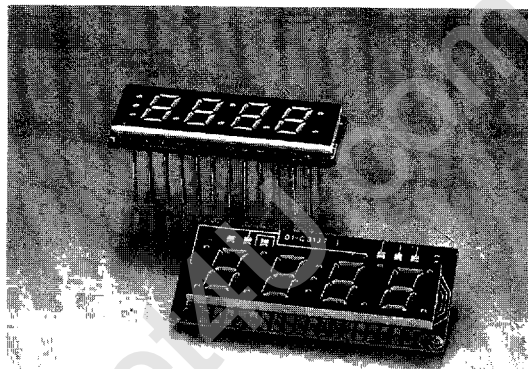


LITEON**LTC-3000 SERIES****0.3" FOUR DIGIT LED CLOCK FREQUENCY DISPLAYS**

T-41-35

FEATURES

- 0.3 INCH (7.62 mm) HEIGHT CHARACTER RED OR GREEN COLOR.
- COMMON CATHODE, COMMON ANODE; DIRECT, DUPLEX AND MULTIPLEX PIN OUT ARE AVAILABLE.
- FLEXIBLE TO SELECT BOTH 12/24 HOURS AND FULL FEATURE.
- CONTINUOUS UNIFORM SEGMENTS.
- WIDE ANGLE, LONG DISTANCE VIEWING.
- COLOR FILTER PROVIDES HIGH CONTRAST.
- LOW POWER REQUIREMENTS, HIGH RELIABILITY AND LONG LIFE.
- PRACTICAL BRIGHTNESS ARE OBTAINED AT ABOUT 8MA/SEGMENT DIRECT DRIVE; 20MA (WITH 1/2 DUTY RATIO) FOR DUPLEX DRIVE; 50MA (WITH 1/2 DUTY RATIO) FOR MULTIPLEX DRIVE.
- RED (GaAsP) 4 DIGIT LED COLOCK DISPLAY VERSION STANDARD [GREEN (GaP) DISPLAY SUFFIX G, BRIGHT RED (GaP) DISPLAY-SUFFIX P ARE AVAILABLE].

**DESCRIPTION**

The LTC-3000 Series devices are designed for viewing distance of up to two meters and for using in instrument, test equipment, communication equipment, business machines, computers, micro processor . . . etc.

1. CLOCK DISPLAY

PART NO. LTC.	DESCRIPTION				PIN OUT			INTERNAL CIRCUIT DIAGRAM	PACKAGE DIMENSION	REMARK	
	DRIVE		COLOR		SEG A.G.D. E.F. OF 1ST DIGIT	ALARM					AM / PM
	FORM	CIRCUIT	BRIGHT RED	GREEN		UP	LOW				
3137A1P-12	C.C.	DPX	V		NO		V	V/V	A	A	
3137A1G-12	C.C.	DPX		V	NO		V	V/V	A	A	
3137A1P-24	C.C.	DPX	V		A.G.D.E		V		A	A	
3137A1G-24	C.C.	DPX		V	A.G.D.E		V		A	A	
3137A3P	C.C.	DPX		V	A.G.D.E		V		A	A	BLACK FACE WHITE SEGS.
3702SP	C.C.	MPX	V		A.G.D.E.F.	V	V	V/V	B	B	
3702SG	C.C.	MPX		V	A.G.D.E.F.	V	V	V/V	B	B	
3708SP	C.C.	MPX	V		A.G.D.E.F.	V		V/V	C	C	
3708SG	C.C.	MPX		V	A.G.D.E.F.	V		V/V	C	C	
3808SP	C.A.	D.D.	V		NO	V	V	V/V	D	D	
3808SG	C.A.	D.D.		V	NO	V	V	V/V	D	D	

LED CLOCK &
FREQUENCY DISPLAYS

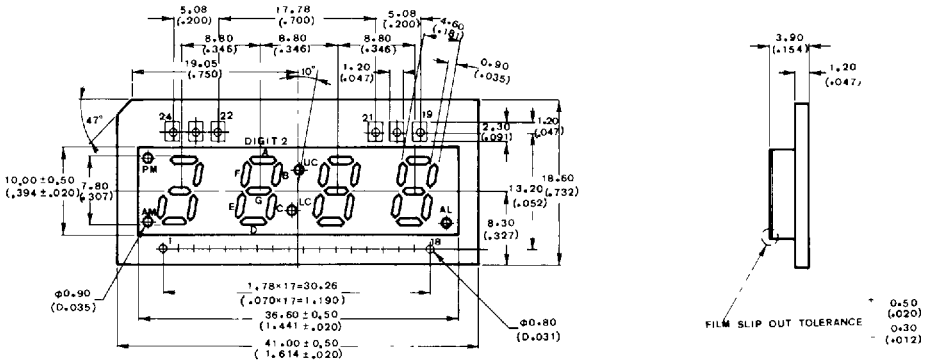
2. MULTI - FUNCTION DISPLAY (Customer design is acceptable)

