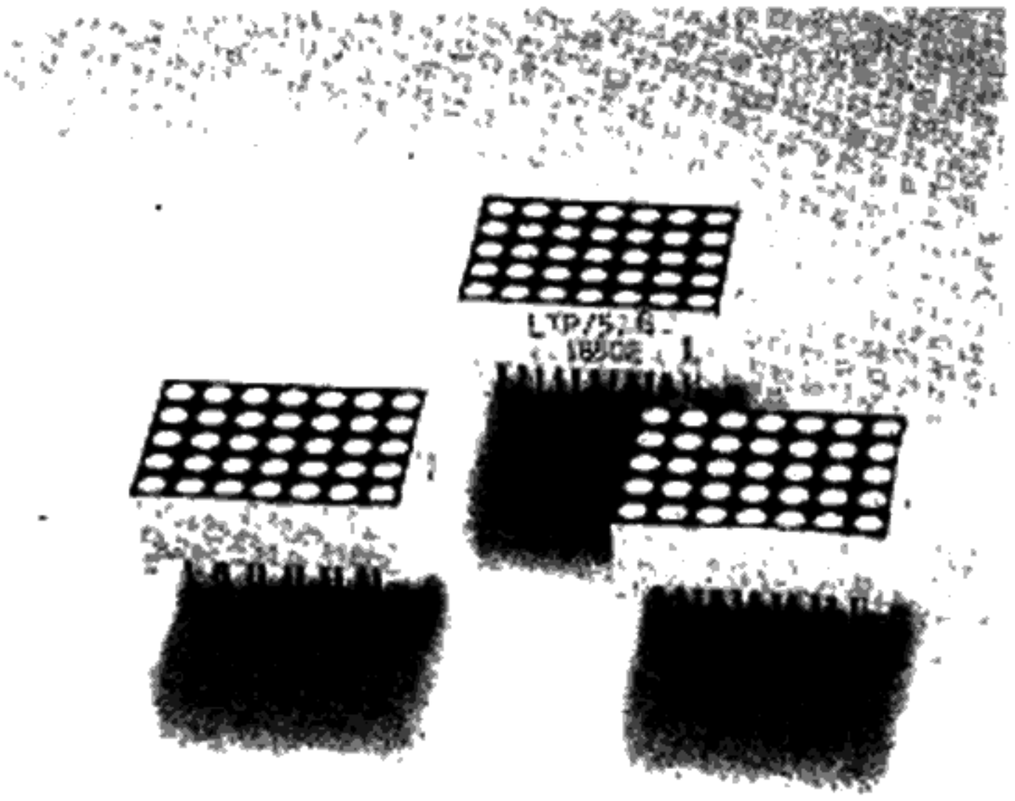
LITEON

LTP-747/757 SERIES

0.7" 5 x 7 SINGLE COLOR DOT MATRIX DISPLAY

FEATURES

- 0.7 INCH (17.2 mm) MATRIX HEIGHT.
- CHOICE OF SIX BRIGHT COLORS – RED / BRIGHT RED / GREEN / YEELOW / ORANGE / HIGH EFFICIENCY RED.
- LOW POWER REQUIREMENT.
- 5 x 7 ARRAY WITH X-Y SELECT.
- COMPATIBLE WITH USASCII AND EBCDIC CODES.
- STACKABLE VERTICALLY AND HORIZONTALLY.
- CHOICE OF TWO MATRIX ORIENTATION CATHODE ROW, OR CATHODE COLUMN.
- EASY MOUNTING ON P.C. BOARD OR SOCKETS.
- CATEGORIZED FOR LUMINOUS INTENSITY.



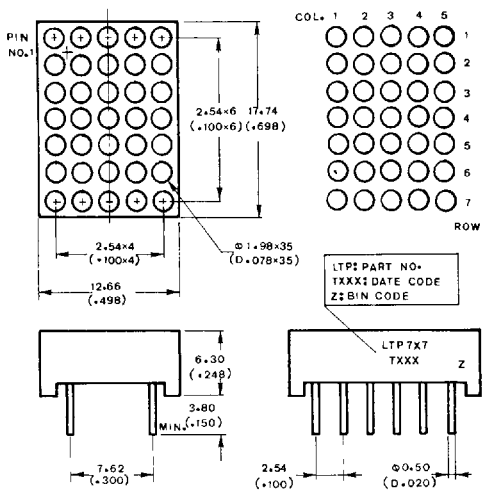
DESCRIPTION

The LTP-747/757 series are 0.7 inche (17.2 mm) matrix height 5 x 7 dot matrix 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 utilize LED chips which are made from GaAsp on a transparent GaP substrate. The red, green, yellow and orange displays have gray face and white dot color. The bright red and high efficiency red displays have red face and red dot color.

