | 1000                                   |                         |
| typical                                     | 1400                            | 4000                            | 5000                           | 4000                                   |                         |
| Forward voltage (V <sub>F</sub> )           |                                 |                                 |                                |                                        | I <sub>F</sub> = 20 mA  |
| typical                                     | 2.1                             | 2.1                             | 2.1                            | 2.0                                    |                         |
| maximum                                     | 2.6                             | 2.8                             | 2.8                            | 2.8                                    |                         |
| Peak wavelength (nm)                        | 697                             | 590                             | 570                            | 635                                    | I <sub>F</sub> = 20 mA  |
| Spectral line half width (nm)               | 90                              | 35                              | 30                             | 45                                     | I <sub>F</sub> = 20 mA  |
| Reverse breakdown voltage (V <sub>R</sub> ) | 5                               | 5                               | 5                              | 5                                      | I <sub>R</sub> = 100 uA |

## PINOUT

**MDA6X10C - Common Anode; Pin 3 - no connection**



**MDA6X40C - Common Cathode; Pin 3 - no connection**



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

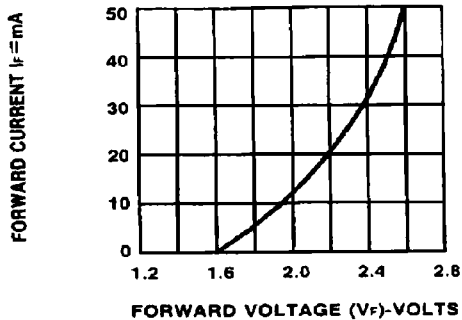


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

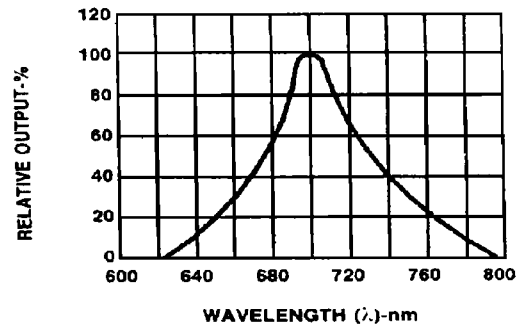


Fig.2 SPECTRAL RESPONSE

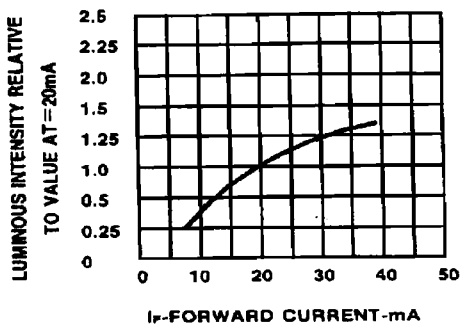


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

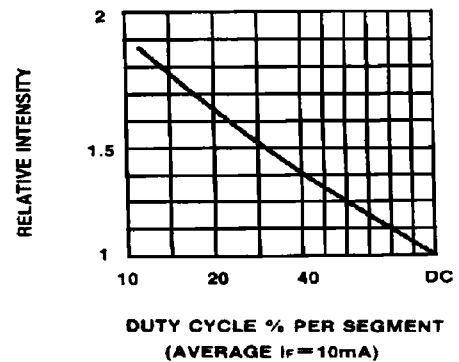


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

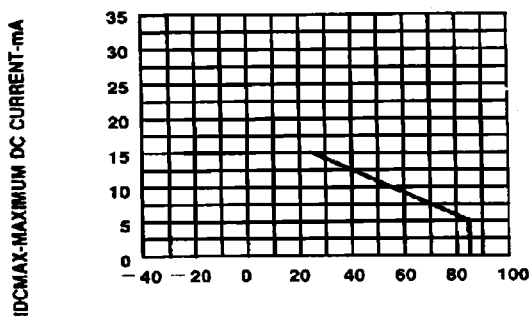


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

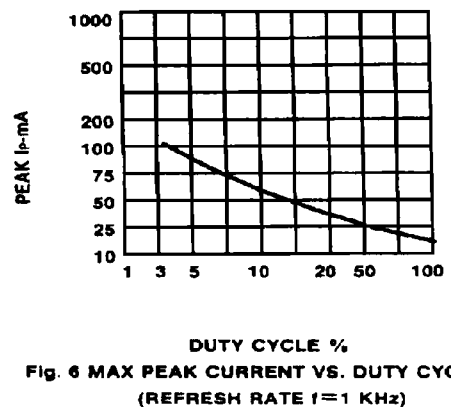


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1\text{ KHz}$ )