PART NO. LTC-	DESCRIPTION					INTERNAL CIRCUIT DIAGRAM	PACKAGE DIMENSION	
	DRIVE		COLOR					DISPLAY FONT
	FROM	CIRCUIT	BRIGHT RED	GREEN	YELLOW			
3614 MSJ	C.A.	MPX.	V	V	V		H	
3730PMA-1	C.C.	MPX.	V				I	
3730GLY-1	C.C.	MPX.		V			I	

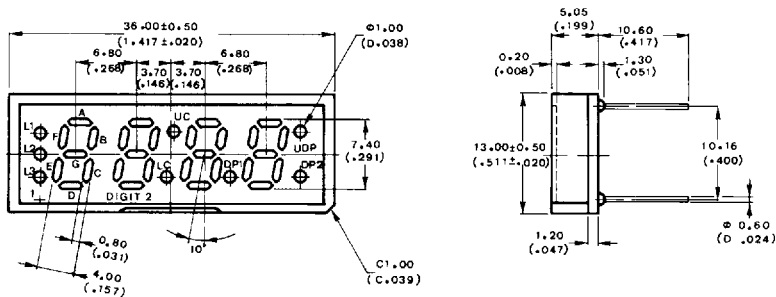
NOTES 1 C A common anode, C C common cathode
 2 MPX multiplex, DPX duplex, D D direct drive