DEVICES

PART NO. LTP–					DESCRIPTION	ITERNAL CIRCUIT DIAGRAM
RED	GREEN	YELLOW	ORANGE	HI.-EFF. RED		
747R	747G	747Y	747E	747HR	Anode Column, Cathode Row	A
757R	757G	757Y	757E	757HR	Cathode Column, Anode Row	B

PACKAGE DIMENSIONS



NOTE All dimensions are in $\frac{\text{millimeters}}{(\text{inches})}$ tolerance are:

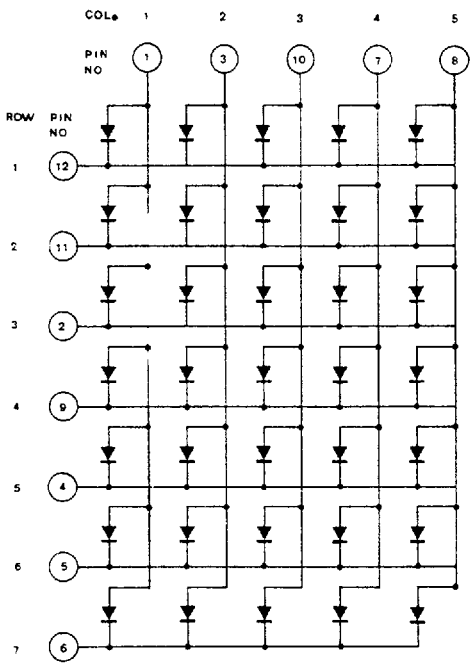
1. Lead length (from seating plane) minimum valum $\frac{+1.00}{-0.000}$ mm $\left(\frac{+0.040''}{-0.000''}\right)$ 2. $\frac{\pm 0.25\text{mm}}{(0.010'')}$ unless otherwise noted.

PIN CONNECTION

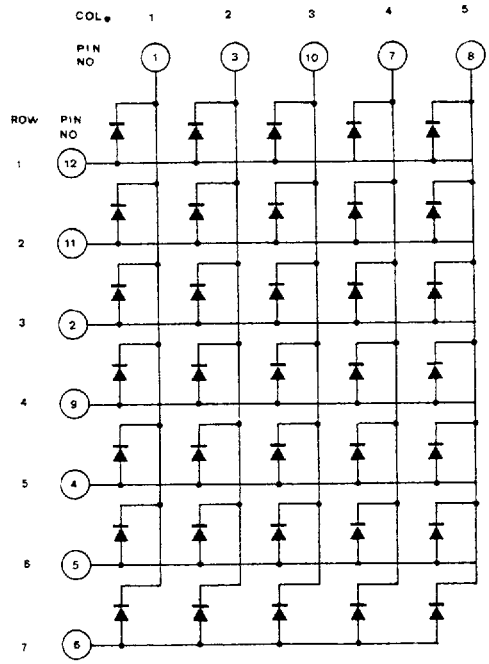
PIN NO.	CONNECTION	
	LTP-747	LTP-757
1	Anode Column 1	Cathode Column 1
2	Cathode Row 3	Anode Row 3
3	Anode Column 2	Cathode Column 2
4	Cathode Row 5	Anode Row 5
5	Cathode Row 6	Anode Row 6
6	Cathode Row 7	Anode Row 7
7	Anodel Column 4	Cathode Column 4
8	Anode Column 5	Cathode Column 5
9	Cathode Row 4	Anode Row 4
10	Anode Column 3	Cathode Column 3
11	Cathode Row 2	Anode Row 2
12	Cathode Row 1	Anode Row 1

