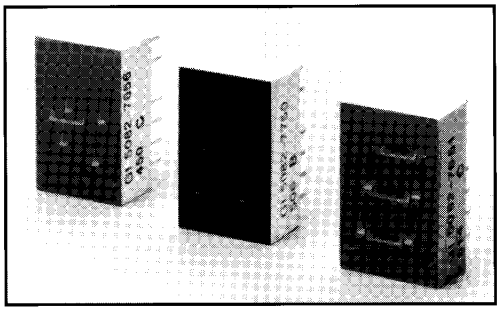
FAIRCHILD
SEMICONDUCTOR™

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 ±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	5082-7750 SERIES
Panelgraphic Scarlet 65 Homalite 100-1670 Panelgraphic Gray 10 Homalite 100-126	Panelgraphic Red 60 Homalite 100-1605

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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 mA DC
(Digit average, seven segments			3500		μcd	I_F=20 mA DC
Notes 1, 2)			1765		μcd	I_F=60 mA pk, 1:6 DF
Peak emission wavelength	λ_p		630		nm	
Spectral line halfwidth	$\Delta\lambda$½		40		nm	
Forward voltage	V_F		2.0	2.5	V	I_F=20 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 V
Ratio I_L (max. I_L/min. I_L)	r			2.0:1		I_F=20 mA DC
5082-7750 SERIES						
Luminous Intensity	I_L	320	980		μcd	I_F=20 mA
(Digit average, seven segments Notes 1, 2)			610		μcd	I_F=100 mA Pk 1:10 DF
Peak emission wavelength	λ_p		650		nm	
Spectral line halfwidth	$\Delta\lambda$½		20		nm	
Forward voltage	V_F		1.6	2.0	V	I_F=20 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 V
Ratio I_L (max. I_L/min. I_L)	r			2.0:1		I_F=20 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		−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 ±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.*

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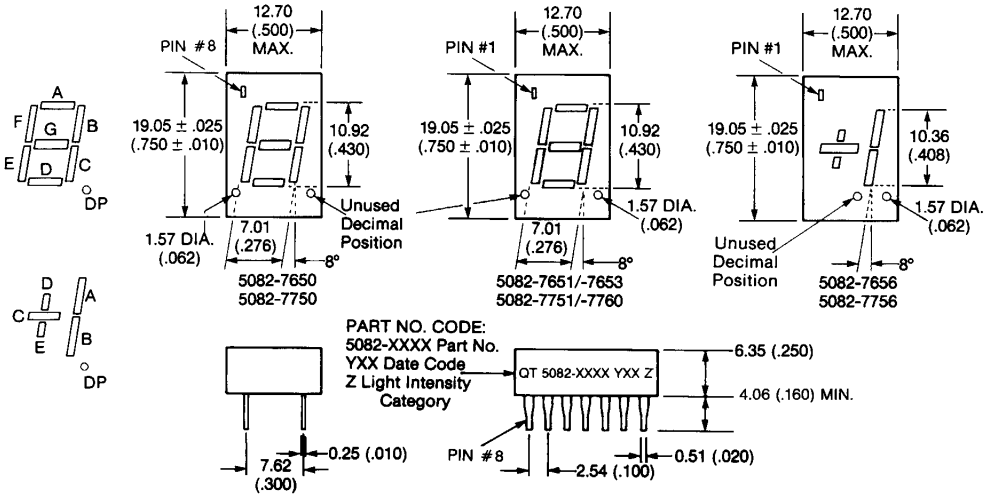
TYPICAL THERMAL CHARACTERISTICS

	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	$\Delta\lambda/\lambda T$	I_F=20 mA
Forward voltage temperature coefficient	−2.2 mV/°C	−1.6 mV/°C	$\Delta V_F/\Delta T$	I_F=2 mA

PACKAGE DIMENSIONS



NOTE: DIMENSIONS IN MILLIMETERS (INCHES).
TOLERANCES ± 0.25 (± 0.010) UNLESS OTHERWISE INDICATED.

