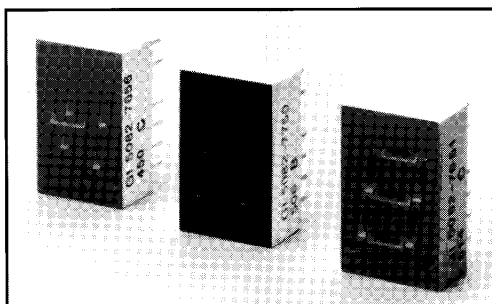




## 0.43-INCH SEVEN SEGMENT DISPLAYS

### HIGH EFFICIENCY RED 5082-7650 SERIES RED 5082-7700 SERIES



#### FEATURES

- Industry-standard 0.43-inch displays
- High Efficiency Red and standard Red models
- Left or right decimal versions
- Common anode or common cathode
- Solid state reliability — long operating life
- Impact-resistant plastic construction
- Standard 14 pin DIP configuration
- Categorized for Luminous Intensity
- Wide viewing angle...150°
- Directly compatible with integrated circuits

#### DESCRIPTION

The 5082-7650 and 5082-7700 Series are families of High Efficiency Red and Red seven segment LED displays with 0.43-inch digit height. For maximum ON/OFF contrast, 5082-7650 Series displays have Red face and Red segment color. 5082-7700 Series have Black face and Red segment color.

#### APPLICATIONS

- Instrumentation
- Point of sale terminals
- Appliances
- Digital clocks
- Industrial control equipment

#### MODEL NUMBERS

PART NO.	COLOR	DESCRIPTION
5082-7650	High Efficiency Red	Common Anode; Left Hand Decimal
5082-7651	High Efficiency Red	Common Anode; Right Hand Decimal
5082-7653	High Efficiency Red	Common Cathode; Right Hand Decimal
5082-7656	High Efficiency Red	Universal Overflow $\pm 1$ ; Right Hand Decimal
5082-7750	Red	Common Anode; Left Hand Decimal
5082-7751	Red	Common Anode; Right Hand Decimal
5082-7756	Red	Universal Overflow $\pm 1$ ; Right Hand Decimal
5082-7760	Red	Common Cathode; Right Hand Decimal

#### RECOMMENDED OPTICAL FILTER

##### 5082-7650 SERIES

Panelgraphic Scarlet 65  
Homalite 100-1670  
Panelgraphic Gray 10  
Homalite 100-126

##### 5082-7750 SERIES

Panelgraphic Red 60  
Homalite 100-1605

<b>ELECTRO-OPTICAL CHARACTERISTICS</b> (Per Diode at 25°C Free Air Temperature Unless Otherwise Specified)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
<b>5082-7650 SERIES</b>						
Luminous Intensity	$I_L$	340	840		$\mu\text{cd}$	$I_F = 5 \text{ mA DC}$
(Digit average, seven segments Notes 1, 2)			3500 1765		$\mu\text{cd}$ $\mu\text{cd}$	$I_F = 20 \text{ mA DC}$ $I_F = 60 \text{ mA pk, 1:6 DF}$
Peak emission wavelength	$\lambda_p$		630		nm	
Spectral line halfwidth	$\Delta\lambda_{1/2}$		40		nm	
Forward voltage	$V_F$		2.0	2.5	V	$I_F = 20 \text{ mA DC}$
Dynamic resistance	$R_d$		26		$\Omega$	$I_{FTH}, V_{FTH}$
Capacitance	C		35		pf	$V_F = 0$
Reverse current	$I_R$			100	$\mu\text{A}$	$V_R = 3.0 \text{ V}$
Ratio $I_L$ (max. $I_L$ /min. $I_L$ )	r			2.0:1		$I_F = 20 \text{ mA DC}$
<b>5082-7750 SERIES</b>						
Luminous Intensity	$I_L$	320	980		$\mu\text{cd}$	$I_F = 20 \text{ mA}$
(Digit average, seven segments Notes 1, 2)			610		$\mu\text{cd}$	$I_F = 100 \text{ mA Pk}$ 1:10 DF
Peak emission wavelength	$\lambda_p$		650		nm	
Spectral line halfwidth	$\Delta\lambda_{1/2}$		20		nm	
Forward voltage	$V_F$		1.6	2.0	V	$I_F = 20 \text{ mA}$
Dynamic resistance	$R_d$		2.0		$\Omega$	$I_{FTH}, V_{FTH}$
Capacitance	C		35		pf	$V_F = 0$
Reverse current	$I_R$			100	$\mu\text{A}$	$V_R = 5.0 \text{ V}$
Ratio $I_L$ (max. $I_L$ /min. $I_L$ )	r			2.0:1		$I_F = 20 \text{ mA}$