INTERNAL CIRCUIT DIAGRAM

A. LTP-747



B. LTP-757



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

PARAMETER	RED	GREEN	YELLOW	ORANGE	HI.-EFF. RED	UNIT
Power Dissipation Per Dot	45	60	50	60	60	mW
Peak Forward Current Per Dot (1/10 Duty Cycle, 0.1ms Pulse Width)	120	80	60	80	80	mA
Continuous Forward Current Per Dot	20	20	16	20	20	mA
Derating Linear From 25° C Per Dot	0.24	.0.24	0.2	0.24	0.24	mA/° C
Reverse Voltage Per Dot	5	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						

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ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
LTP-747R/757R

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	Iv	200	500		µcd	I_P = 48 mA 1/8 DUTY
Peak Emission Wavelength	λp		655		nm	I_F = 20 mA
Spectral Line Half-Width	Δλ		24		nm	I_F = 20 mA
Forward Voltage, any Dot	V_F		1.7	2.0	V	I_F = 20 mA
Reverse Current, any Dot	I_R			100	µA	V_R = 5V
Luminous Intensity Matching Ratio	Iv-m			2:1		I_F = 20 mA

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

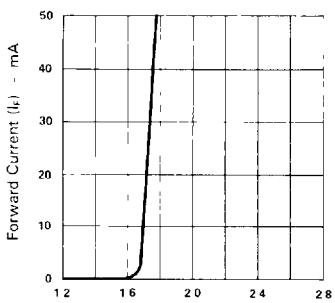

Fig. 1 FORWARD CURRENT Vs FORWARD VOLTAGE

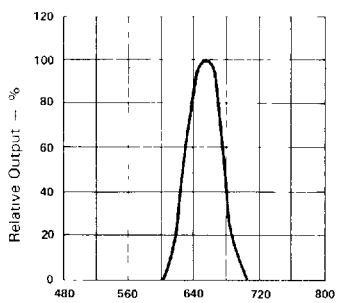

Fig 2 SPECTRAL RESPONSE

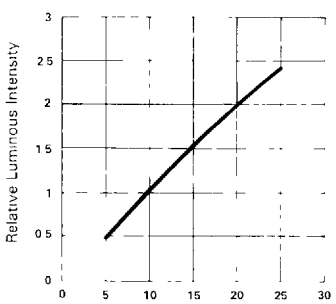

Fig 3 RELATIVE LUMINOUS INTENSITY Vs FORWARD CURRENT (PER SEGMENT)

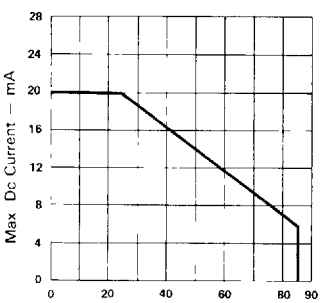

Fig 4 MAX. ALLOWABLE DC CURRENT PER SEG Vs AMBIENT TEMPERATURE

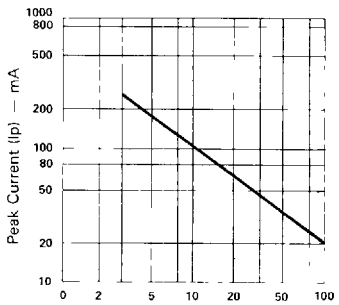

Fig 5 MAX. PEAK CURRENT Vs DUTY CYCLE % (REFRESH RATE – F – 1 KHz)

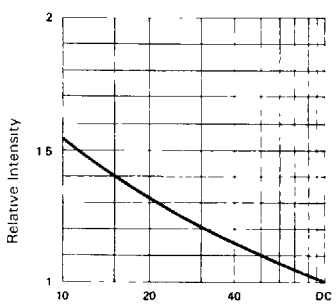

Fig 6 LUMINOUS INTENSITY Vs DUTY CYCLE % (AVERAGE I_F – 10mA PER SEG.)

DOT MATRIX DISPLAYS

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
LTP-747Y/757Y

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	Iv	700	2000		μcd	I_P = 48 mA 1/8 DUTY
Peak Emission Wavelength	λp		585		nm	I_F = 20 mA
Spectral Line Half-Width	Δλ		35		nm	I_F = 20 mA
Forward Voltage, any Dot	V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current, any Dot	I_R			100	μA	V_R = 5V
Luminous Intensity Matching Ratio	Iv-m			2:1		I_F = 20 mA

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES
(25°C Ambient Temperature Unless Otherwise Noted)