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

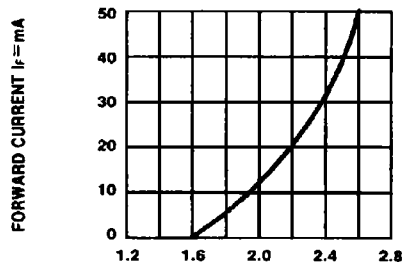


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

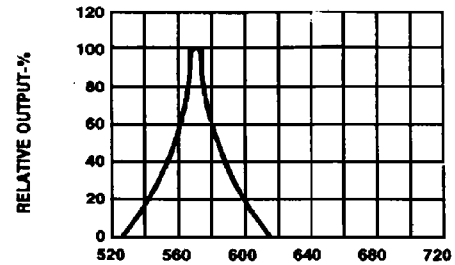


Fig.2 SPECTRAL RESPONSE

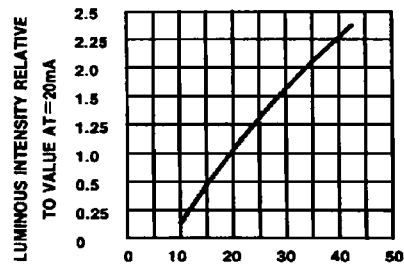


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

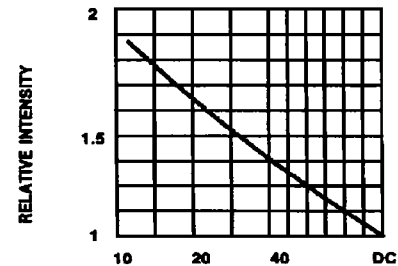


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

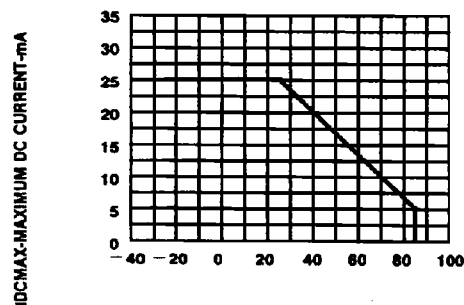


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

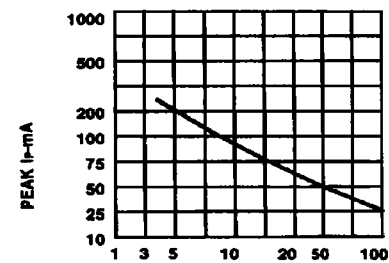


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

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

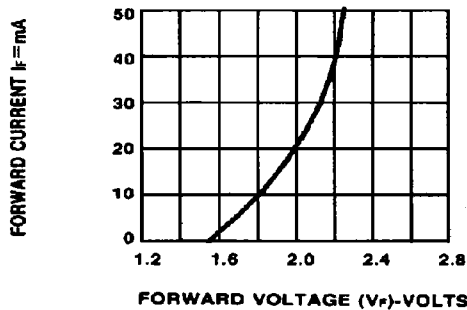


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

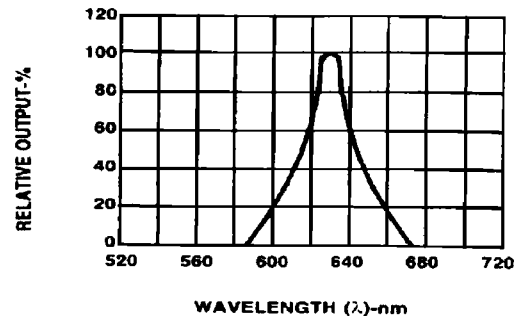


Fig.2 SPECTRAL RESPONSE

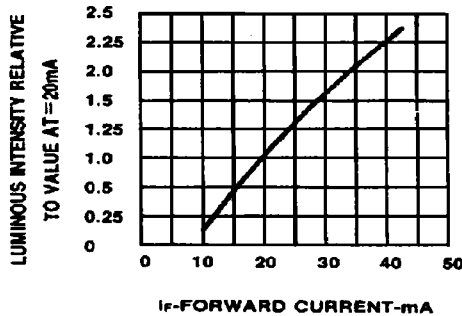


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

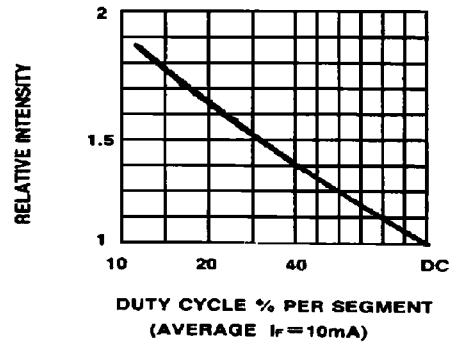


