

## 0.56" Seven-Segment Numeric LED Displays

LTS-6000

LTD-6000

Series

LTC-561/571

LTC-5623/5723

### Features

- 0.56 inch (14.2mm) digit height
- Choices of six bright colors-red/bright red/green/yellow/orange/high efficiency red.
- Low power requirement.
- Excellent characters appearance.
- Categorized for luminous intensity.
- I.C. compatible.
- Easy mounting on P.C. board or socket.

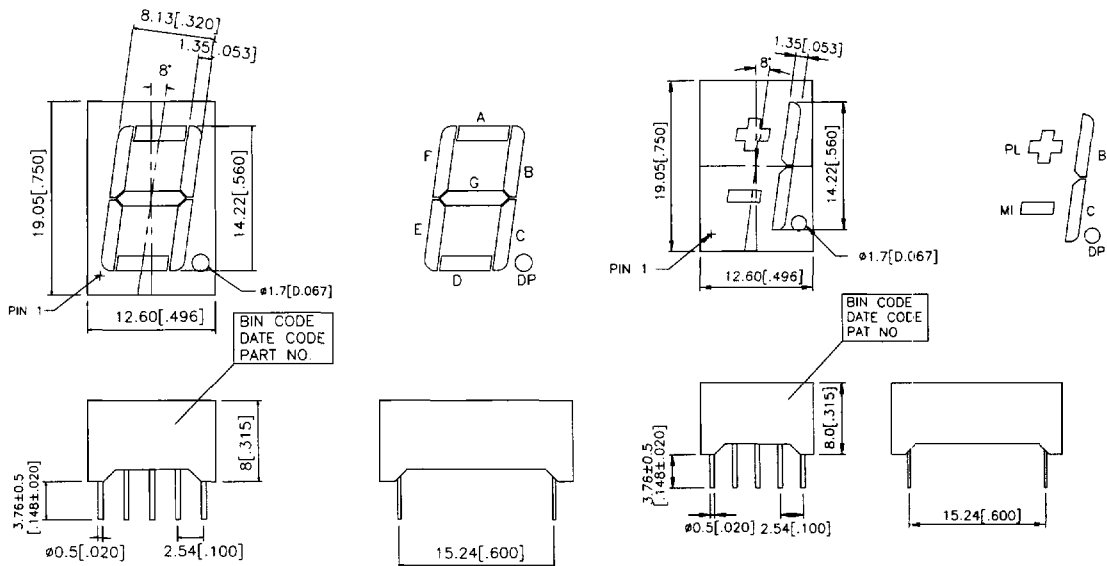
### Description

The LTS-6000, LTD-6000, LTC-561/571 LTC-5623/5723 series are 0.56 inch (14.2mm) height single, dual, triple and quadruple digit displays.