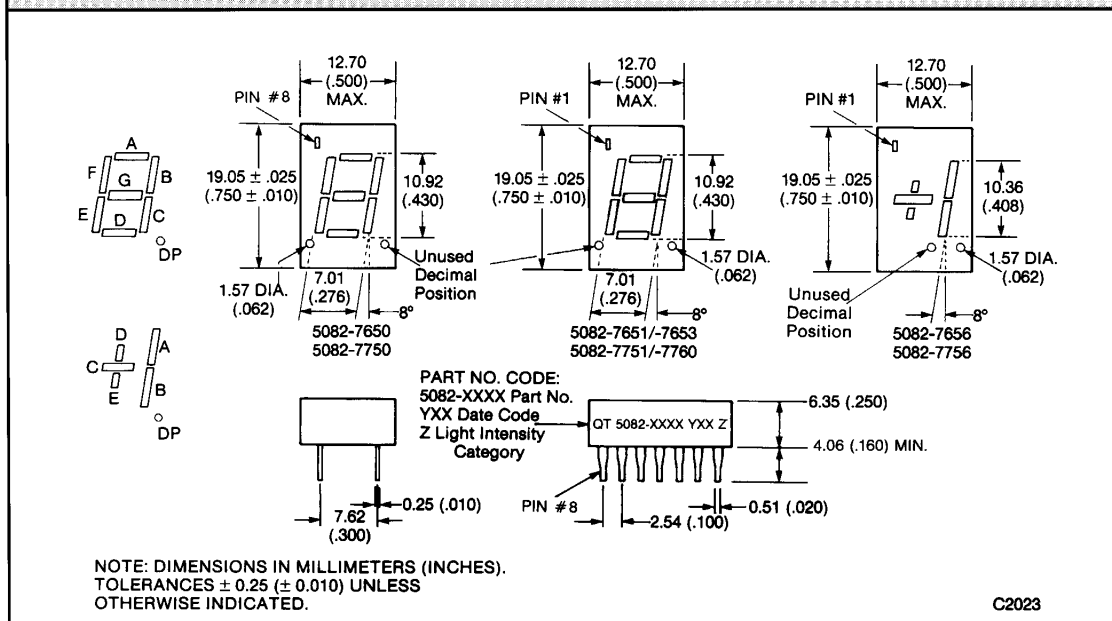
<b>ABSOLUTE MAXIMUM RATINGS</b>				
	HIGH EFFICIENCY RED		RED	
	5082-7650 5082-7651 5082-7653	5082-7656	5082-7750 5082-7751 5082-7760	5082-7756
Power dissipation at 50°C ambient	840 mW	630 mW	520 mW	390 mW
Derate linearly from 50°C	-16 mW/C°	-12 mW/C°	-6.9 mW/C°	-5.2 mW/C°
Storage and operating temperature	-40°C to +85°C			
Continuous forward current				
Total	240 mA	180 mA	200 mA	150 mA
Per segment or decimal point	30 mA	30 mA	25 mA	25 mA
Reverse voltage				
Per segment or decimal point	3 V	3 V	3 V	3 V
Soldering time at 260°C (See Notes 4 and 5.)	3 sec.	3 sec.	3 sec.	3 sec.

