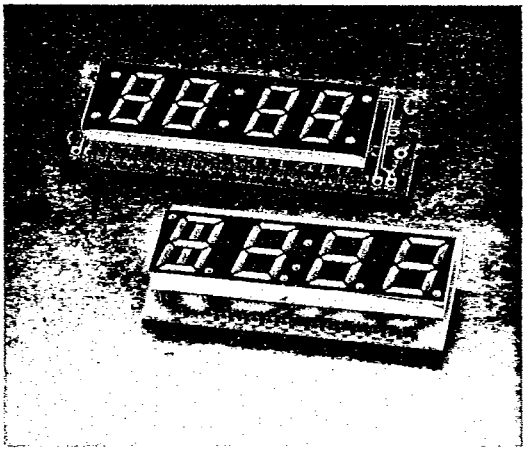
LITE-ON LED SPECIALIST

LTC-5000 SERIES

0.5" FOUR DIGIT LED CLOCK FREQUENCY DISPLAYS

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 ½ DUTY RATIO) FOR DUPLEX DRIVE; 50MA (WITH 1/8 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

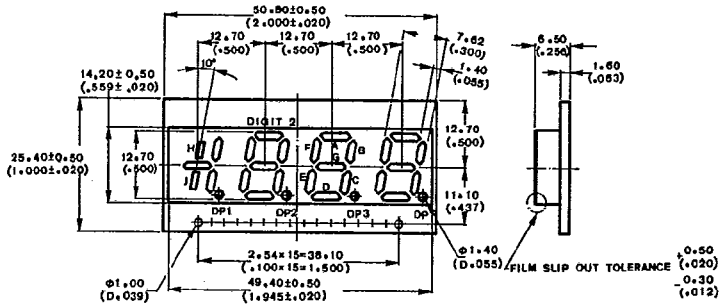
PART NO. LTC-	DESCRIPTION				PIN OUT				INTERNAL CIRCUIT DIAGRAM	PACKAGE DIMENSION
	DRIVE		COLOR		SEG A.G.D. E.F.J.H. OF 1ST DIGIT	ALARM		AM / PM		
	FORM	CIRCUIT	BRIGHT RED	GREEN		UP	LOW			
5382A1P	C.A.	MPX	V		J.H.G.		V		A	A
5382A1G	C.A.	MPX		V	J.H.G.		V		A	A
5382P	C.A.	MPX	V		J.H.G.		V		A	B
5382G	C.A.	MPX		V	J.H.G.		V		A	B
5388A1P	C.C.	MPX	V		J.H.G.		V		B	C

5388A1G	C.C.	MPX		V	J.H.G.		V		B	C
5388P	C.C.	MPX	V		J.H.G.		V		B	D
5388G	C.C.	MPX		V	J.H.G.		V		B	D
15401A1P	C.A.	D.D.	V		YES			/V	C	E
15401A1G	C.A.	D.D.		V	YES			/V	C	E
15401P	C.A.	D.D.	V		YES			/V	C	F
15401G	C.A.	D.D.		V	YES			/V	C	F
5502A1P-12	C.C.	DPX	V		NO		V	V/V	D	G
5502A1G-12	C.C.	DPX		V	NO		V	V/V	D	G
5703A1P	C.C.	MPX	V		YES				E	H
5703A1G	C.C.	MPX		V	YES			/	E	H
5703P	C.C.	MPX	V		YES				E	I
5703G	C.C.	MPX		V	YES			/	E	I
5881A1G	C.C.	MPX		V	YES		V	/	F	J
5881A1P	C.C.	MPX	V		YES		V	/	F	J
5881P	C.C.	MPX	V		YES		V	/	F	K
5881G	C.C.	MPX		V	YES		V	/	F	K
5882A1P	C.A.	MPX	V		YES		V	/	G	J
5882A1G	C.A.	MPX		V	YES		V	/	G	J
5882P	C.A.	MPX	V		YES		V	/	G	K
5882G	C.A.	MPX		V	YES		V	/	G	K

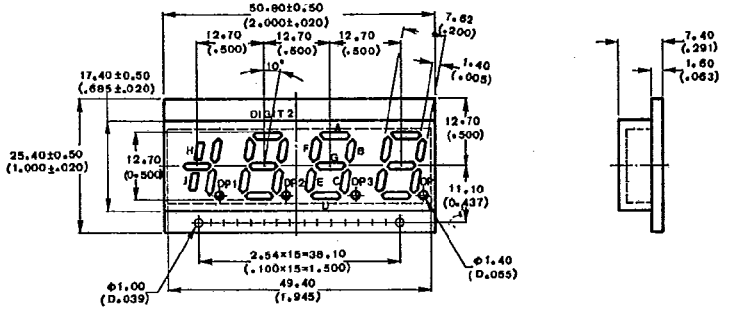
NOTES: 1. C.A.: common anode C.C.: common cathode 2. MPX: multiplex DPX: duplex D.D.: direct drive