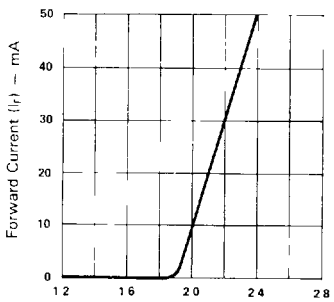

Fig 1 FORWARD CURRENT Vs FORWARD VOLTAGE

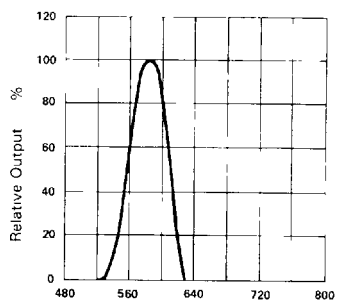

Fig 2 SPECTRAL RESPONSE

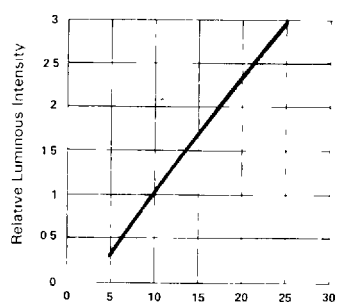

Fig 3 RELATIVE LUMINOUS INTENSITY Vs FORWARD CURRENT (PER SEGMENT)

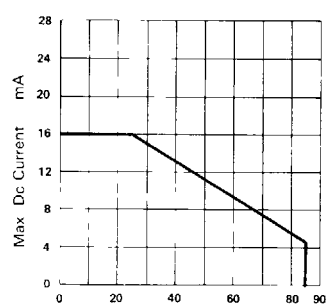

Fig 4 MAX. ALLOWABLE DC CURRENT PER SEG Vs AMBIENT TEMPERATURE

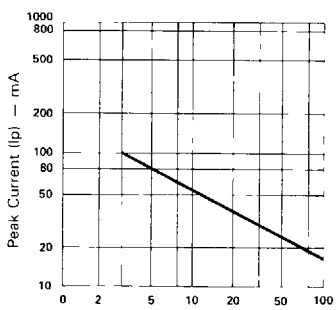

Fig 5 MAX. PEAK CURRENT Vs DUTY CYCLE % (REFRESH RATE F = 1 KHz)

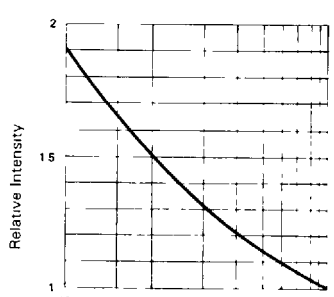

Fig 6 LUMINOUS INTENSITY Vs DUTY CYCLE (AVERAGE I 10mA PER SEG.)

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
LTP-747G/757G

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_V	700	2000		µcd	I_P = 48 mA 1/8 DUTY
Peak Emission Wavelength	λ_P		565		nm	I_F = 20 mA
Spectral Line Half-Width	$\Delta\lambda$		30		nm	I_F = 20 mA
Forward Voltage, any Dot	V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current, any Dot	I_R			100	µA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-m}			2:1		I_F = 20 mA

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES
(25° C Ambient Temperature Unless Otherwise Noted)

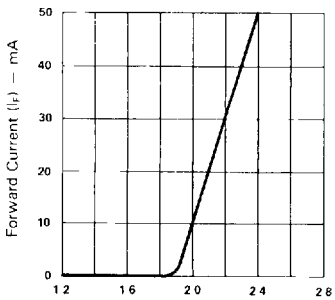

Fig 1 FORWARD CURRENT Vs FORWARD VOLTAGE

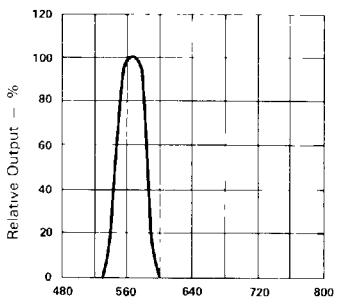

Fig 2 SPECTRAL RESPONSE

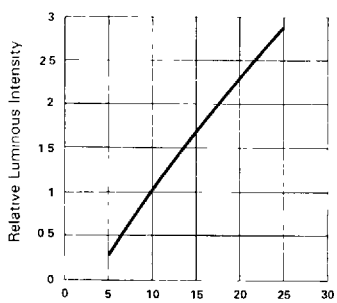

Fig 3 RELATIVE LUMINOUS INTENSITY Vs FORWARD CURRENT (PER SEGMENT)