PACKAGE DIMENSIONS

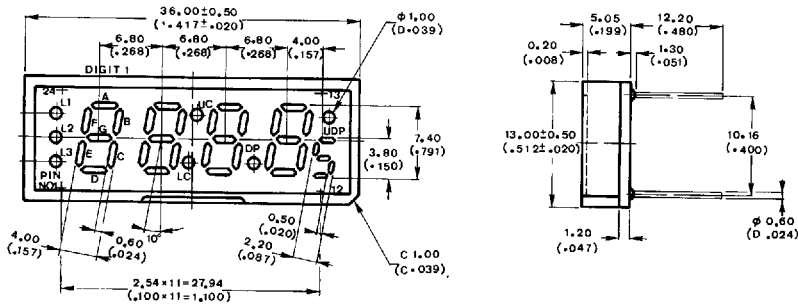
A. LTC-3137A1 x Series



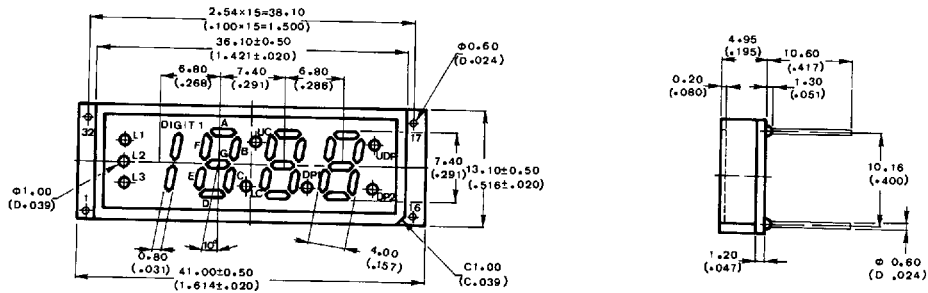
B. LTC-3702S x Series



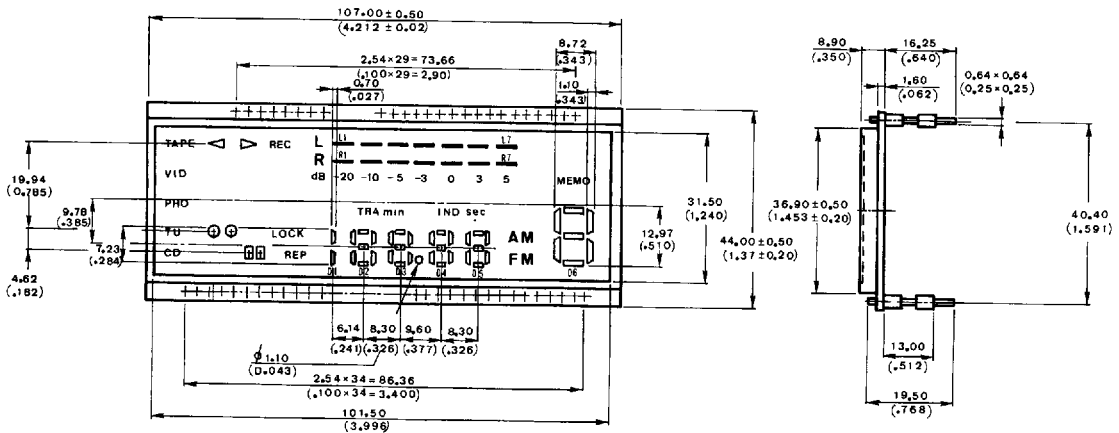
C. LTC-3708S x Series



D. LTC-3808S x Series

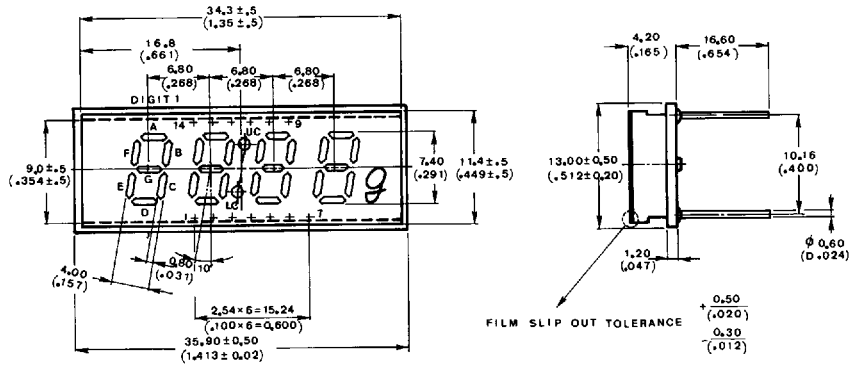


E. LTC-3614 MSJ



LED CLOCK & FREQUENCY DISPLAYS

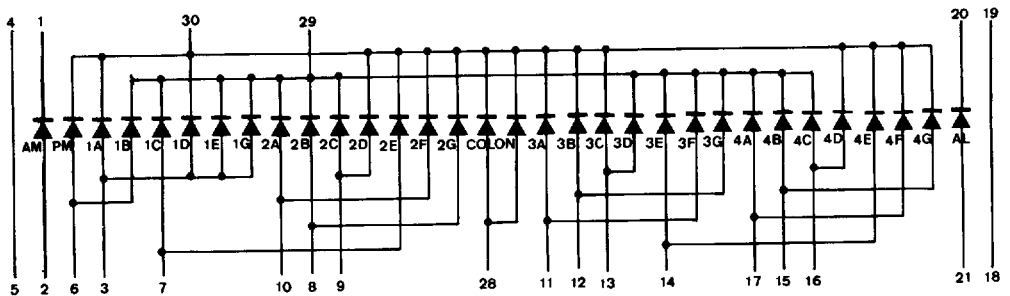
F. LTC-3730 Series



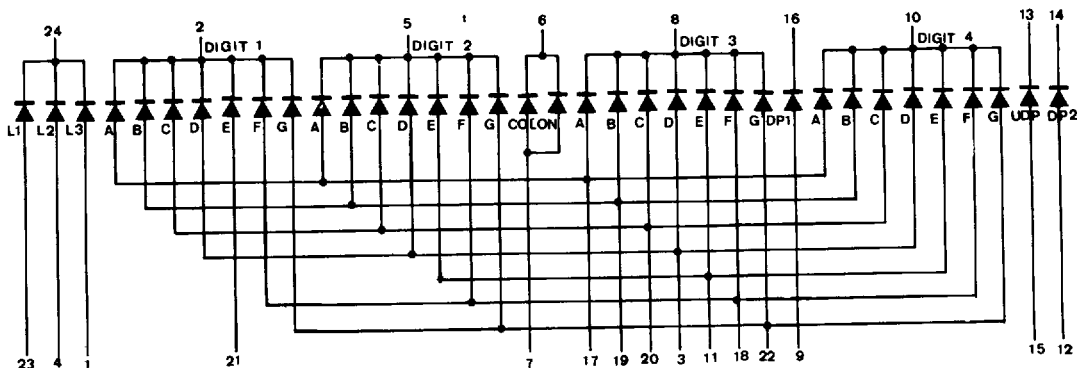
NOTE: All dimensions are in $\frac{\text{millimeters}}{\text{(inches)}}$ tolerance is $\frac{0.25\text{mm}}{(0.010'')}$ unless otherwise noted.