<b>NOTES</b>	
1.	The digit average Luminous Intensity is obtained by summing the Luminous Intensity of each segment and dividing by the total number of segments excluding decimal points. Intensity will not vary more than $\pm 33.3\%$ between all segments within a digit.
2.	All displays are categorized for Luminous Intensity. The Intensity category is marked on each part as a suffix letter to the part number.
3.	Intensity adjusted for smaller areas of the "+" and decimal points.
4.	Leads immersed to 1/16 inch from the body of the device. Maximum unit surface temperature is 140°C.
5.	For flux removal, use Freon TF, Freon TE, Isopropanol, or water up to their boiling points.

### TYPICAL THERMAL CHARACTERISTICS

	5082-765X	5082-775X	SYMBOL	TEST CONDITIONS
Thermal resistance junction to ambient .....	280°C/W	280°C/W	$\theta_{JA}$	
Wavelength temperature coefficient (case temp.) .....	0.1 nm/°C	0.3 nm/°C	$\Delta\lambda/\Delta T$	$I_F = 20 \text{ mA}$
Forward voltage temperature coefficient .....	-2.2 mV/°C	-1.6 mV/°C	$\Delta V_F/\Delta T$	$I_F = 2 \text{ mA}$

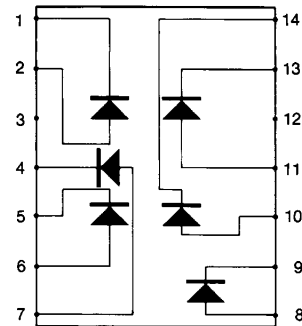
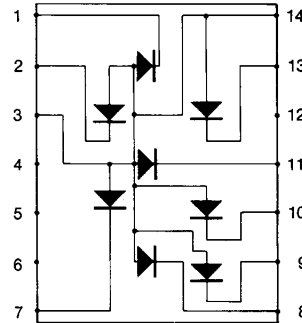
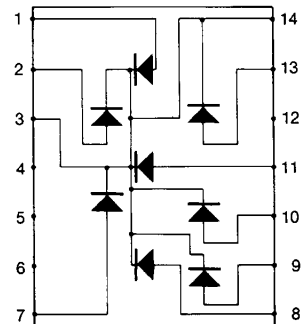
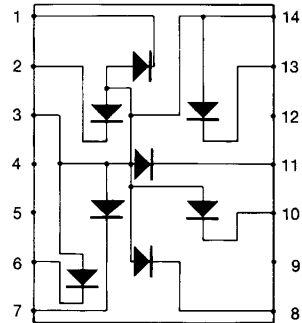
### PACKAGE DIMENSIONS



### CONNECTIONS

PIN NO.	ELECTRICAL CONNECTIONS			
	A	B	C	D
	5082-7650/-7750	5082-7651/-7751	5082-7653/-7760	5082-7656/-7756
1	Cathode A	Cathode A	Anode A	Cathode D
2	Cathode F	Cathode F	Anode F	Anode D
3	Common Anode	Common Anode	Common Cathode	No Pin
4	No Pin	No Pin	No Pin	Cathode C
5	No Pin	No Pin	No Pin	Cathode E
6	Cathode D.P.	No Connection	No Connection	Anode E
7	Cathode E	Cathode E	Anode E	Anode C
8	Cathode D	Cathode D	Anode D	Anode D.P.
9	No Connection	Cathode D.P.	Anode D.P.	Cathode D.P.
10	Cathode C	Cathode C	Anode C	Cathode B
11	Cathode G	Cathode G	Anode G	Cathode A
12	No Pin	No Pin	No Pin	No Pin
13	Cathode B	Cathode B	Anode B	Anode A
14	Common Anode	Common Anode	Common Cathode	Anode B

