

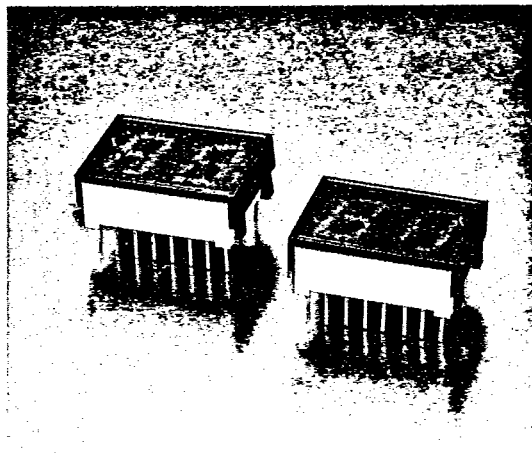


LTD- 432XC 482XC SERIES

0.4" DUAL DIGIT NUMERIC DISPLAYS

FEATURES

- 0.4 INCH (10.21mm) DIGIT HEIGHT.
- CONTINUOUS UNIFORM SEGMENTS.
- CHOICE OF FOUR BRIGHT COLORS-RED / BRIGHT RED/GREEN/ORANGE.
- LOW POWER REQUIREMENT.
- EXCELLENT CHARACTERS APPEARANCE.
- HIGH CONTRAST.
- HIGH BRIGHTNESS.
- WIDE VIEWING ANGLE.
- SOLID STATE RELIABILITY.
- COMMON ANODE OR COMMON CATHODE MODELS.
- TWO DIGIT PACKAGE SIMPLIFIES ALIGNMENTS & ASSEMBLY.
- LEADS ON .100" (2.54mm) CENTERS.
- CATEGORIZED FOR LUMINOUS INTENSITY.
- I.C. COMPATIBLE.
- EASY MOUNTING ON P.C. BOARD.



DESCRIPTION

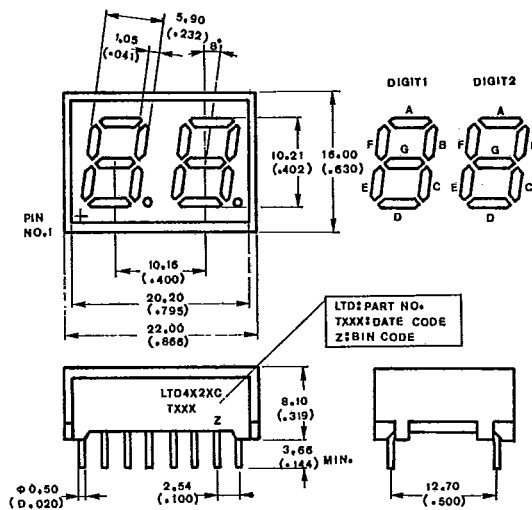
The LTD-432XC/482XC series are 0.4 inch (10.0mm) height dual digit displays.

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 orange series devices utilize LED chips which are made from GaAsP on a transparent GaP substrate. Red, bright red and orange displays have red cap. Green displays have green cap.

DEVICE

PART NO. LTD-				DESCRIPTION	INTERNAL CIRCUIT DIAGRAM
RED	BRIGHT RED	GREEN	ORANGE		
432RC	432PC	432GC	432EC	Common Cathode	A
482RC	482PC	482GC	482EC	Common Anode	B

PACKAGE DIMENSIONS



NOTE: All dimensions are in $\frac{\text{millimeters}}{\text{(inches)}}$, tolerance is $\frac{0.25\text{mm}}{(0.010'')}$ unless otherwise noted.