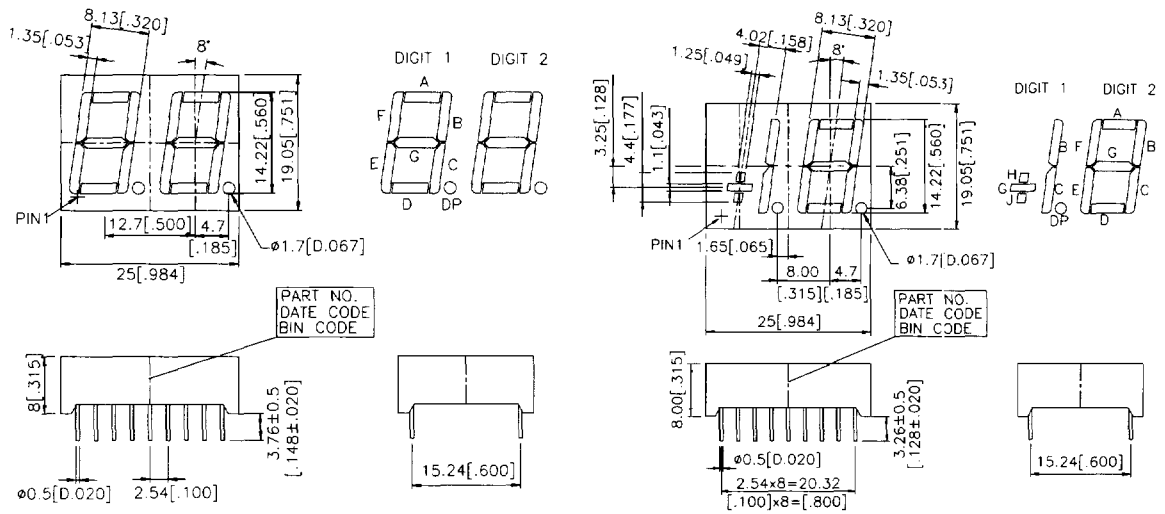
The red series devices utilize LED chips which are made from GaAsP on a GaAs substrate. The bright red and green series devices utilize LED chips which are made from GaP on a transparent GaP substrate. The yellow, orange and high efficiency red series devices utilize LED chips which are made from GaAsP on a transparent GaP substrate. Red and bright red displays have black face and red segments. Green and yellow displays have gray face and white segments. Orange displays have orange face and orange segments. High efficiency red displays have red face and red segments.