PACKAGE DIMENSIONS

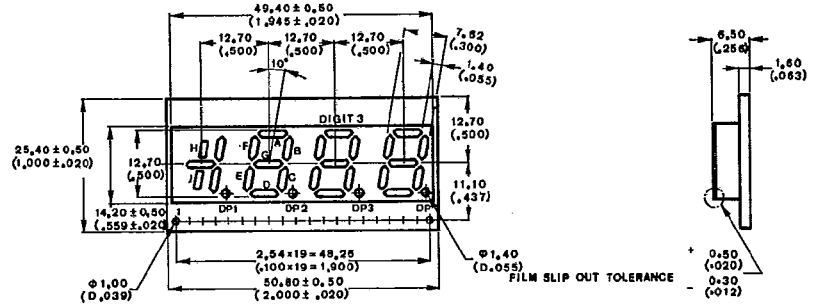
A. LTC-5382A1 x Series



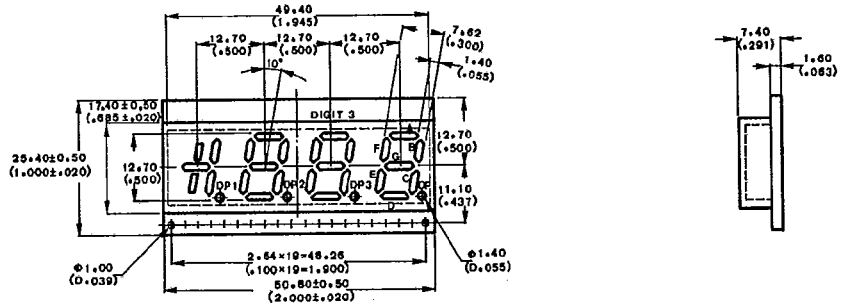
B. LTC-5382 x Series



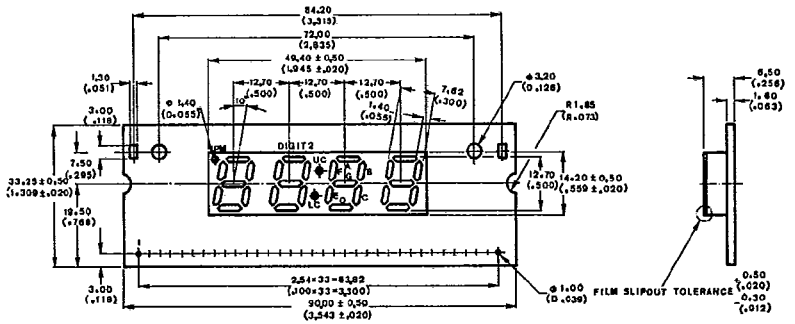
C. LTC-5388A1 x Series



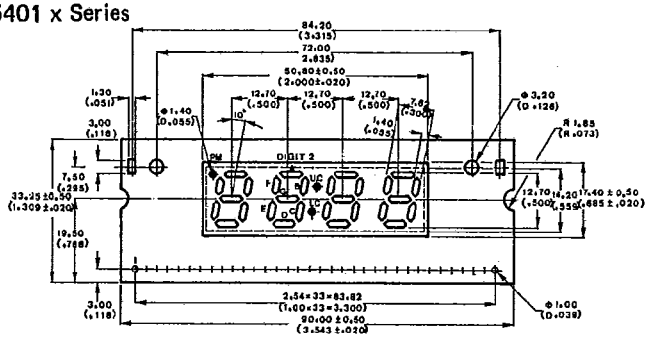
D. LTC-5388 x Series



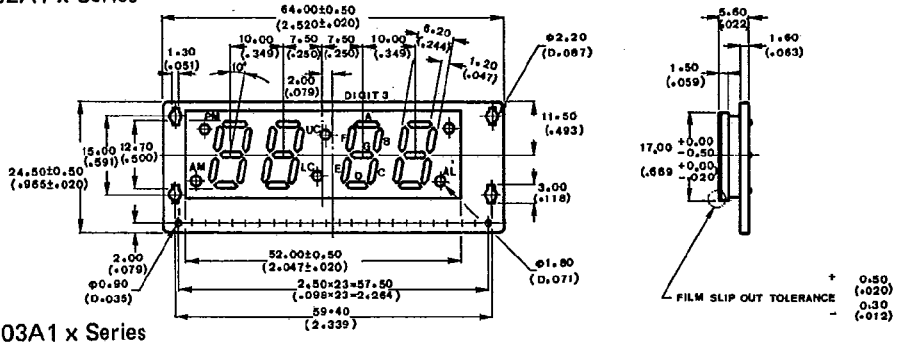
E. LTC-15401A1 x Series



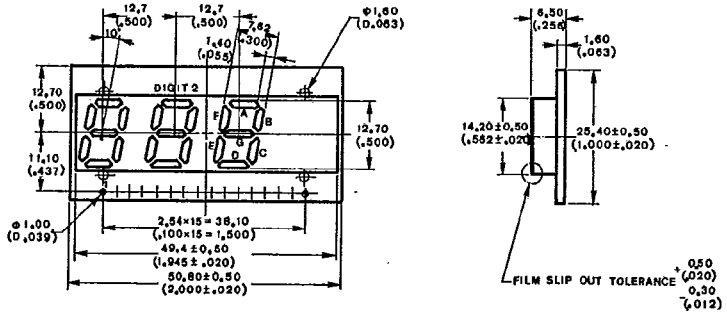
F. LTC-15401 x Series



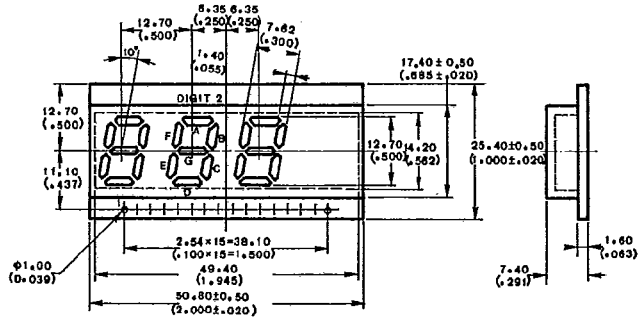
