



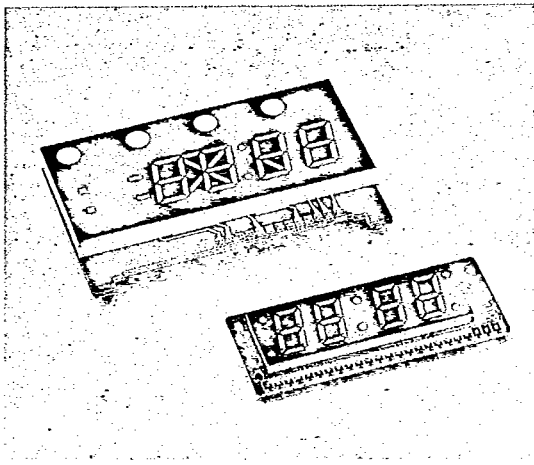
LTC-5000 SERIES

0.5" FOUR DIGIT LED CLOCK FREQUENCY DISPLAY

T-41-33

FEATURES

- 0.5 INCH (12.7mm) 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.
- BRIGHT RED (GaP) 4 DIGIT LED COLOCK DISPLAY VERSION STANDARD [GREEN (GaP) DISPLAY SUFFIX G.].



DESCRIPTION

The LTC-5000 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.

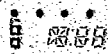
DEVICES

1. CLOCK DISPLAY

PART NO. LTC-	DESCRIPTION				PIN OUT				INTERNAL CIRCUIT DIAGRAM	PACKAGE DIMENSION
	DRIVE		COLOR		SEG A.G.D. E.F. OF 1ST DIGIT	ALARM		AM / PM		
	FORM	CIRCUIT	BRIGHT RED	GREEN		UP	LOW			
5502A1P-12S	C.C.	DPX	V		NO		V	V/V	D	G
5502A1G-12S	C.C.	DPX		V	NO		V	V/V	D	G

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

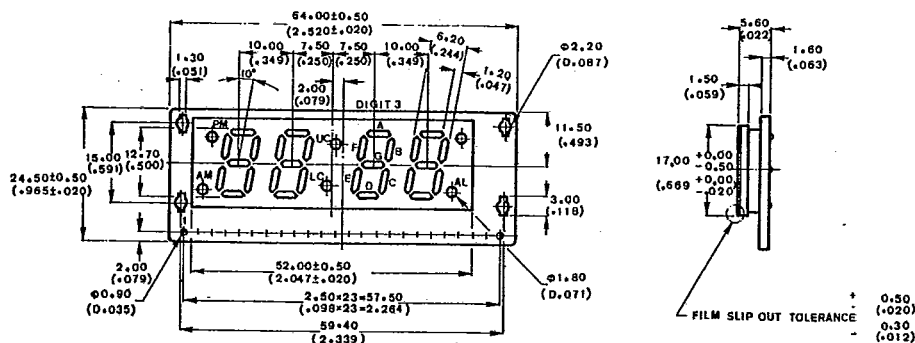
PART NO, LTC-	DESCRIPTION				INTERNAL CIRCUIT DIAGRAM	PACKAGE DIMENSION
	DRIVE		COLOR	DISPLAY FONT		
	FORM	CIRCUIT	ORANGE			
5612ELM	C.A.	MPX	V		H	L