**ELECTRICAL SCHEMATIC**



C2024

**TYPICAL CURVES**

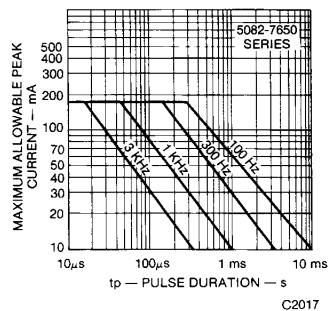


Fig. 1. Maximum Tolerable Peak Current vs. Pulse Duration

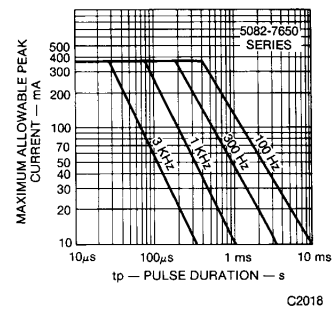


Fig. 2. Maximum Tolerable Peak Current vs. Pulse Duration

**TYPICAL CHARACTERISTIC CURVES (Cont'd)**

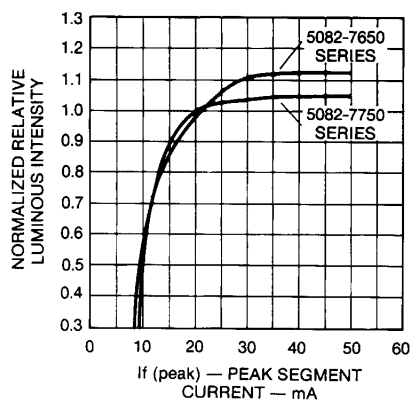


Fig. 3. Relative Efficiency (Average Luminous Intensity Per Unit Current) vs. Peak Current Per Segment

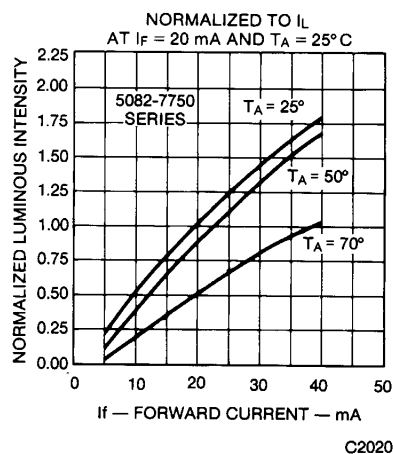


Fig. 4. Normalized Luminous Intensity vs. Forward Current Over Temperature

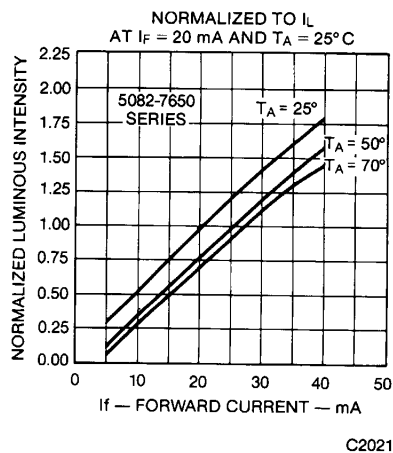


Fig. 5. Normalized Luminous Intensity vs. Forward Current Over Temperature

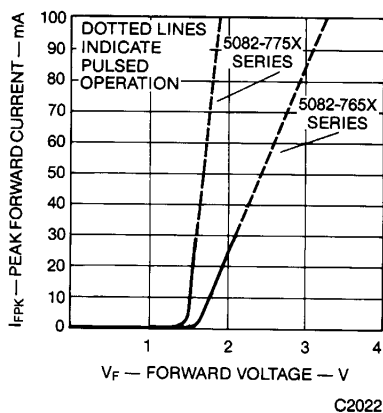


Fig. 6. Peak Forward Current vs. Forward Voltage



## 0.43-INCH SEVEN SEGMENT DISPLAYS

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