### Package Dimensions

A.LTS-6x60/6x80/6x75/6x95



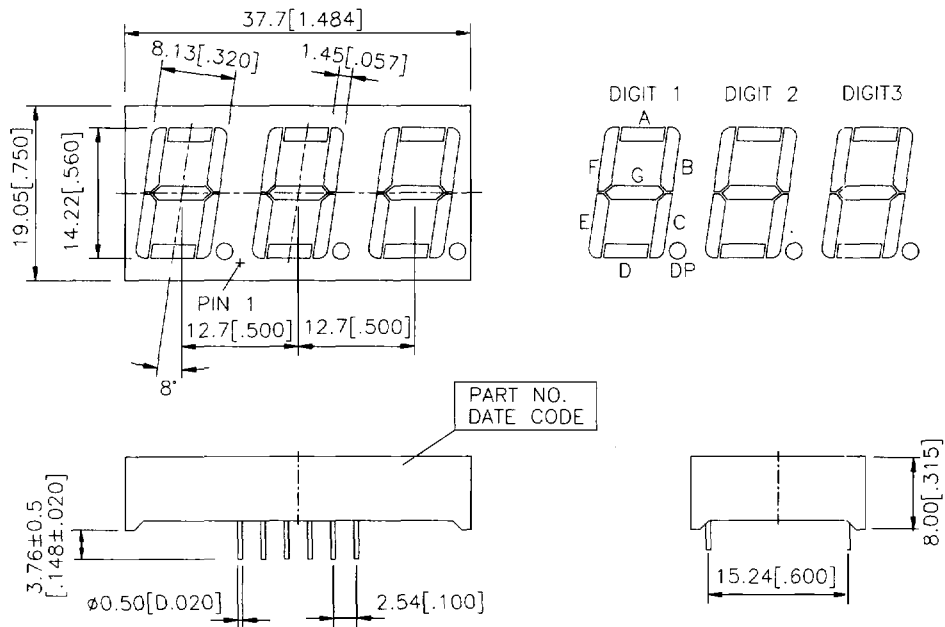
**B.LTD-6x10/6x30/6x40/6x50**



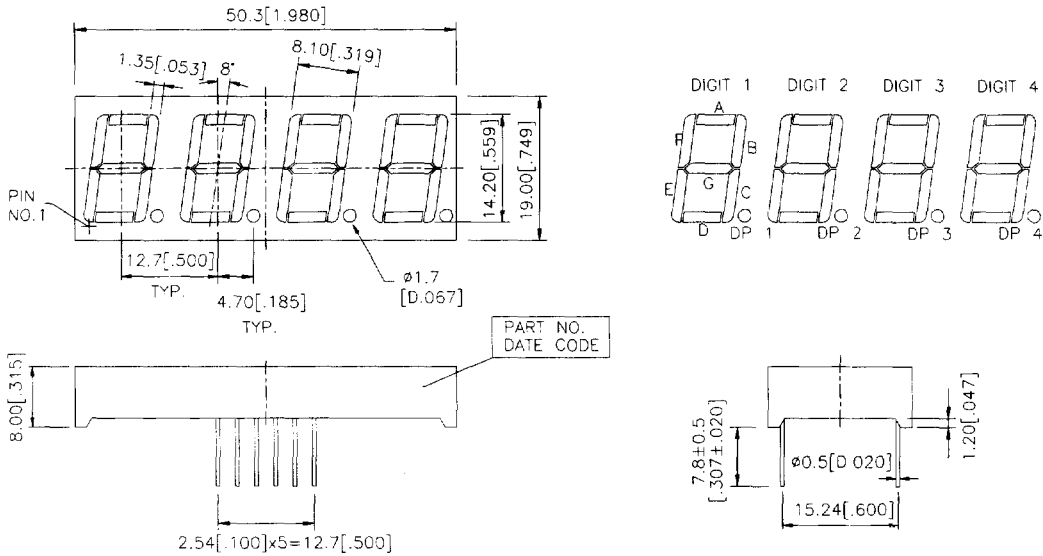
**SEVEN-SEGMENT LED DISPLAYS**

Notes: All dimensions are in millimeters (inches). Tolerance:  $\pm 0.25\text{mm}$  (0.01") unless otherwise noted.

**C.LTC-561/571**



D.LTC-5623/5723



Notes: All dimensions are in millimeters (inches). Tolerance:  $\pm 0.25\text{mm}$  (0.01") unless otherwise noted.

Devices

Part No.						Description	Package Dimension	Internal Circuit Diagram
Red	Bright Red	Green	Yellow	Orange	Hi.-EFF Red			
LTS-6760R	6760P	6460G	6860Y	6660E	6960HR	Common Anode, Rt. Hand Decimal	A	A
LTS-6780R	6780P	6480G	6880Y	6680E	6980HR	Common Cathode, Rt. Hand Decimal	A	B
LTS-6775R	6775P	6475G	6875Y	6675E	6975HR	Common Anode, $\pm 1$ Overflow	A	C
LTS-6795R	6795P	6495G	6895Y	6695E	6995HR	Common Cathode, $\pm 1$ Overflow	A	D
LTD-6710R	6710P	6410G	6810Y	6610E	6910HR	Common Anode, Rt. Hand Decimal	B	E
LTD-6730R	6730P	6430G	6830Y	6630E	6930HR	Common Anode, $\pm 1.8$ Overflow	B	F
LTD-6740R	6740P	6440G	6840Y	6640E	6940HR	Common Cathode, Rt. Hand Decimal	B	G
LTD-6750R	6750P	6450G	6850Y	6650E	6950HR	Common Cathode, $\pm 1.8$ Overflow	B	H
LTC-561R	561P	561G	561Y	561E	561HR	Multiplex Common Anode, Rt. Hand Decimal	C	I
LTC-571R	571P	571G	571Y	571E	571HR	Multiplex Common Cathode, Rt. Hand Decimal	C	J
LTC-5623R	5723P-01	5623G	5623Y	5623E	5623HR	Multiplex Common Anode, Rt. Hand Decimal	D	K
LTC-5723R	5623P-01	5723G	5723Y	5723E	5723HR	Multiplex Common Cathode, Rt. Hand Decimal	D	L