G. LTC-5502A1 x Series



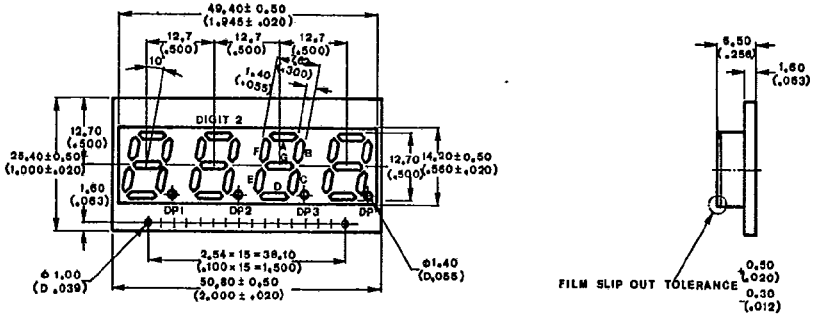
H. LTC-5703A1 x Series



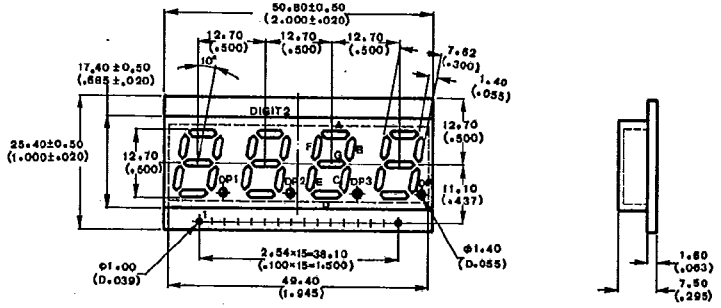
I. LTC-5703 x Series



J. LTC-5881A1 x /5882A1 x Series



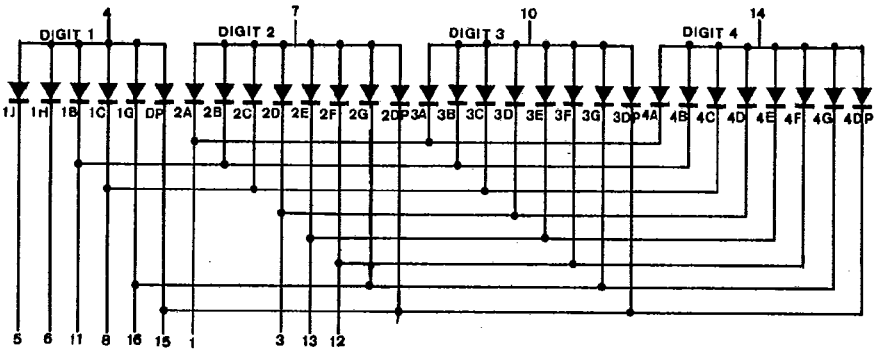
K. LTC-5881x /5882 x Series



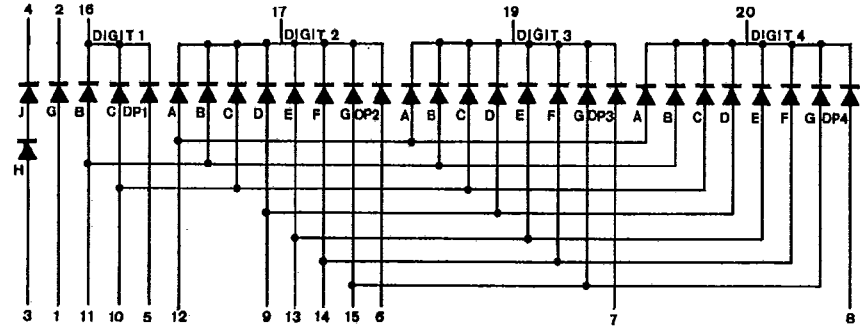
NOTE: All dimensions are in $\frac{\text{millimeters}}{\text{(inches)}}$ tolerance is $\frac{0.25\text{mm}}{(0.010'')}$ unless otherwise noted.

