

## Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Fairchild Semiconductor](#)  
[MSA5160C](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

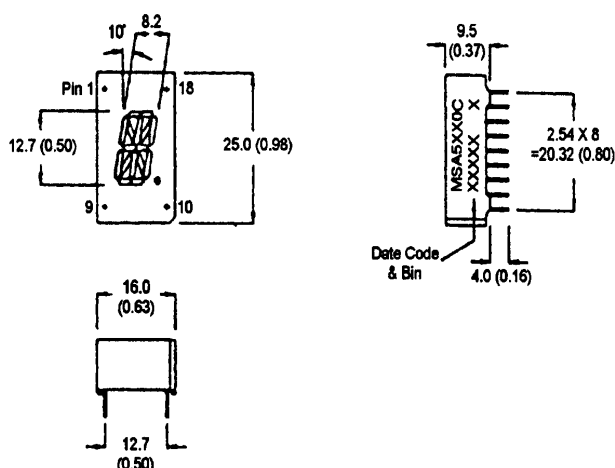
**FAIRCHILD**

**SEMICONDUCTOR™**

**0.5 INCH (12.7MM)  
16 SEGMENT, SINGLE DIGIT  
ALPHA - NUMERIC STICK DISPLAY**

**BRIGHT RED MSA5160C, MSA5180C  
YELLOW MSA5360C, MSA5380C  
GREEN MSA5460C, MSA5480C  
HIGH EFF. RED MSA5960C, MSA5980C**

**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.  
1 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>
<b>MSA5160C</b>	<b>Bright Red</b>	<b>2 Digit; Common Anode; Rt. Hand Decimal</b>
<b>MSA5180C</b>	<b>Bright Red</b>	<b>2 Digit; Common Cathode; Rt. Hand Decimal</b>
<b>MSA5360C</b>	<b>Yellow</b>	<b>2 Digit; Common Anode; Rt. Hand Decimal</b>
<b>MSA5380C</b>	<b>Yellow</b>	<b>2 Digit; Common Cathode; Rt. Hand Decimal</b>
<b>MSA5460C</b>	<b>Green</b>	<b>2 Digit; Common Anode; Rt. Hand Decimal</b>
<b>MSA5480C</b>	<b>Green</b>	<b>2 Digit; Common Cathode; Rt. Hand Decimal</b>
<b>MSA5960C</b>	<b>High Eff. Red</b>	<b>2 Digit; Common Anode; Rt. Hand Decimal</b>
<b>MSA5980C</b>	<b>High Eff. Red</b>	<b>2 Digit; Common Cathode; Rt. Hand Decimal</b>

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

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

	B.Red MSA 5160C 5180C	Yellow MSA 5360C 5380C	Green MSA 5460C 5480C	High Eff. Red MSA 5960C 5980C	Unit
Part number					
Continuous forward current (I <sub>F</sub> )					
Per Segment.....	15	20	25	25	mA
Peak forward current per die (I <sub>F</sub> )	50	90	90	90	mA
(at f = 10.0 KHz, Duty factor = 1/10)					
Power dissipation (P <sub>D</sub> ).....	40*	70*	70*	70*	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)

	B. Red MSA 6110C 6140C	Yellow MSA 6310C 6340C	Green MSA 6410C 6440C	High Eff. Red MSA 6910C 6940C	Test Condition
Part number					
Luminous intensity (ucd)					I <sub>F</sub> = 20 mA
minimum	320	800	800	800	
typical	750	2200	2000	2000	
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