## Pin Connection

Pin No.	Connection			
	A.LTS-6x60	B.LTS-6x80	C.LTS-6x75	D.LTS-6x95
1.	Cathode E	Anode E	Cathode Minus Sign	Anode Minus Sign
2.	Cathode D	Anode D	Anode Pl.,Mi *2	Cathode Pl.,Mi *2
3.	Common Anode *1	Common Cathode *1	Cathode C	Anode C
4.	Cathode C	Anode C	Anode B.C.Dp *3	Cathode B.C.Dp *3
5.	Cathode D.P.	Anode D.P.	Cathode Dp	Anode Dp
6.	Cathode B	Anode B	Cathode B	Anode B
7.	Cathode A	Anode A	Anode B.C.Dp *3	Cathode B.C.Dp *3
8.	Common Anode *1	Common Cathode *1	Anode Pl.,Mi *2	Cathode Pl.,Mi *2
9.	Cathode F	Anode F	Cathode Plus Sign	Anode Plus Sign
10.	Cathode G	Anode G	No Connection	No Connection

Notes:1.Pin 3&8 are internally connected.  
 2.Pin 2&8 are internally connected.  
 3.Pin 4&7 are internally connected.

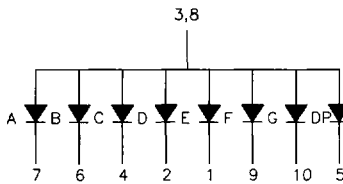
Pin No.	Connctcion			
	E.LTD-6x10	F.LTD-6x30	G.LTD-6x40	H.LTD-6x50
1.	Cathode E (Digit 1)	Cathode G (Digit 1)	Anode E (Digit 1)	Anode G (Digit 1)
2.	Cathode D (Digit 1)	Cathode J.H (Digit 1)	Anode D (Digit 1)	Anode J.H (Digit 1)
3.	Cathode C (Digit 1)	Cathode C (Digit 1)	Anode C (Digit 1)	Anode C (Digit 1)
4.	Cathode D.P. (Digit 1)	Cathode D.P. (Digit 1)	Anode D.P.(Digit 1)	Anode D.P.(Digit 1)
5.	Cathode E (Digit 2)	Cathode E (Digit 2)	Anode E (Digit 2)	Anode E (Digit 2)
6.	Cathode D (Digit 2)	Cathode D (Digit 2)	Anode D (Digit 2)	Anode D (Digit 2)
7.	Cathode G (Digit 2)	Cathode G (Digit 2)	Anode G (Digit 2)	Anode G (Digit 2)
8.	Cathode C (Digit 2)	Cathode C (Digit 2)	Anode C (Digit 2)	Anode C (Digit 2)
9.	Cathode D.P. (Digit 2)	Cathode D.P. (Digit 2)	Anode D.P.(Digit 2)	Anode D.P.(Digit 2)
10.	Cathode B (Digit 2)	Cathode B (Digit 2)	Anode B (Digit 2)	Anode B (Digit 2)
11.	Cathode A (Digit 2)	Cathode A (Digit 2)	Anode A (Digit 2)	Anode A (Digit 2)
12.	Cathode F (Digit 2)	Cathode F (Digit 2)	Anode F (Digit 2)	Anode F (Digit 2)
13.	Common Anode (Digit 2)	Common Anode (Digit 2)	Common Cathode (Digit 2)	Common Cathode (Digit 2)
14.	Common Anode (Digit 1)	Common Anode (Digit 1)	Common Cathode (Digit 1)	Common Cathode (Digit 1)
15.	Cathode B (Digit 1)	Cathode B (Digit 1)	Anode B (Digit 1)	Anode B (Digit 1)
16.	Cathode A (Digit 1)	No Connection	Anode A (Digit 1)	No Connection
17.	Cathode G (Digit 1)	No Connection	Anode G (Digit 1)	No Connection
18.	Cathode F (Digit 1)	No Connection	Anode F (Digit 1)	No Connection

Pin No.	Connctcion	
	I.LTC-561	J.LTC-571
1.	Cathode E	Anode E
2.	Cathode D	Anode D
3.	Cathode D.P.	Anode D.P.
4.	Cathode C	Anode C
5.	Cathode G	Anode G
6.	No Connection	No Connection
7.	Cathode B	Anode B
8.	Common Anode, Digit 3	Common Cathode, Digit 3
9.	Common Anode, Digit 2	Common Cathode, Digit 2
10.	Cathode F	Anode F
11.	Cathode A	Anode A
12.	Common Anode, Digit 1	Common Cathode, Digit 1