INTERNAL CIRCUIT DIAGRAM

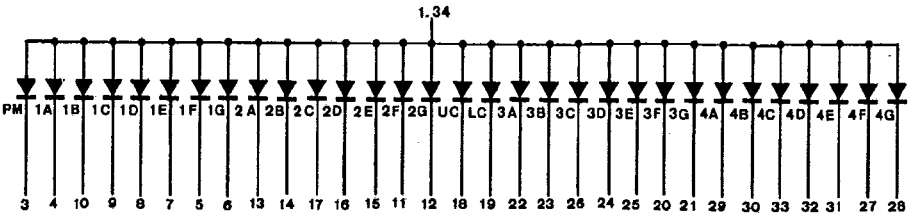
A. LTC-5382



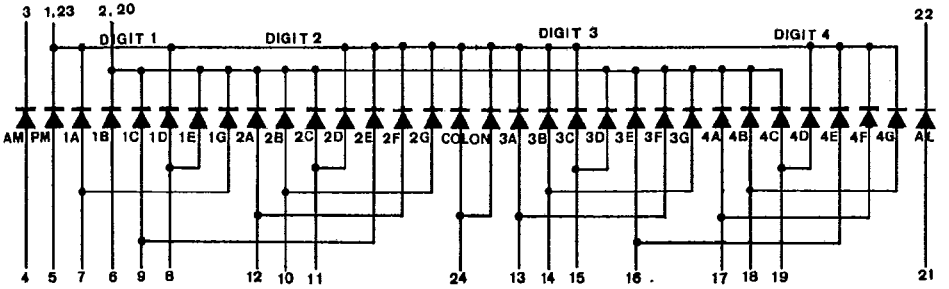
B. LTC-5388



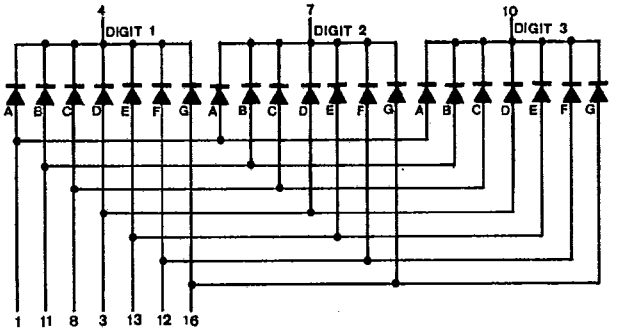
C. LTC-15401



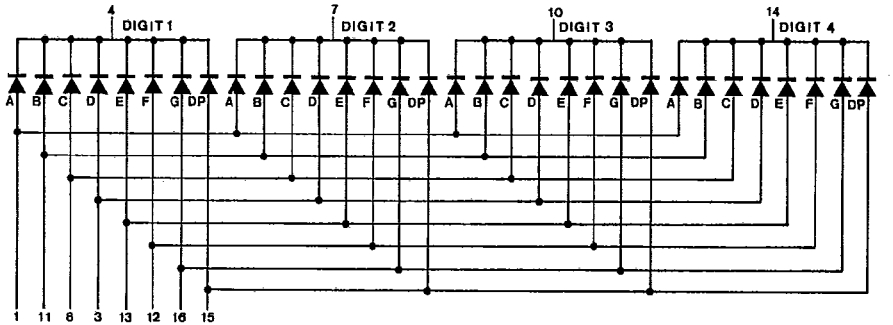
D. LTC-5502



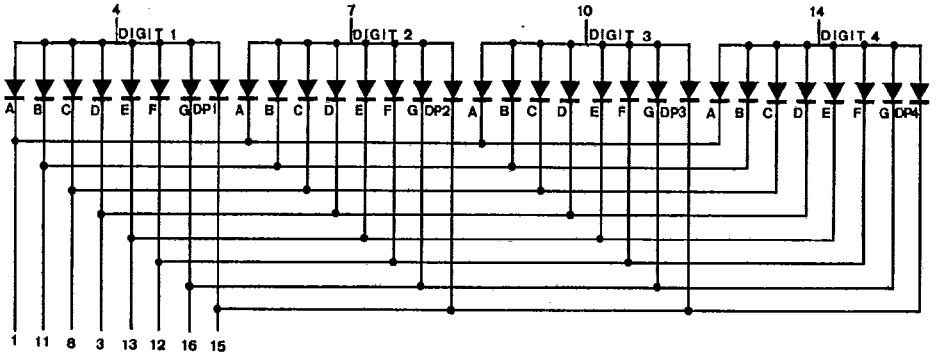
E. LTC-5703



F. LTC-5881



G. LTC-5882



ABSOLUTE MAXIMUM RATINGS AT $T_A = 25°C$

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	mA
Reverse Voltage (Segment of Decimal Point)	V_R	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	P_D	2.4	2.4	mW
Derating Linear From 25°C		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

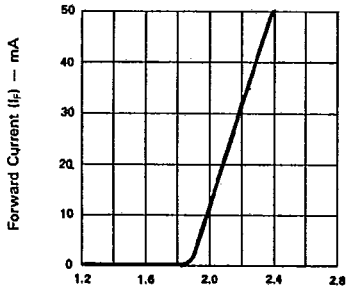
Freon TE or TF
Methyl or Ethyl Alcohol
Dai-From Solvent S3 or S3-E