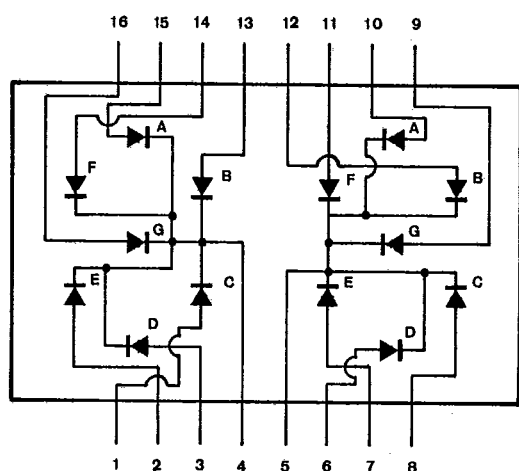
PIN CONNECTION

PIN NO.	CONNECTION	
	A. LTD-432XC	B. LTD-482XC
1	Anode C (Digit 1)	Cathode C (Digit 1)
2	Anode E (Digit 1)	Cathode E (Digit 1)
3	Anode D (Digit 1)	Cathode D (Digit 1)
4	Common Cathode (Digit 1)	Common Anode (Digit 1)
5	Common Cathode (Digit 2)	Common Anode (Digit 2)
6	Anode D (Digit 2)	Cathode D (Digit 2)
7	Anode E (Digit 2)	Cathode E (Digit 2)
8	Anode C (Digit 2)	Cathode C (Digit 2)
9	Anode G (Digit 2)	Cathode G (Digit 2)
10	Anode A (Digit 2)	Cathode A (Digit 2)
11	Anode F (Digit 2)	Cathode F (Digit 2)
12	Anode B (Digit 2)	Cathode B (Digit 2)
13	Anode B (Digit 1)	Cathode B (Digit 1)
14	Anode F (Digit 1)	Cathode F (Digit 1)
15	Anode A (Digit 1)	Cathode A (Digit 1)
16	Anode G (Digit 1)	Cathode G (Digit 1)

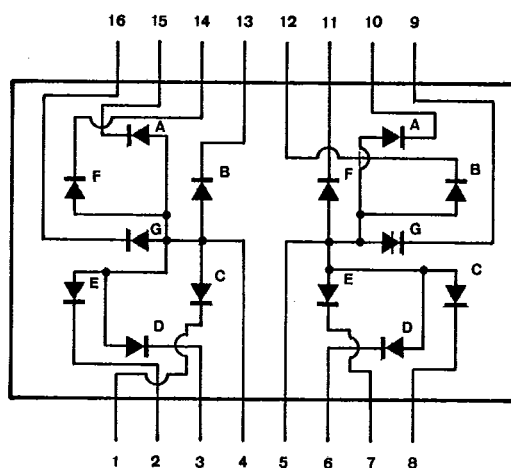
SEVEN-SEGMENT
LED DISPLAYS6-82
557

INTERNAL CIRCUIT DIAGRAM

A. LTD-432XC



B. LTD-482XC

ABSOLUTE MAXIMUM RATINGS AT $T_A = 25^\circ\text{C}$

PARAMETER	RED	BRIGHT RED	GREEN	ORANGE	UNIT
Power Dissipation Per Segment	55	40	75	75	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	160	60	100	100	mA
Continuous Forward Current Per Segment	25	15	25	25	mA
Derating Linear From 25°C Per Segment	0.3	0.18	0.3	0.3	mA/°C
Reverse Voltage Per Segment	5	5	5	5	V
Operating Temperature Range	-25°C to +85°C				
Storage Temperature Range	-25°C to +85°C				
Solder Temperature 1/16 inch Below Seating Plane for 3 Seconds at 260°C					

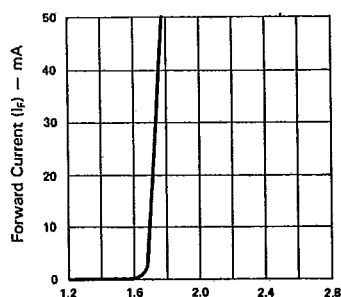
ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$ LTD-432RC/482RC SERIES

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	100	300		μcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		655		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		24		nm	$I_F = 20\text{ mA}$
Forward Voltage Segment or D.P.	V_F		1.7	2.0	V	$I_F = 20\text{ mA}$
Reverse Current any Segment or D.P.	I_R			100	μA	$V_R = 5\text{ V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20\text{ mA}$

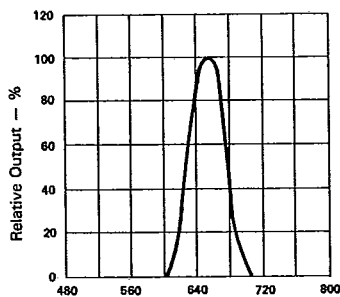
Note: The BIN brightness classification see page 6-160, category B

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

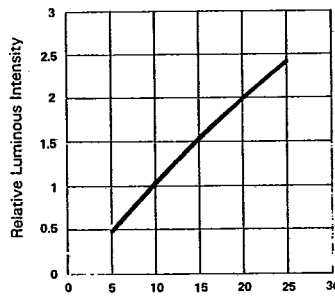
(25°C Ambient Temperature Unless Otherwise Noted)



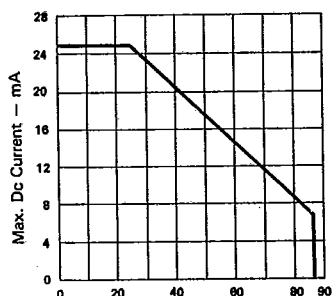
Forward Voltage (V_F) — Volts
Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE.



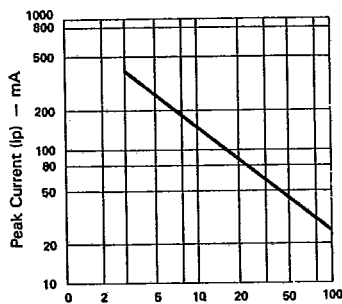
Wavelength (λ) — nm.
Fig. 2 SPECTRAL RESPONSE.