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

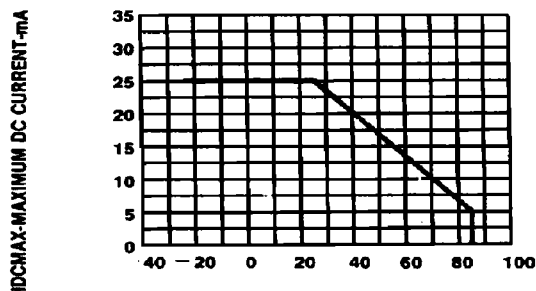


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

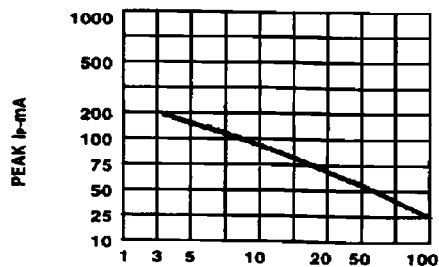


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1 \text{ KHz}$ )

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

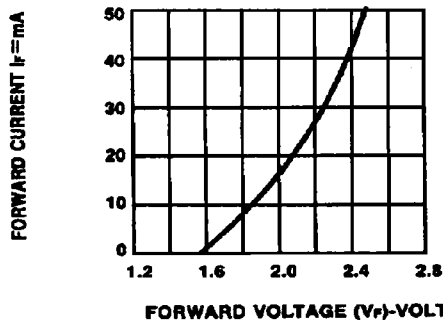


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

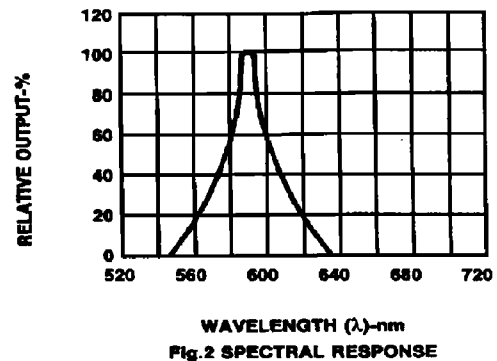


Fig.2 SPECTRAL RESPONSE

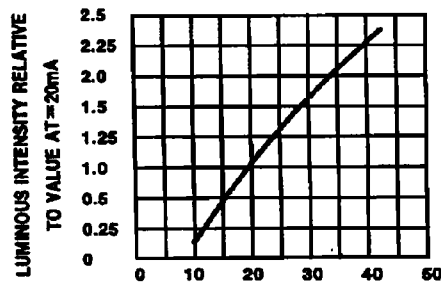


Fig.3 RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT

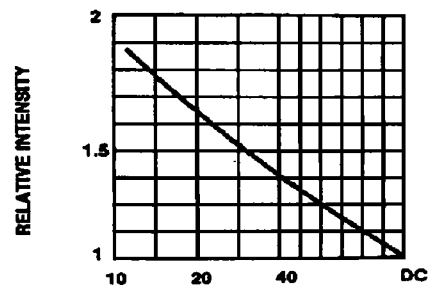


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE  
(AVERAGE  $I_F = 10\text{mA}$ )

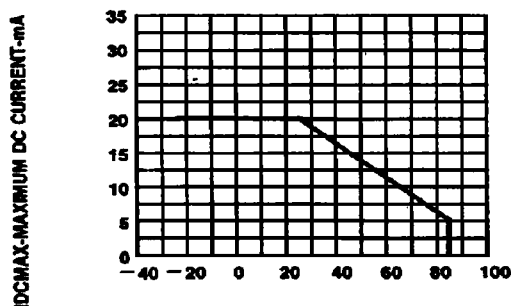


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER  
SEGMENT VS. A FUNCTION OF AMBIENT  
TEMPERATURE.

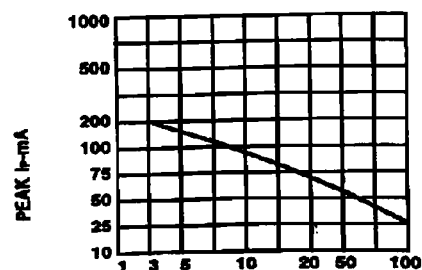


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1\text{ KHz}$ )