INTERNAL CIRCUIT DIAGRAM

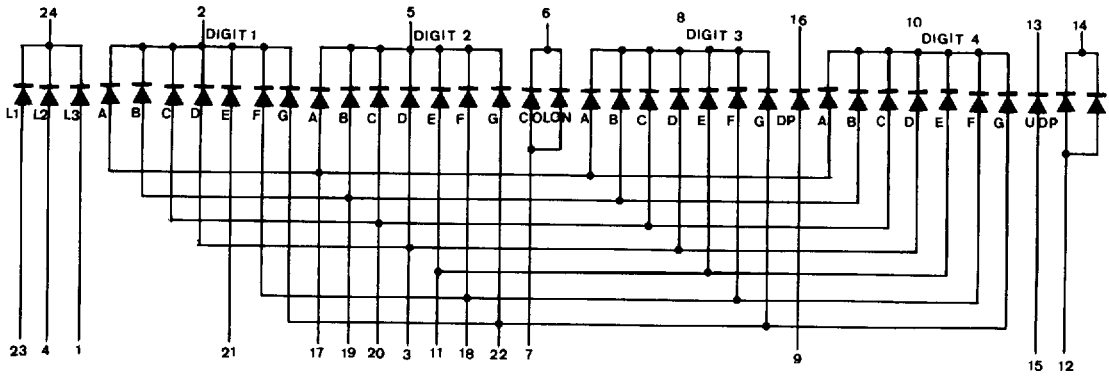
A. LTC-3137



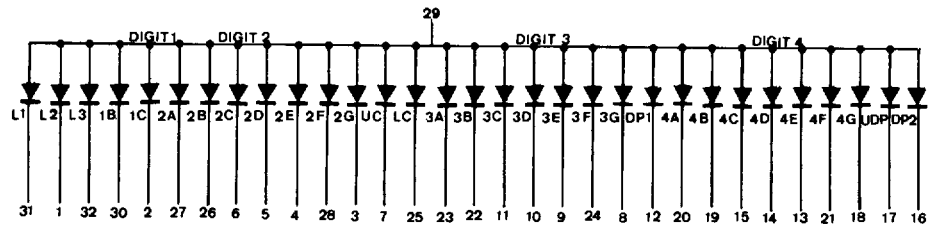
B. LTC-3702



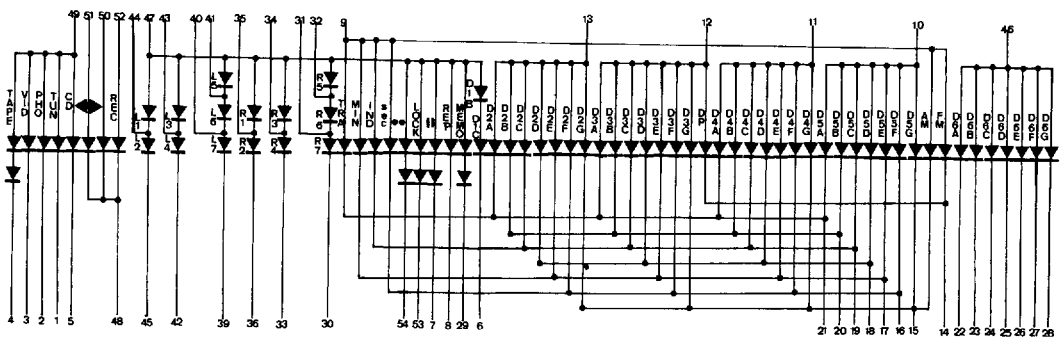
C. LTC-3708



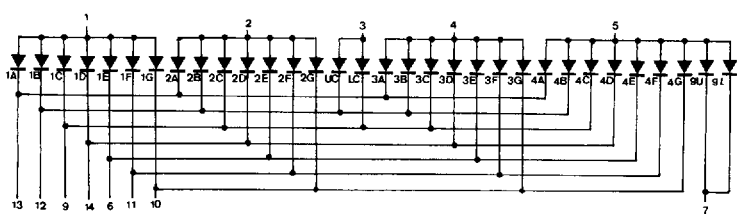
D. LTC-3808S x Series



E. LTC-3614 MSJ



F. LTC-3730 Series



LED CLOCK & FREQUENCY DISPLAYS

CONTINUOUS NEXT PAGE

ABSOLUTE MAXIMUM RATINGS AT TA = 25°C

PARAMETER	SYMBOL	RED	BRIGHT RED	GREEN	UNIT
Average Forward Current Per Segment/D.P. Direct Drive Current	ICF	25	20	20	mA
Peak Forward Current Per Segment/D.P. (Duty 1/10 1 KHz)	IPF	200	150	150	mA
Continuous Forward Current Duplex Circuit (Duty 1/2)	IF/pulse	30	30	30	mA
Reverse Voltage (Segment of Decimal Point)	VR	5	5	5	V
Operating Temperature Range	Topr	-25°C to 60°C			
Storage Temperature Range	Tstg	-25°C to 70°C			
Derating Linear From 25°C	PD	2.4	2.4	2.4	W
Derating Linear From 25°C		0.35	0.42	0.42	mA/°C
Max. Solder Temperature 260°C For 3 Seconds at 2 mm From The Case Or Reflector Edge					

NOTE: Caution

Please be careful of the following.