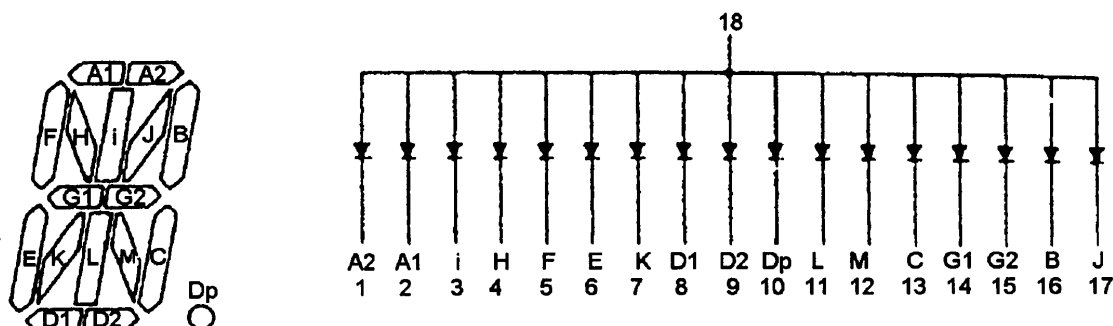
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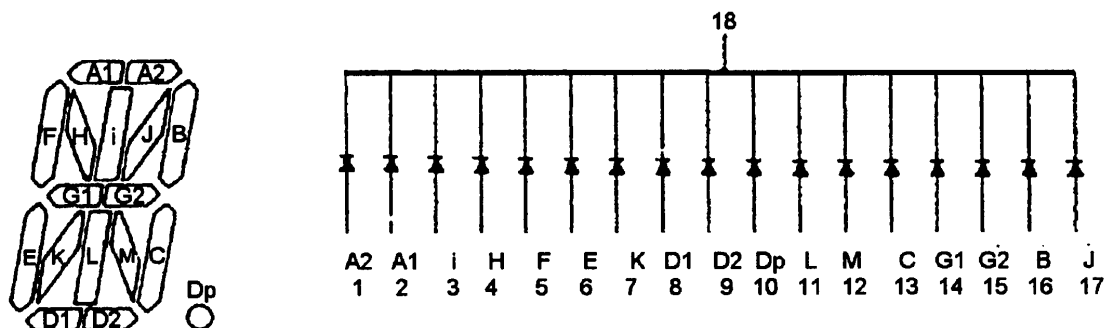
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## PINOUT

### MSA6X10C - Common Anode



### MSA6X40C - Common Cathode



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

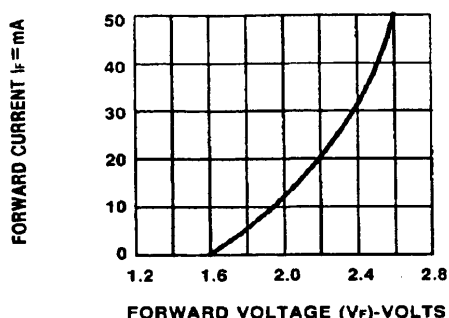


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

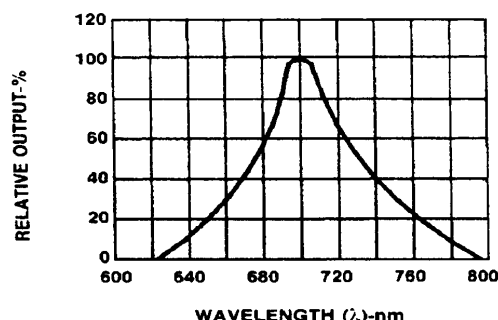


Fig.2 SPECTRAL RESPONSE

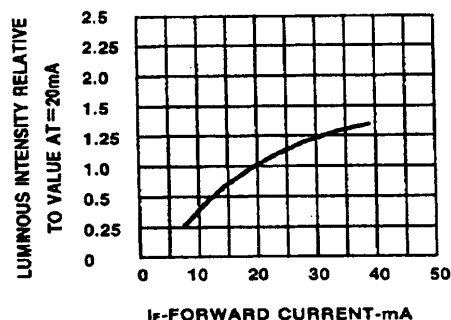


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

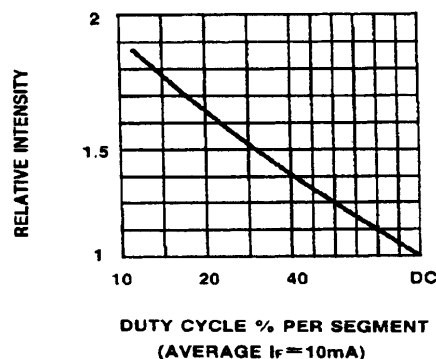


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

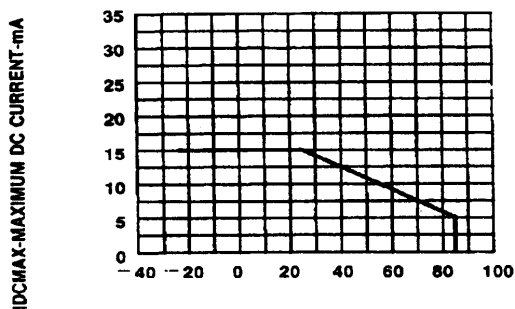


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

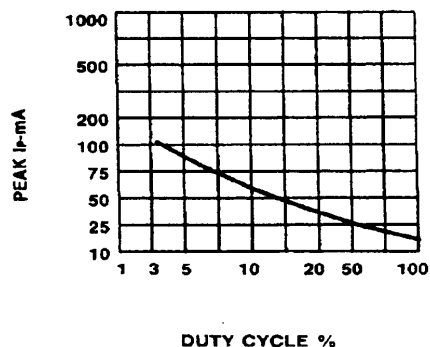


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )