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

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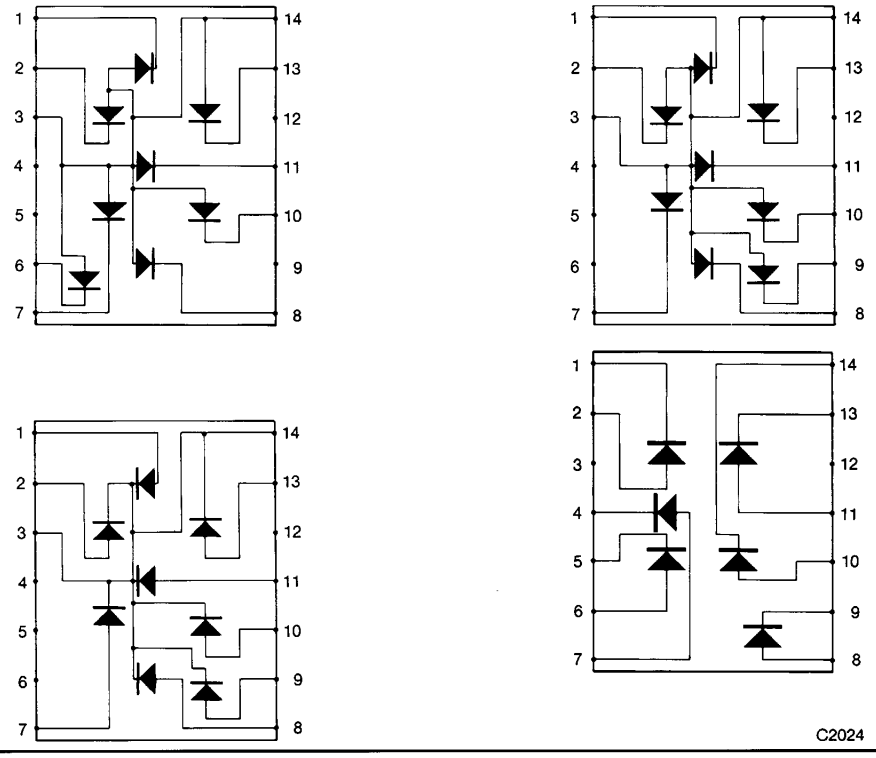
ELECTRICAL SCHEMATIC



TYPICAL CURVES

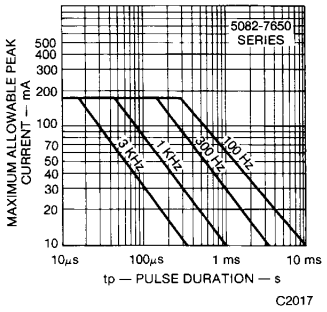


Fig. 1. Maximum Tolerable Peak Current vs. Pulse Duration

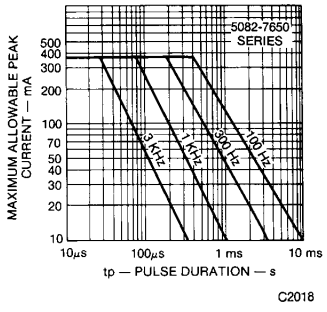


Fig. 2. Maximum Tolerable Peak Current vs. Pulse Duration

TYPICAL CHARACTERISTIC CURVES (Cont'd)

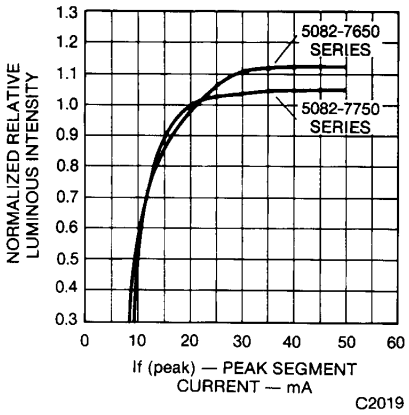


Fig. 3. Relative Efficiency (Average Luminous Intensity Per Unit Current) vs. Peak Current Per Segment

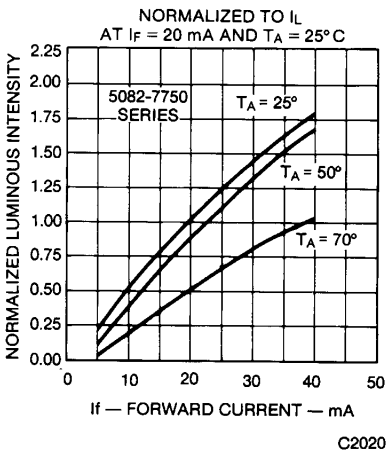


Fig. 4. Normalized Luminous Intensity vs. Forward Current Over Temperature

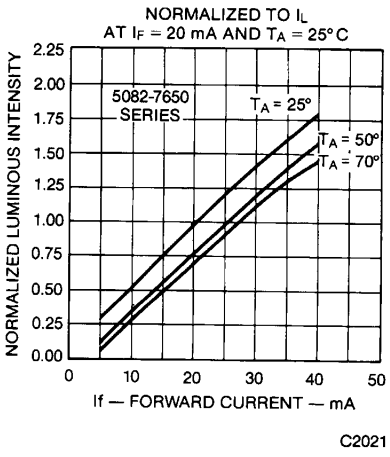


Fig. 5. Normalized Luminous Intensity vs. Forward Current Over Temperature

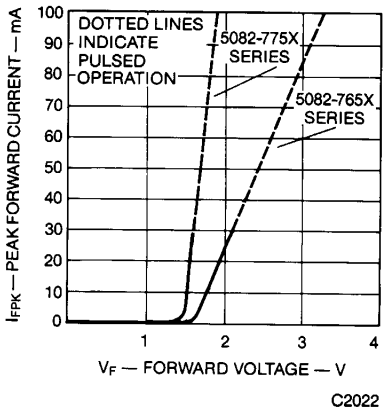


Fig. 6. Peak Forward Current vs. Forward Voltage

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