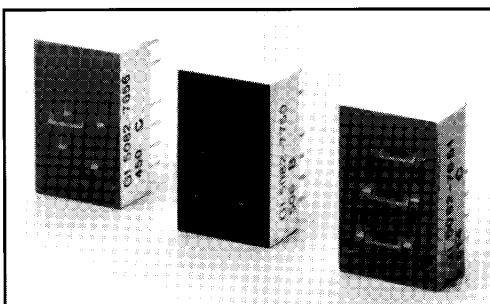


**HIGH EFFICIENCY RED 5082-7650 SERIES
RED 5082-7700 SERIES**



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 ± 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 ± 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

ELECTRO-OPTICAL CHARACTERISTICS (Per Diode at 25°C Free Air Temperature Unless Otherwise Specified)						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
5082-7650 SERIES						
Luminous Intensity	I_L	340	840		μcd	$I_F = 5 \text{ mA DC}$
(Digit average, seven segments Notes 1, 2)			3500 1765		μcd μcd	$I_F = 20 \text{ mA DC}$ $I_F = 60 \text{ mA pk, 1:6 DF}$
Peak emission wavelength	λ_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		Ω	I_{FTH}, V_{FTH}
Capacitance	C		35		pf	$V_F = 0$
Reverse current	I_R			100	μA	$V_R = 3.0 \text{ V}$
Ratio I_L (max. I_L /min. I_L)	r			2.0:1		$I_F = 20 \text{ mA DC}$
5082-7750 SERIES						
Luminous Intensity	I_L	320	980		μcd	$I_F = 20 \text{ mA}$
(Digit average, seven segments Notes 1, 2)			610		μcd	$I_F = 100 \text{ mA Pk}$ 1:10 DF
Peak emission wavelength	λ_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		Ω	I_{FTH}, V_{FTH}
Capacitance	C		35		pf	$V_F = 0$
Reverse current	I_R			100	μA	$V_R = 5.0 \text{ V}$
Ratio I_L (max. I_L /min. I_L)	r			2.0:1		$I_F = 20 \text{ mA}$

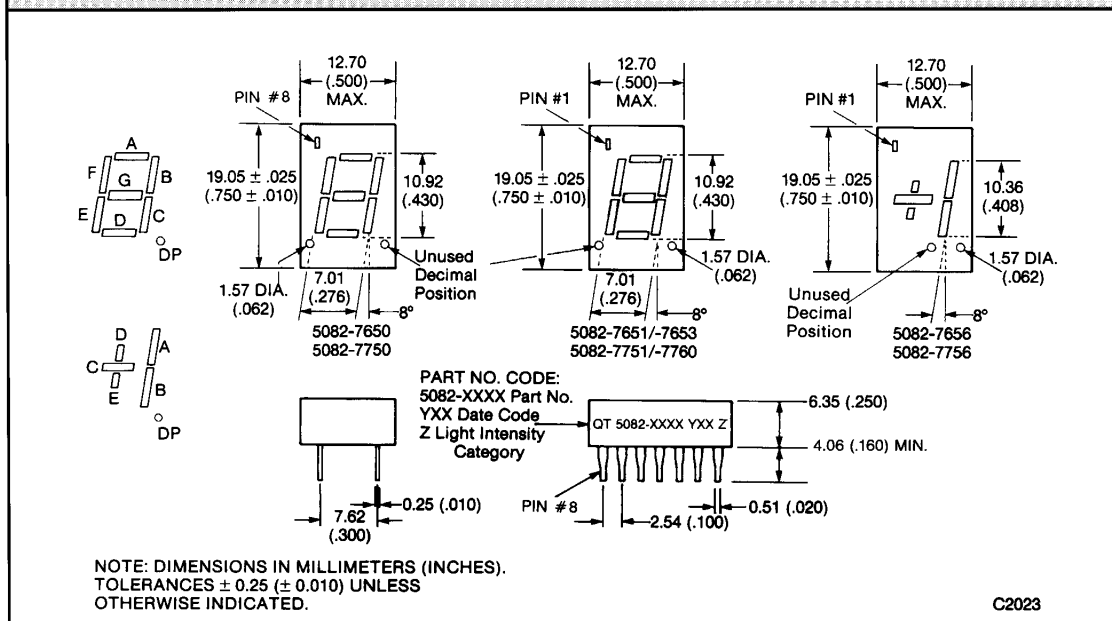
ABSOLUTE MAXIMUM RATINGS					
	HIGH EFFICIENCY RED		RED		
	5082-7650 5082-7651 5082-7653	5082-7656	5082-7750 5082-7751 5082-7760	5082-7756	
Power dissipation at 50°C ambient	840 mW	630 mW	520 mW	390 mW	
Derate linearly from 50°C	-16 mW/C°	-12 mW/C°	-6.9 mW/C°	-5.2 mW/C°	
Storage and operating temperature	-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.	