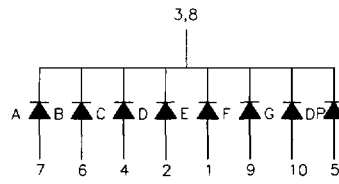
Pin No.	Conneccion	
	K.LTC-5623	L.LTC-5723
1.	Cathode E	Anode E
2.	Cathode D	Anode D
3.	Cathode D.P.	Anode D.P.
4.	Cathode C	Anode C
5.	Cathode G	Anode G
6.	Common Anode, Digit 4	Common Cathode Digit 4
7.	Cathode B	Anode B
8.	Common Anode, Digit 3	Common Cathode, Digit 3
9.	Common Anode, Digit 2	Common Cathode, Digit 2
10.	Cathode F	Anode F
11.	Cathode A	Anode A
12.	Common Anode, Digit 1	Common Cathode, Digit 1

### Internal Circuit Diagrams

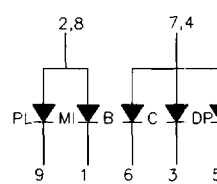
A.LTS-6x60



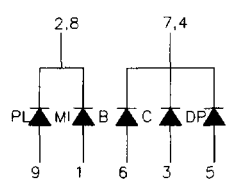
B.LTS-6x80



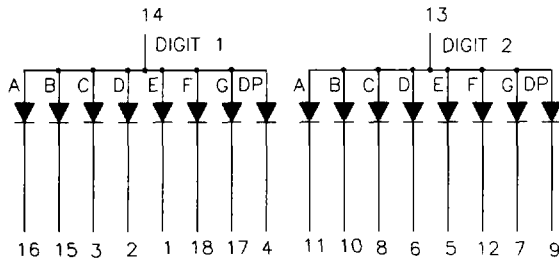
C.LTS-6x75



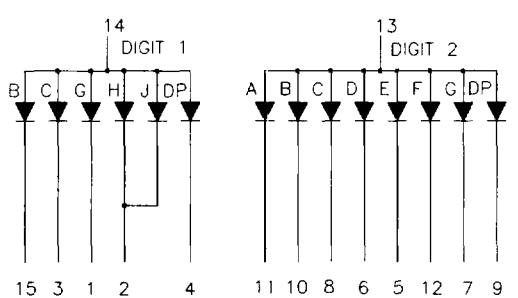
D.LTD-6x95



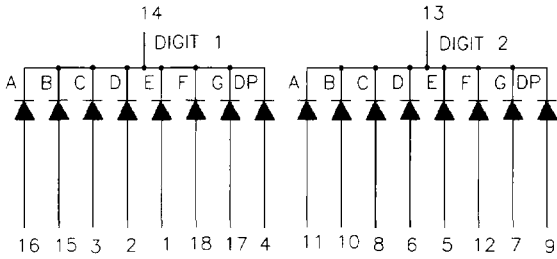
E.LTD-6x10



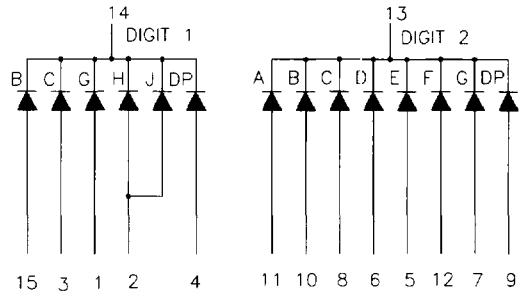
F.LTD-6x30



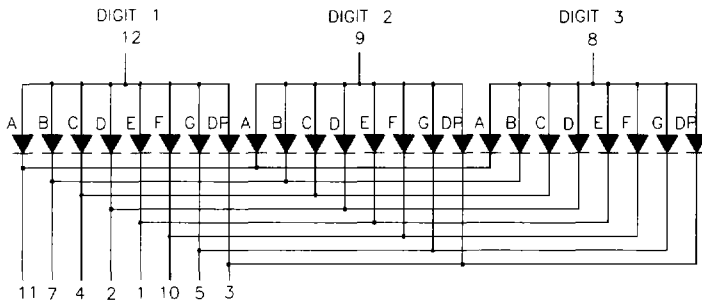