NOTES: 1. C.A.: common anode C.C.: common cathode

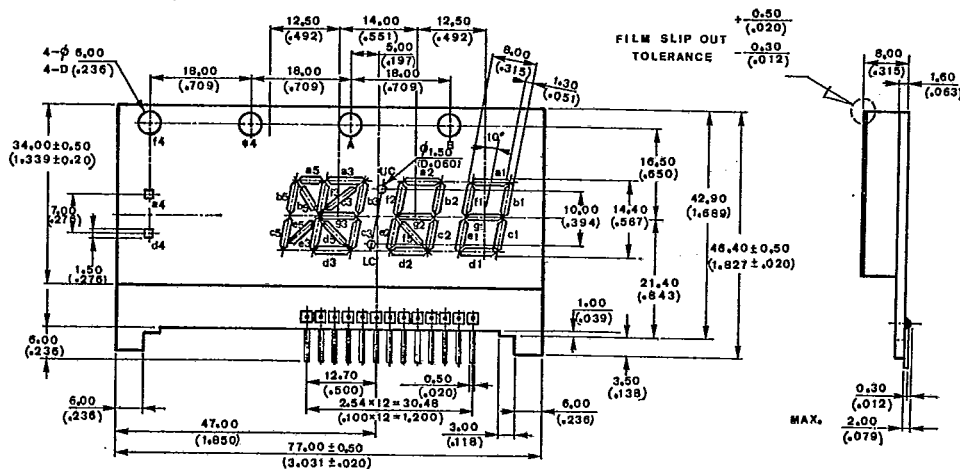
2. MPX: multiplex DPX: duplex D.D.: direct drive

PACKAGE DIMENSIONS

A. LTC-5502A1 x Series

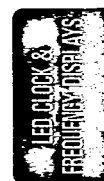


B. LTC-5612 ELM

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

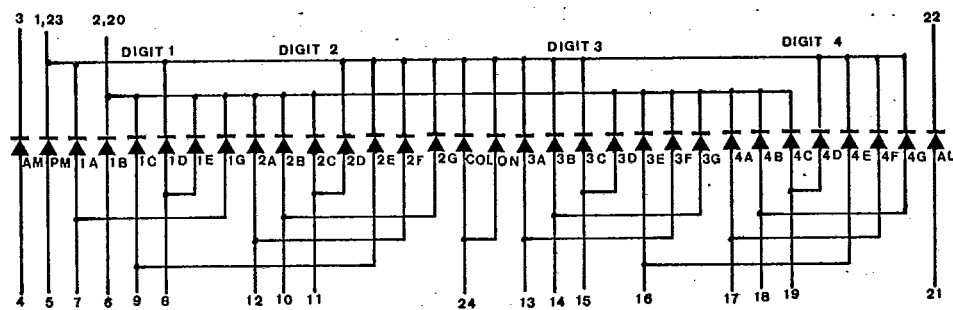
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T-41-33

A. LTC-5502



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

PARAMETER	SYMBOL	RED	GREEN	UNIT
Average Forward Current Per Segment/D.P. Direct Drive Current	I_{CF}	25	20	mA
Peak Forward Current Per Segment/D.P. (Duty 1/10 1 KHz)	I_{PF}	200	150	mA
Continuous Forward Current Duplex Circuit (Duty 1/2)	I_F /pulse	30	30	A
Reverse Voltage (Segment or Decimal Point)	V_R	5	5	V
Operating Temperature Range	T_{opr}	-25°C to 60°C		
Storage Temperature Range	T_{stg}	-25°C to 70°C		
Derating Linear From 25°C	P_D	2.4	2.4	W
Derating Linear From 25°C		0.42	0.42	mA/ $^\circ\text{C}$
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

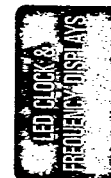
Freon TE or TF

Methyl or Ethyl Alcohol

Dal-From Solvent S3 or S3-E

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	DEVICES	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_v	BRIGHT RED	140	350		μcd	$I_F = 10\text{ mA}$
		GREEN	245	610			
Edge Peak Emission Wavelength	λ_p	BRIGHT RED		697		nm	$I_F = 20\text{ mA}$
		GREEN		565			
Spectral Line Half-Width	$\Delta\lambda$	BRIGHT RED		90		nm	$I_F = 20\text{ mA}$
		GREEN		30			
Forward Voltage	V_F	BRIGHT RED		2.1	2.8	V	$I_F = 20\text{ mA}$
		GREEN		2.1	2.8		
Reverse Current	I_R	BRIGHT RED			100	μA	$V_R = 5\text{ V}$
		GREEN			100		
Luminous Intensity Matching Ratio	I_{vm}	All Model			2.1		$I_F = 10\text{ mA}$



TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

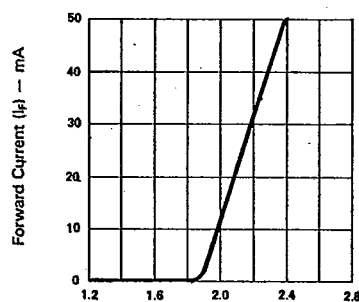


Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.

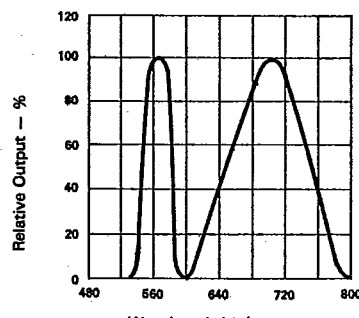


Fig. 2 SPECTRAL RESPONSE.

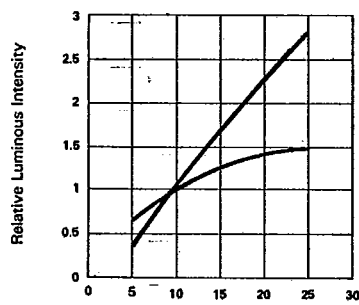


Fig. 3 RELATIVE LUMINOUS INTENSITY Vs. FORWARD CURRENT (PER SEGMENT).

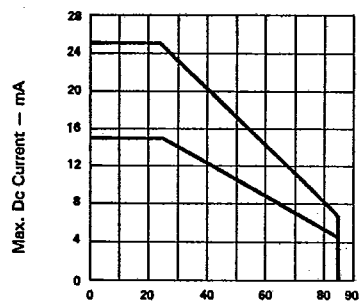


Fig. 4 MAX. ALLOWABLE DC CURRENT PER SEG. Vs AMBIENT TEMPERATURE.

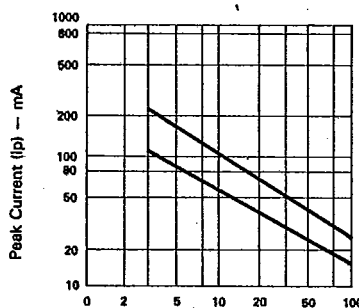


Fig. 5 MAX. PEAK CURRENT Vs. DUTY CYCLE.%(REFRESH RATE - F = 1 KHz)

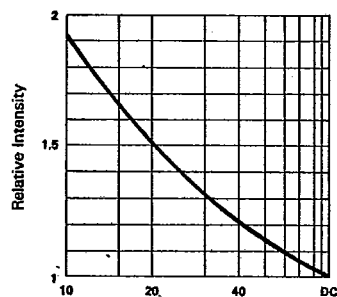


Fig. 6 LUMINOUS INTENSITY Vs. DUTY CYCLE.%(AVERAGE I_F = 10mA PER SEG.)

PACKAGING

T-90-20

Reel Packaging (Axial Lead Units)

DEVICE TYPE	COMPONENT SPACE (MM) "A"	TAPE SPACE (MM) "B"	REEL DIA (MM) "D"	QUANTITY (EA)		CARTON	
				REEL	CARTON	SIZE (MM)	WEIGHT (KG)
DO-41 DO-41L	5±0.5	52.4±1.5	326~336	5000	20K	355 x 355 x 355	10.5
DO-201AD	10±0.5	52.4±1.5	326~336	1200	4.8K	355 x 355 x 355	9.0
P6(Aleg)	10±0.5	52.4±1.5	326~336	700	2.8K	355 x 355 x 355	8.8

The C dimension of Fig. 3 is between 3.17mm and 635mm greater than the length of the component involved.