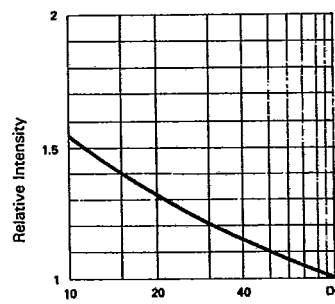
Forward Current (I_F) — mA
Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT (PER SEGMENT).



Ambient Temperature (T_A) — $^\circ\text{C}$
Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. VS AMBIENT TEMPERATURE.



Duty Cycle %
Fig. 5 MAX. PEAK CURRENT VS. DUTY CYCLE.% (REFRESH RATE — $F = 1\text{ KHz}$)



Duty Cycle %
Fig. 6 LUMINOUS INTENSITY VS. DUTY CYCLE.% (AVERAGE $I_F = 10\text{ mA PER SEG.}$)

SEVEN-SEGMENT
LED DISPLAYS

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$ LTD-432PC/482PC SERIES

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	200	500		μcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		697		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		90		nm	$I_F = 20\text{ mA}$
Forward Voltage Segment or D.P.	V_F		2.1	2.8	V	$I_F = 20\text{ mA}$
Reverse Current any Segment or D.P.	I_R			100	μA	$V_R = 5\text{ V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20\text{ mA}$

Note: The BIN brightness classification see page 6-160, category B

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

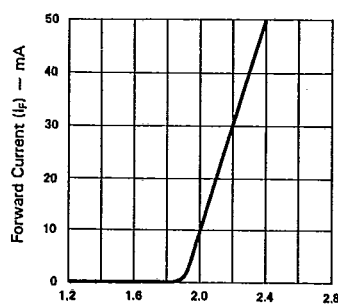


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

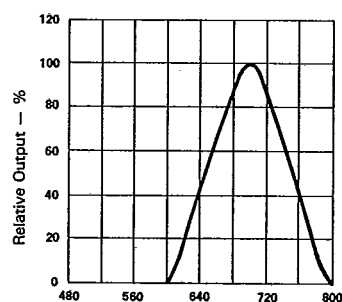


Fig. 2 SPECTRAL RESPONSE.

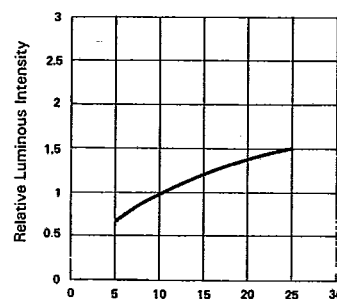


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

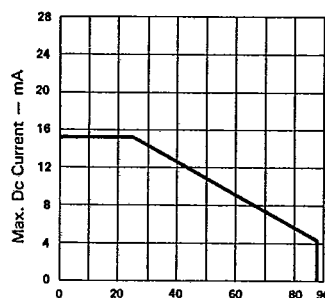


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

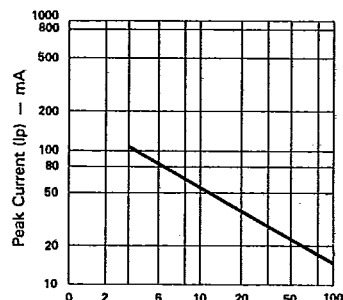


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE - $F = 1\text{ KHz}$)

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$ LTD-432GC/482GC SERIES

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	500	1100		μcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		565		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		30		nm	$I_F = 20\text{ mA}$
Forward Voltage Segment or D.P.	V_F		2.1	2.8	V	$I_F = 20\text{ mA}$
Reverse Current any Segment or D.P.	I_R			100	μA	$V_R = 5\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20\text{ mA}$

Note: The BIN brightness classification see page 6-160, category B

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

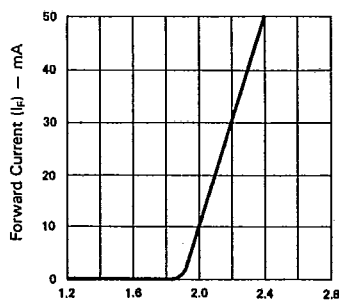


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

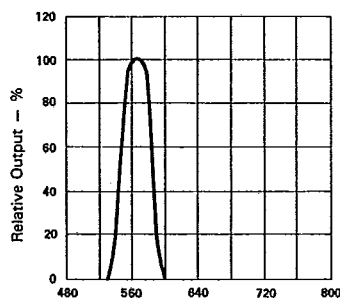


Fig. 2 SPECTRAL RESPONSE.