G.LTD-6x40



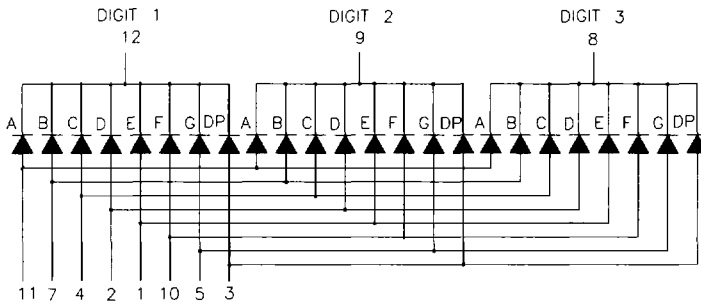
H.LTD-6x50



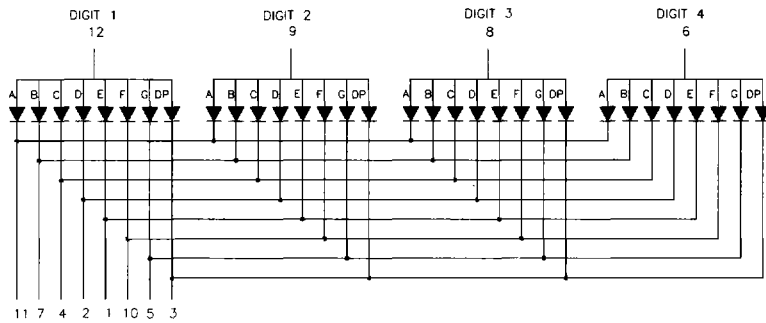
I.LTC-561



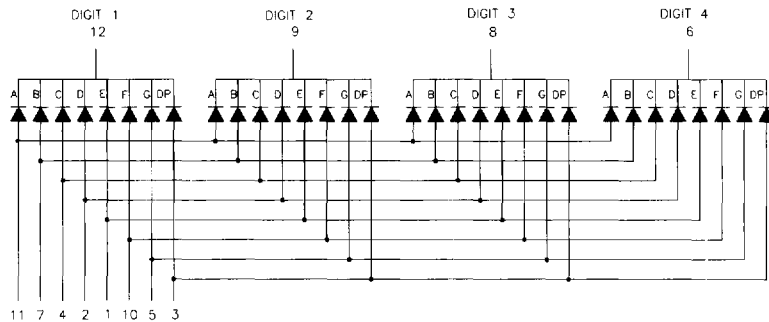
J.LTC-571



K.LTC-5623



SEVEN-SEGMENT  
LED DISPLAYS



### Absolute Maximum Rating at Ta=25 °C

Parameter	Red	Bright Red	Green	Yellow	Orange	Hi.-EFF Red	Unit
Power Dissipation Per Segment	55	40	75	60	75	75	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	150	60	100	80	100	100	mA
Continuous Forward Current Per Segment Derating Linear from 25 °C Per Segment	25 0.33	15 0.2	25 0.33	20 0.27	25 0.33	25 0.33	mA mA/ °C
Reverse Voltage Any Segment or D.P.	5	5	5	5	5	5	V
Operating Temperature Range	-35 °C to +85 °C						
Storage Temperature Range	-35 °C to +85 °C						
Solder Temperature 1/16 Inch Below Seating Plane for 3 Seconds at 260 °C							