FIG. 1

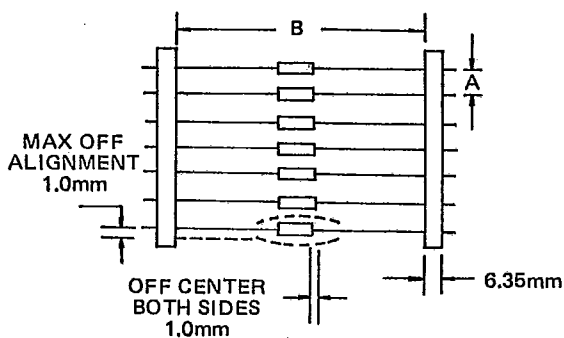


FIG. 2

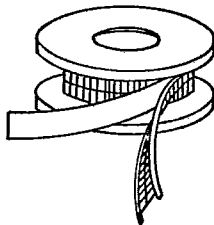
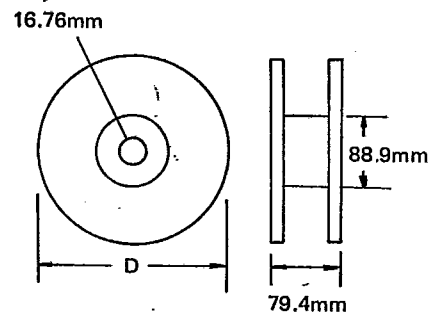


FIG. 3

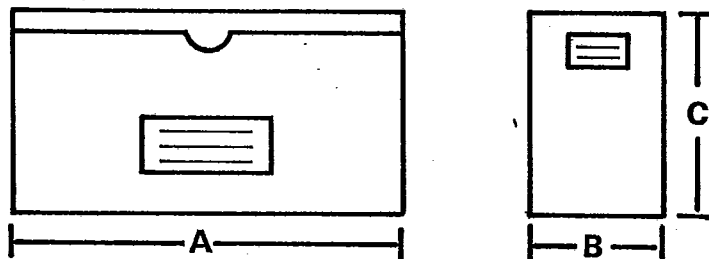


Bulk Packaging (Axial Lead Devices and Bridge Rectifiers)

DEVICE TYPE	PACKAGING SIZE (MM)		QUANTITY (EA)		APPROX GROSS WEIGHT (KG)	
	BOX	CARTON	BOX	CARTON	BOX	CARTON
DO-41 DO-41L	196 x 84 x 20	450 x 210 x 250	1000	50K	0.38	20
DO-201AD	305 x 93 x 59	355 x 355 x 355	1000	20K	1.35	28
P6(Aleg)	305 x 93 x 59	355 x 355 x 355	500	10K	1.2	24.5
PBM	357 x 125 x 60	530 x 360 x 340	1000	20K	1.5	32.3
PBDF	495 x 155 x 145	500 x 325 x 305	5000	20K	5.1	21.5
PBP	357 x 125 x 60	530 x 360 x 340	500	10K	1.5	31.5
PBL	375 x 220 x 155	470 x 385 x 455	1000	5K	5.7	30.5
PBPC-6	357 x 125 x 60	560 x 360 x 340	250	5K	1.1	22
PBPC-8	357 x 125 x 60	560 x 360 x 340	250	5K	1.7	35
KBPC	375 x 220 x 365	470 x 390 x 385	500	1K	15.1	31.5
KBPC-W	375 x 220 x 365	470 x 390 x 385	500	1K	14.5	30.0

AMMO BOX PACKAGING

BOX SIZE



Unit:m. m.