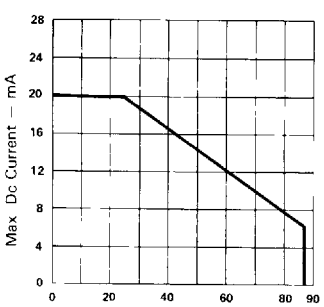

Fig 4 MAX ALLOWABLE DC CURRENT PER SEG Vs AMBIENT TEMPERATURE

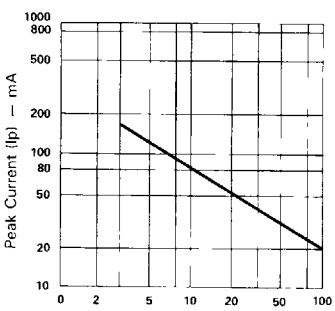

Fig 5 MAX PEAK CURRENT Vs DUTY CYCLE % (REFRESH RATE F = 1 KHz)

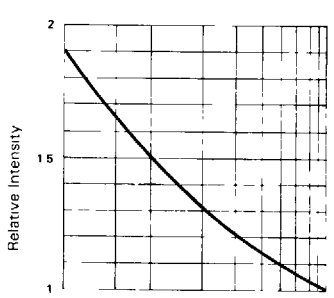

Fig 6 LUMINOUS INTENSITY Vs DUTY CYCLE % (AVERAGE I_F = 10mA PER SEG.)

DOT MATRIX DISPLAYS

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
LTP-747E/757E

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CODITION
Average Luminous Intensity	Iv	700	2000		μcd	I_P = 48 mA 1/8 DUTY
Peak Emission Wavelength	λp		630		nm	I_F = 20 mA
Spectral Line Half-Width	Δλ		40		nm	I_F = 20 mA
Forward Voltage, any Dot	V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current, any Dot	I_R			100	μA	V_R = 5V
Luminous Intensity Matching Ratio	Iv-m			2:1		I_F = 20 mA

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

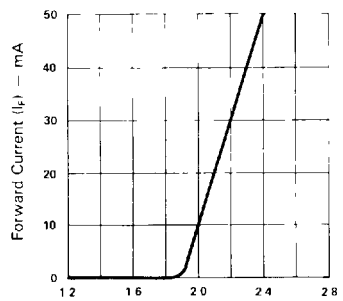

Fig 1 FORWARD CURRENT Vs FORWARD VOLTAGE

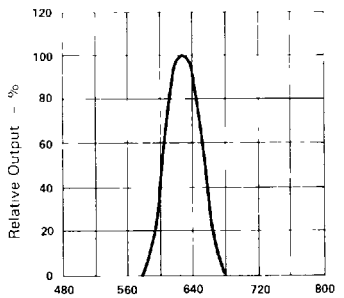

Fig 2 SPECTRAL RESPONSE

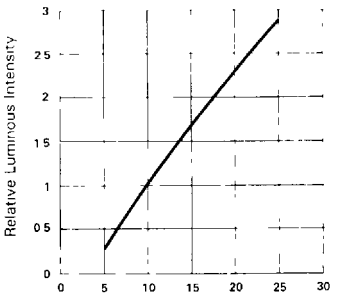

Fig 3 RELATIVE LUMINOUS INTENSITY Vs FORWARD CURRENT (PER SEGMENT)

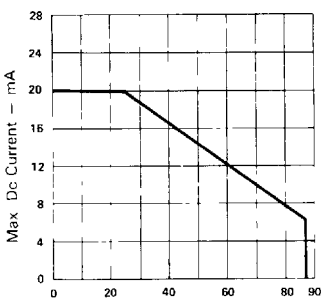

Fig 4 MAX. ALLOWABLE DC CURRENT PER SEG Vs AMBIENT TEMPERATURE

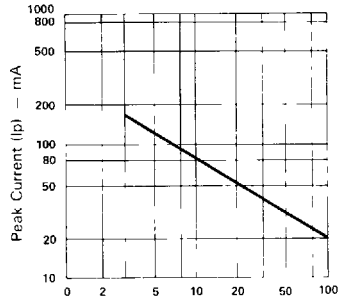

Fig 5 MAX. PEAK CURRENT Vs DUTY CYCLE % (REFRESH RATE F = 1 KHz)

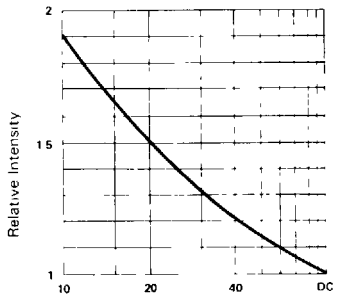

Fig 6 LUMINOUS INTENSITY Vs DUTY CYCLE % (AVERAGE I_F = 10mA PER SEG.)