### Electrical/Optical Characteristics at Ta=25 °C

LTS-6700R/LTD-6700R/LTC-561R/571R/5623R/5723R

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	200	600		μ cd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>		655		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δλ		24		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		651		nm	I <sub>F</sub> =20mA
Forward Voltage, Per Segment or D.P.	V <sub>F</sub>		1.7	2.0	V	I <sub>F</sub> =20mA
Reverse Current, Per Segment or D.P.	I <sub>R</sub>			100	μ A	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA

## LTS-6700P/LTD-6700P/LTC-561P/571P/5623P/5723P

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	320	950		μ cd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>		697		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δ λ		90		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		657		nm	I <sub>F</sub> =20mA
Forward Voltage, Per Segment or D.P.	V <sub>F</sub>		2.1	2.8	V	I <sub>F</sub> =20mA
Reverse Current, Per Segment or D.P.	I <sub>R</sub>			100	μ A	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA

## LTS-6400G/LTD-6400G/LTC-561G/571G/5623G/5723G

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	800	2400		μ cd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>		565		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δ λ		30		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		569		nm	I <sub>F</sub> =20mA
Forward Voltage, Per Segment or D.P.	V <sub>F</sub>		2.0	2.8	V	I <sub>F</sub> =20mA
Reverse Current, Per Segment or D.P.	I <sub>R</sub>			100	μ A	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA

## LTS-6800Y/LTD-6800Y/LTC-561Y/571Y/5623Y/5723Y

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	800	2400		μ cd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>		585		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δ λ		35		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		588		nm	I <sub>F</sub> =20mA
Forward Voltage, Per Segment or D.P.	V <sub>F</sub>		2.1	2.8	V	I <sub>F</sub> =20mA
Reverse Current, Per Segment or D.P.	I <sub>R</sub>			100	μ A	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA



## LTS-6600E/LTD-6600E/LTC-561E/571E/5623E/5723E

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	800	2400		μ cd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>		630		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δ λ		40		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		621		nm	I <sub>F</sub> =20mA
Forward Voltage, Per Segment or D.P.	V <sub>F</sub>		2.0	2.8	V	I <sub>F</sub> =20mA
Reverse Current, Per Segment or D.P.	I <sub>R</sub>			100	μ A	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA

## LTS-6900HR/LTD-6900HR/LTC-561HR/571HR/5623HR/5723HR

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>v</sub>	800	2400		μ cd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>		635		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δ λ		40		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		621		nm	I <sub>F</sub> =20mA
Forward Voltage, Per Segment or D.P.	V <sub>F</sub>		2.0	2.8	V	I <sub>F</sub> =20mA
Reverse Current, Per Segment or D.P.	I <sub>R</sub>			100	μ A	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			2:1		I <sub>F</sub> =10mA