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

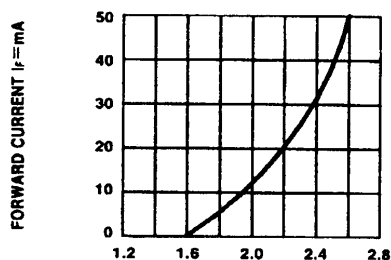


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

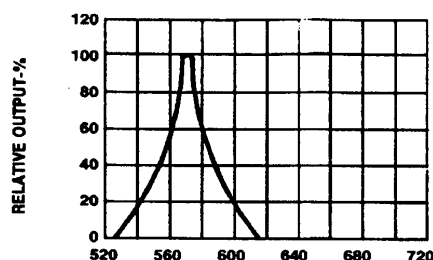


Fig.2 SPECTRAL RESPONSE

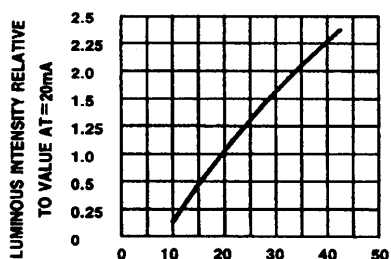


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

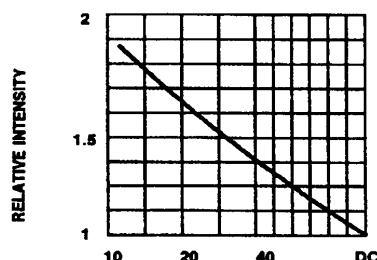


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

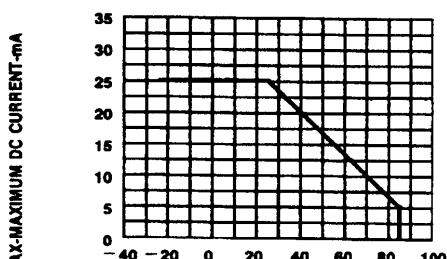


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

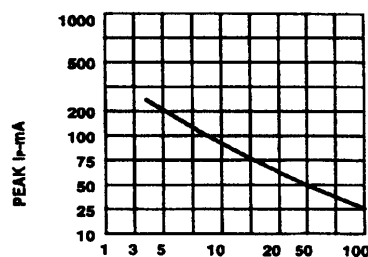


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1 \text{ KHz}$ )