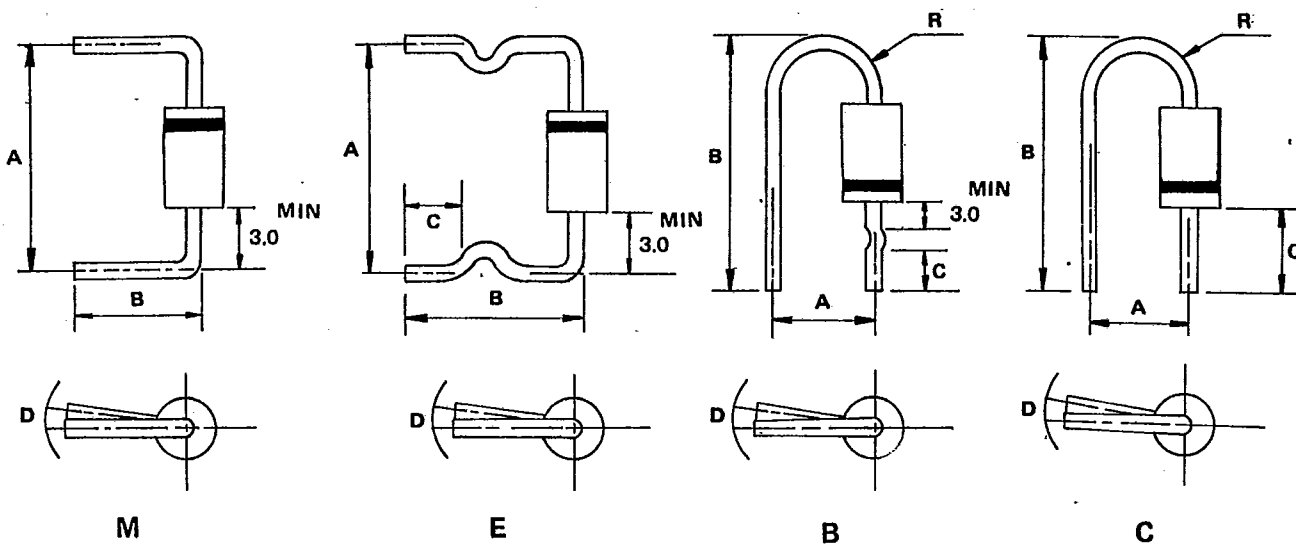
Packaging	Products Outline	Dimension *A*	Dimension *B*	Dimension *C*	Q'ty per BOX
26MM Horizontal Ammo Pack	DO-41 DO-41L(0.6mm Lead)	255	50	95	3K
					3K
52MM Horizontal Ammo Pack	DO-41and DO-41L DO 201AD	250	75	92	3K
					0.8K

CARTON SIZE

Unit:m. m.

Packaging	Products Outline	length	Width	High	Q'ty Per Carton
26MM Horizontal Ammo Pack	DO-41 DO-41L(0.6mm Lead)	330	310	268	42K
					48K
52MM Horizontal Ammo Pack	DO-41and DO-41L DO 201AD	355	355	340	12K
					12K

PREFORMED LEAD DRAWING



Case type	Preformed type	A (mm)		B (mm)		C (mm)		D (mm)		R (mm)	
		range	tolerance	range	tolerance	range	tolerance	range	tolerance	range	tolerance
D041	M	9.0-20.0	1.0	8.0-22.0	±0.5	—	—	1.5	max	—	—
	E	11.0-20.0	±1.0	11.0-16.0	±1.0	4.0-5.0	±0.5	1.5	max	—	—
	B	7.5	±0.5	19.0-22.0	±0.5	7.5	±0.5	1.5	max	2.5-4.0	Typ
	C	4.5	±0.8	18.0-19.0	±0.5	9.0	±0.5	1.5	max	2.5-4.0	Typ
D0201AD	M	15.0-20.0	±1.0	8.0-22.0	±1.0	—	—	2.0	max	—	—
	E	15.0-20.0	±1.0	10.0-22.0	±1.0	3.0-15.0	±0.5	2.0	max	—	—
P6(Aleg)	M	15.0-20.0	±1.0	8.0-22.0	±1.0	—	—	2.0	max	—	—