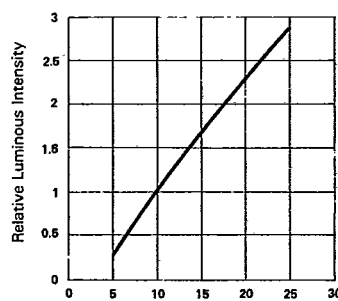


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

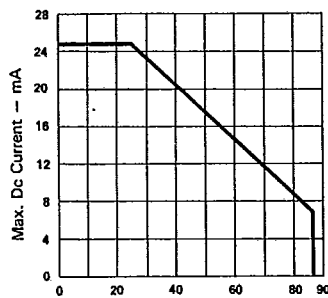


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

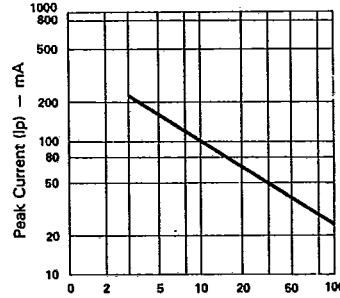


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.% (REFRESH RATE - $F = 1\text{ KHz}$)

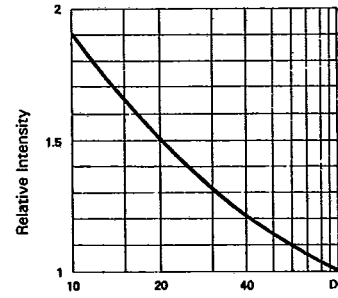


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE% (AVERAGE $I_F = 10\text{ mA}$ PER SEG.)

SEVEN-SEGMENT
LED DISPLAYS

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$ LTD-432EC/482EC SERIES

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_v	500	1100		μcd	$I_F = 10\text{ mA}$
Peak Emission Wavelength	λ_p		635		nm	$I_F = 20\text{ mA}$
Spectral Line Half-Width	$\Delta\lambda$		40		nm	$I_F = 20\text{ mA}$
Forward Voltage Segment or D.P.	V_F		2.1	2.8	V	$I_F = 20\text{ mA}$
Reverse Current any Segment or D.P.	I_R			100	μA	$V_R = 5\text{V}$
Luminous Intensity Matching Ratio	$I_v\text{-m}$			2:1		$I_F = 20\text{ mA}$

Note: The BIN brightness classification see page 6-160, category B.

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

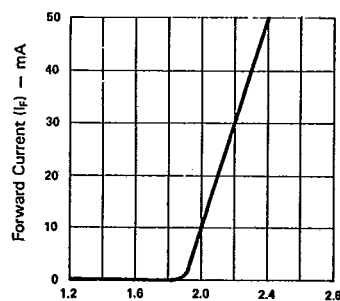


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

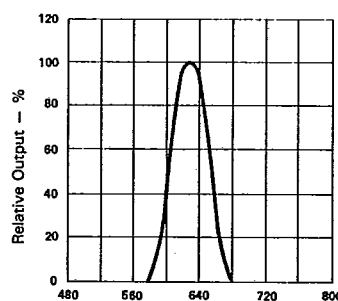


Fig. 2 SPECTRAL RESPONSE.

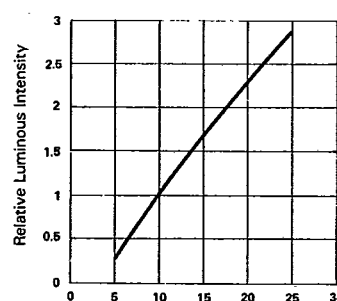


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

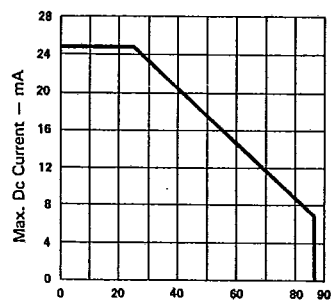


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

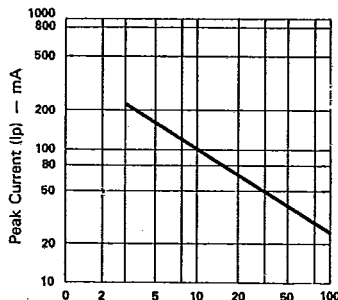


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE. % (REFRESH RATE - $F = 1\text{ KHz}$)

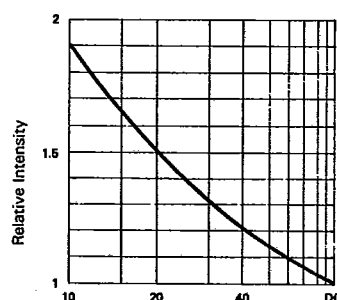


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE. % (AVERAGE $I_F = 10\text{mA}$ PER SEG.)