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

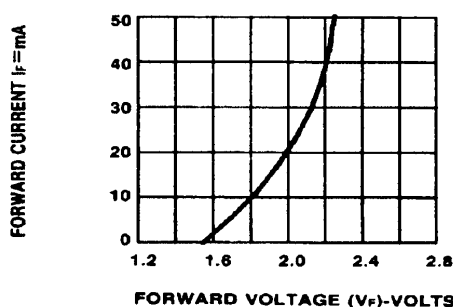


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

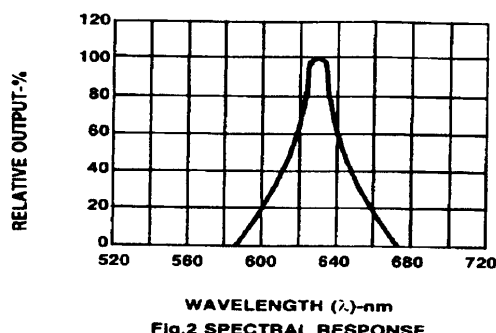


Fig.2 SPECTRAL RESPONSE

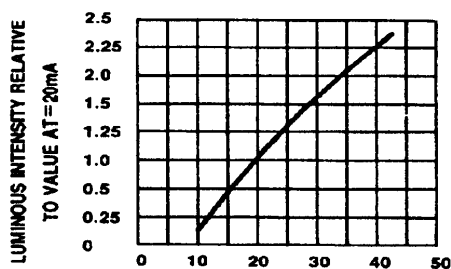


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

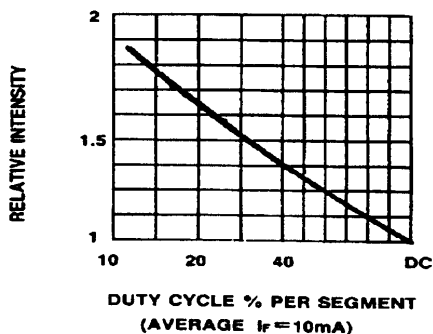


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

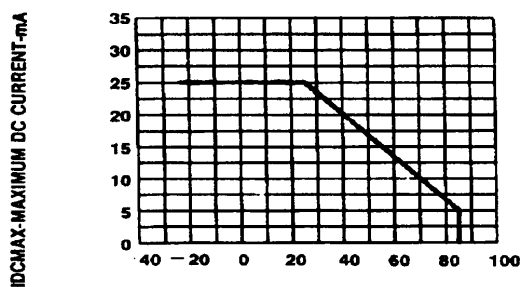


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

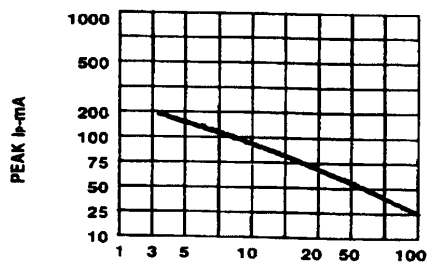


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )

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

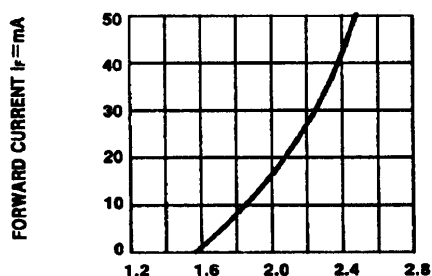


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

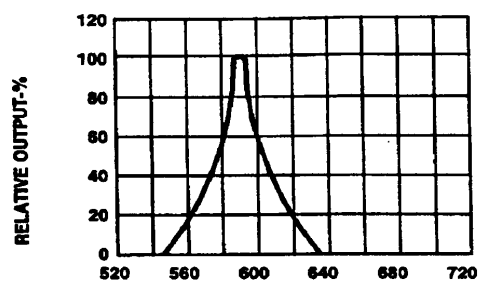


Fig.2 SPECTRAL RESPONSE

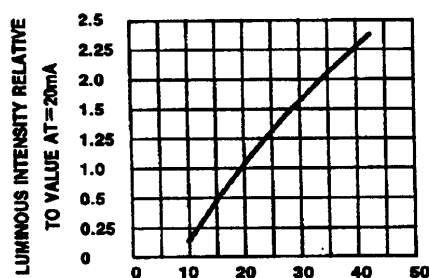


Fig.3 RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT

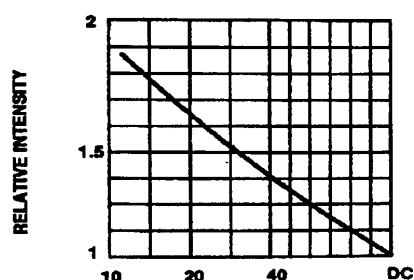


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE  
(AVERAGE  $I_F = 10\text{mA}$ )

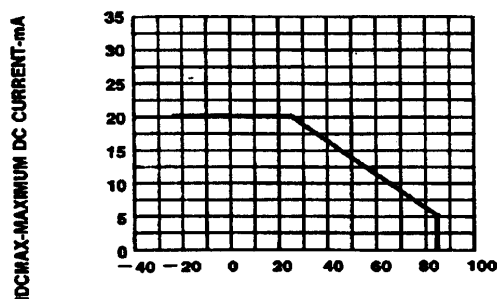


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER  
SEGMENT VS. A FUNCTION OF AMBIENT  
TEMPERATURE.

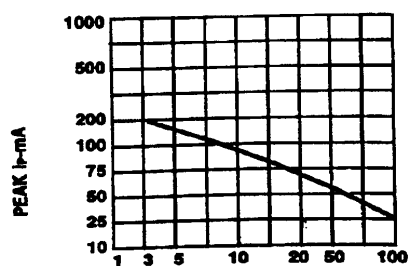


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1\text{ KHz}$ )



## 0.5 INCH (12.7MM) 16 SEGMENT, SINGLE DIGIT ALPHA - NUMERIC STICK DISPLAY

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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.