NOTES	
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, Isoproponal, 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	θ_{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

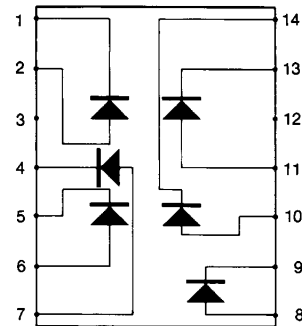
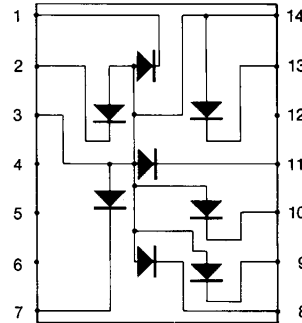
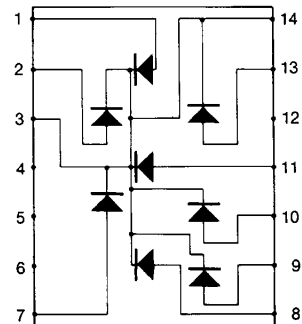
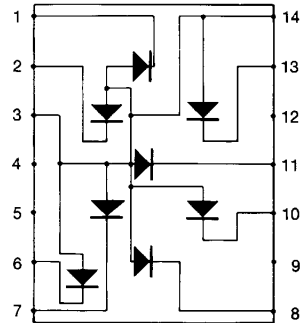


C2023

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

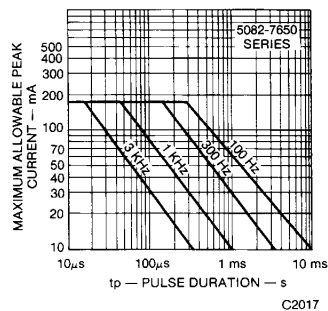


Fig. 1. Maximum Tolerable Peak Current vs. Pulse Duration

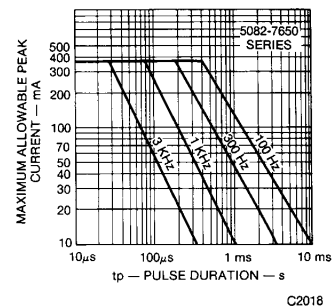


Fig. 2. Maximum Tolerable Peak Current vs. Pulse Duration

TYPICAL CHARACTERISTIC CURVES (Cont'd)

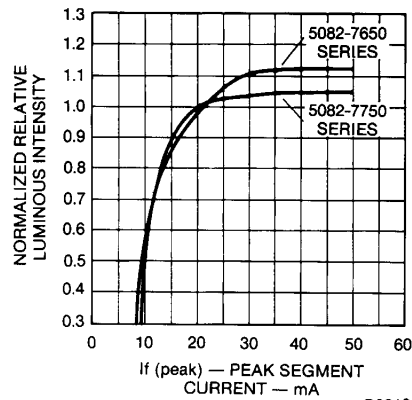


Fig. 3. Relative Efficiency (Average Luminous Intensity Per Unit Current) vs. Peak Current Per Segment

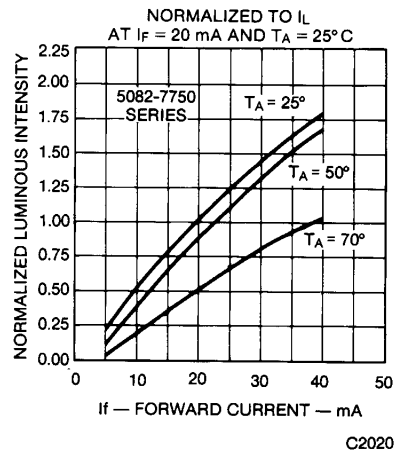


Fig. 4. Normalized Luminous Intensity vs. Forward Current Over Temperature

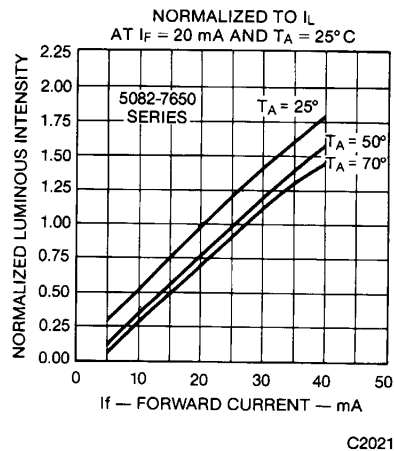


Fig. 5. Normalized Luminous Intensity vs. Forward Current Over Temperature

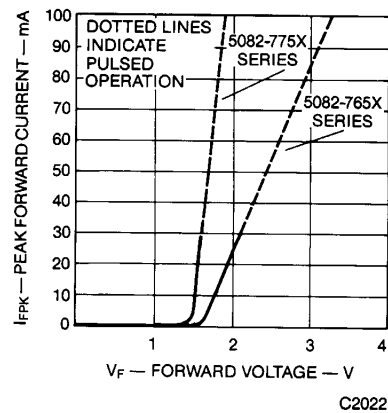


Fig. 6. Peak Forward Current vs. Forward Voltage



0.43-INCH SEVEN SEGMENT DISPLAYS

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
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.