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$

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

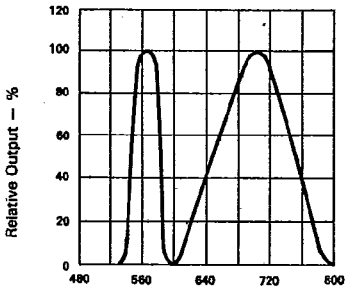
TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)



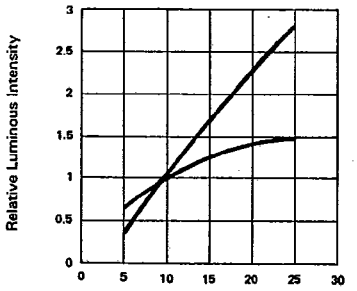
Forward Voltage (V_F) — Volts

Fig. 1 FORWARD CURRENT Vs. FORWARD VOLTAGE.



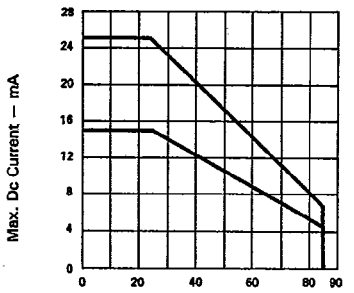
Wavelength (λ) — nm.

Fig. 2 SPECTRAL RESPONSE.



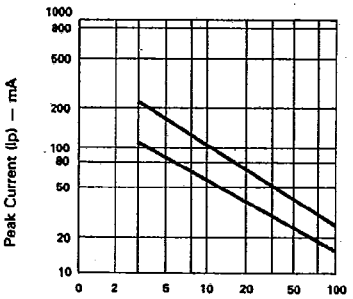
Forward Current (I_F) — mA

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



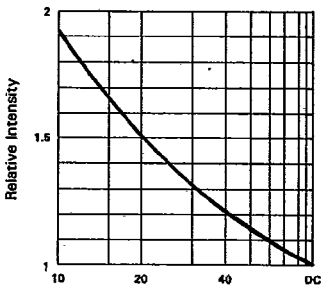
Ambient Temperature (Ta) — °C

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 KHz)



Duty Cycle %

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