ELECTRICAL/OPTICAL CHARACTERISTICS AT $T_A = 25°C$
LTP-747HR/757HR

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CODITION
Average Luminous Intensity	Iv	700	2000		μcd	I_p = 48 mA 1/8 DUTY
Peak Emission Wavelength	λp		635		nm	I_F = 20 mA
Spectral Line Half-Width	Δλ		40		nm	I_F = 20 mA
Forward Voltage, any Dot	V_F		2.1	2.8	V	I_F = 20 mA
Reverse Current; any Dot	I_R			100	μA	V_R = 5V
Luminous Intensity Matching Ratio	Iv-m			2:1		I_F = 20 mA

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES
(25°C Ambient Temperature Unless Otherwise Noted)

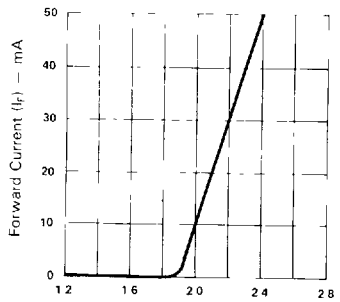

Fig 1 FORWARD CURRENT Vs FORWARD VOLTAGE

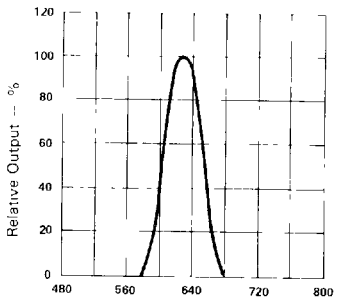

Fig 2 SPECTRAL RESPONSE

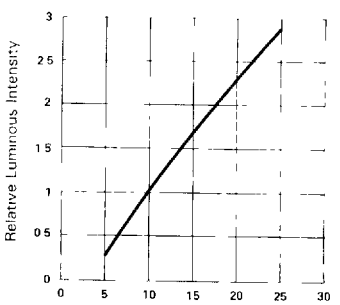

Fig 3 RELATIVE LUMINOUS INTENSITY Vs FORWARD CURRENT (PER SEGMENT)

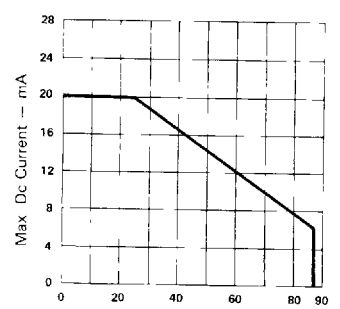

Fig 4 MAX. ALLOWABLE DC CURRENT PER SEG Vs AMBIENT TEMPERATURE

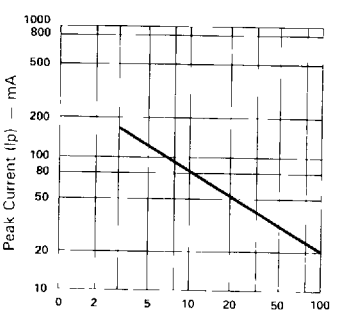

Fig 5 MAX. PEAK CURRENT Vs DUTY CYCLE % (REFRESH RATE F = 1 KHz)

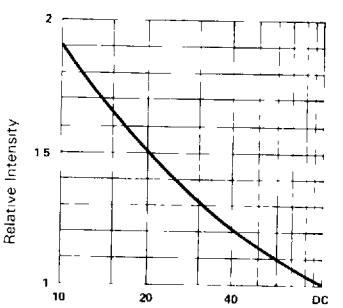

Fig 6 LUMINOUS INTENSITY Vs DUTY CYCLE % (AVERAGE I = 10mA PER SEG.)

DOT MATRIX DISPLAYS