# Typical electrical/Optical Characteristic Curves (25 °C Ambient Temperatur Unless Otherwise Noted)

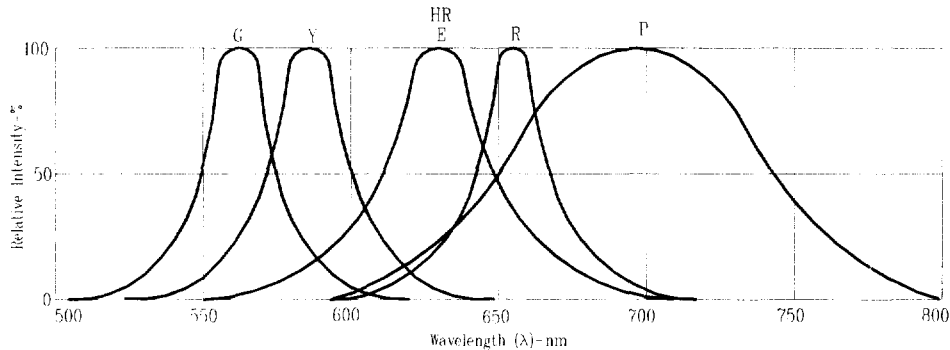


Fig1 RELATIVE INTENSITY VS WAVELENGTH

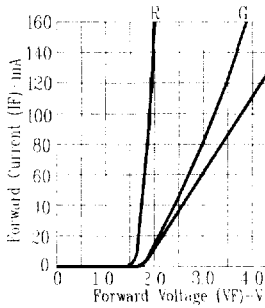


Fig2 FORWARD CURRENT VS FORWARD VOLTAGE

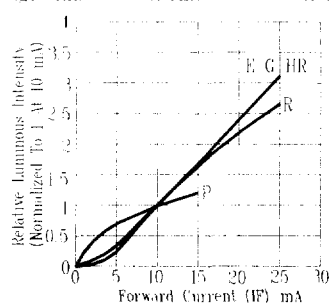


Fig3 RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT

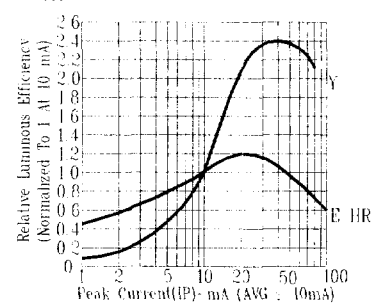


Fig4 RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS PEAK CURRENT

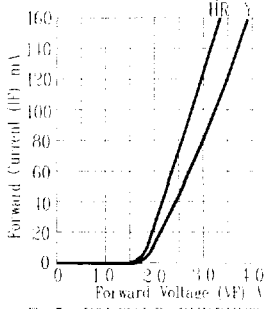


Fig5 FORWARD CURRENT VS FORWARD VOLTAGE

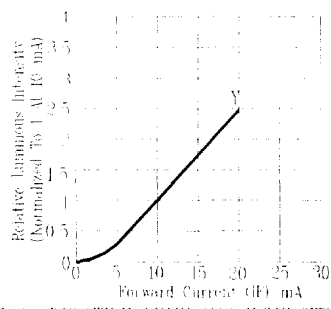


Fig6 RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT

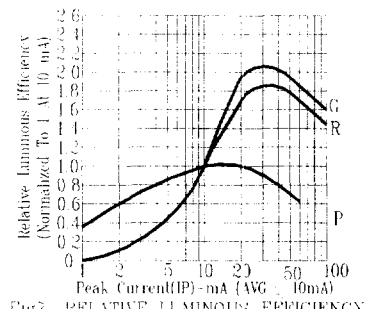


Fig7 RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS PEAK CURRENT

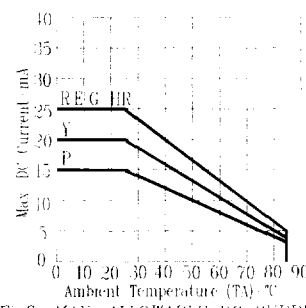


Fig8 MAX ALLOWABLE DC CURRENT VS AMBIENT TEMPERATURE

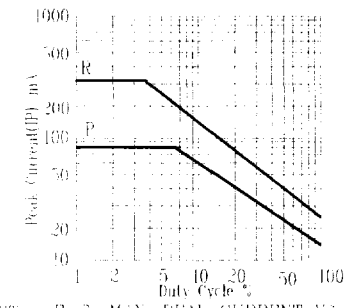


Fig9 MAX PEAK CURRENT VS DUTY CYCLE % (REFRESH RATE 1KHz)

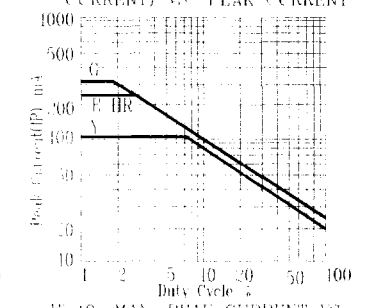


Fig10 MAX PEAK CURRENT VS DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: R-RED P-BRIGHT RED G-GREEN Y-YELLOW E-ORANGE HR-HL-EFT-RED (REFRESH RATE 1KHz)

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