1) Avoid washing the LED DISPLAY in water.

2) Except for the printed wiring board, Avoid heating the LED DISPLAY over MAXIMUM RATING

3) Avoid using chemicals except for the following, when washing off flux and wiping off stain on surface of the LED DISPLAY

Freon TE or TF

Methyl or Ethyl Alcohol

Daiflon Solvent S3 or S3-E

ELECTRICAL/OPTICAL CHARACTERISTICS AT TA = 25°C

PARAMETER	SYMBOL	DEVICES	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	IV	RED	35	80		μcd	IF = 10 mA
		BRIGHT RED	65	155			
		GREEN	90	220			
Peak Emission Wavelength	λp	RED	630	655	680	nm	IF = 20 mA
		BRIGHT RED		697			
		GREEN		565			
Spectral Line Half-Width	Δλ	RED		24		nm	IF = 20 mA
		BRIGHT RED		90			
		GREEN		30			
Forward Voltage	VF	RED		1.7	2.2	V	IF = 20 mA
		BRIGHT RED		2.1	2.8		
		GREEN		2.1	2.8		
Reverse Current	IR	RED			100	μA	VR = 5V
		BRIGHT RED			100		
		GREEN			100		
Luminous Intensity Matching Ratio	Ivm	All Model			2:1		IF = 10 mA

LED CLOCK & FREQUENCY DISPLAYS

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

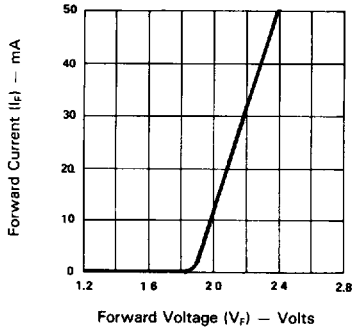


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE

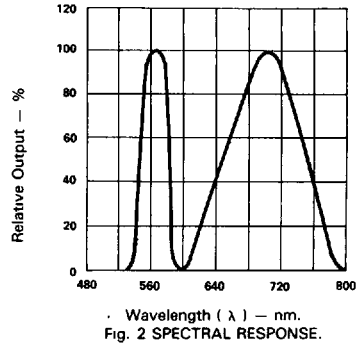


Fig. 2 SPECTRAL RESPONSE.

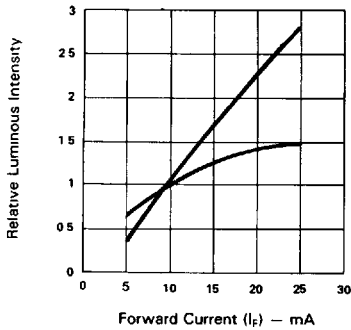


Fig. 3 RELATIVE, LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

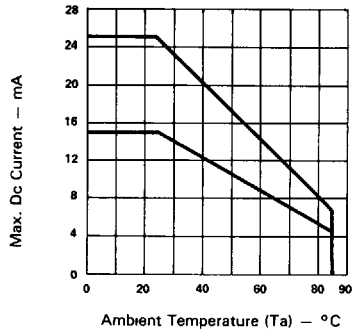


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE

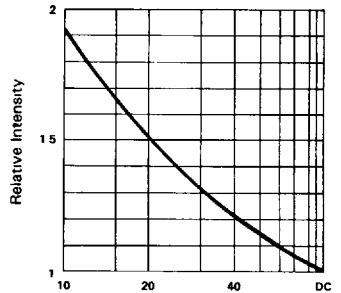
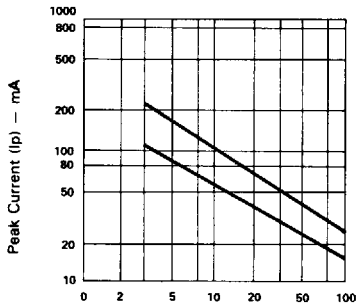


Fig. 6 LUMINOUS INTENSITY Vs DUTY CYCLE % (AVERAGE $I_f = 10\text{mA PER SEG}$)