LITEON®
OPTOELECTRONICS



LED Display

Product Data Sheet

LTG-Y2K31M

Spec No.: DS30-2001-126

Effective Date: 09/15/2001

Revision: -

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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FEATURES

∗0.27 INCH (7.0 mm) DIGIT HEIGHT.
∗CONTINUOUS UNIFORM SEGMENTS.
∗LOW POWER REQUIREMENT.
∗EXCELLENT CHARACTERS APPEARANCE.
∗HIGH BRIGHTNESS & HIGH CONTRAST.
∗WIDE VIEWING ANGLE.
∗SOLID STATE RELIABILITY.

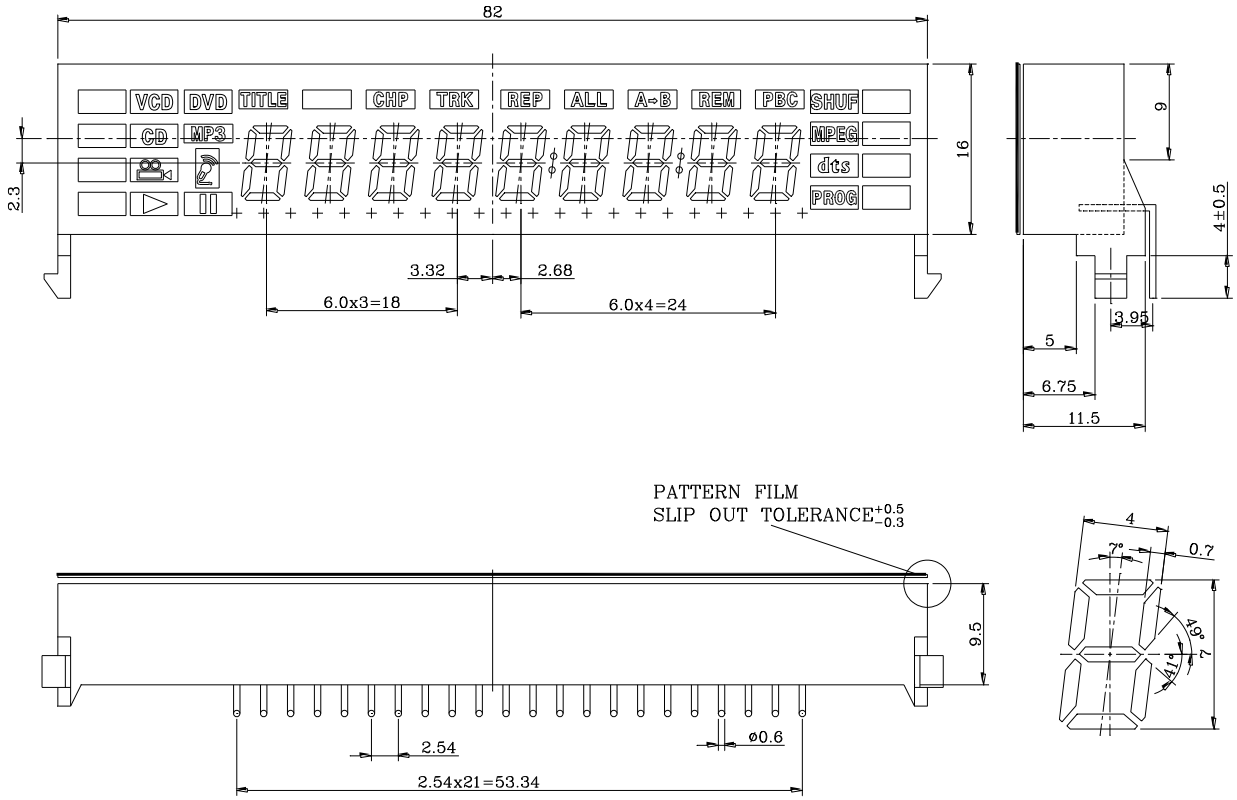
DESCRIPTION

The LTG-Y2K31M is a 0.27 inch (7.0 mm) digit height seven-segment display. The device is multi-color applicable display. The green LED chips, which are made from GaP on a transparent GaP substrate. The red orange & amber LED chips, which are made from GaAsP on a transparent GaP.

DEVICE

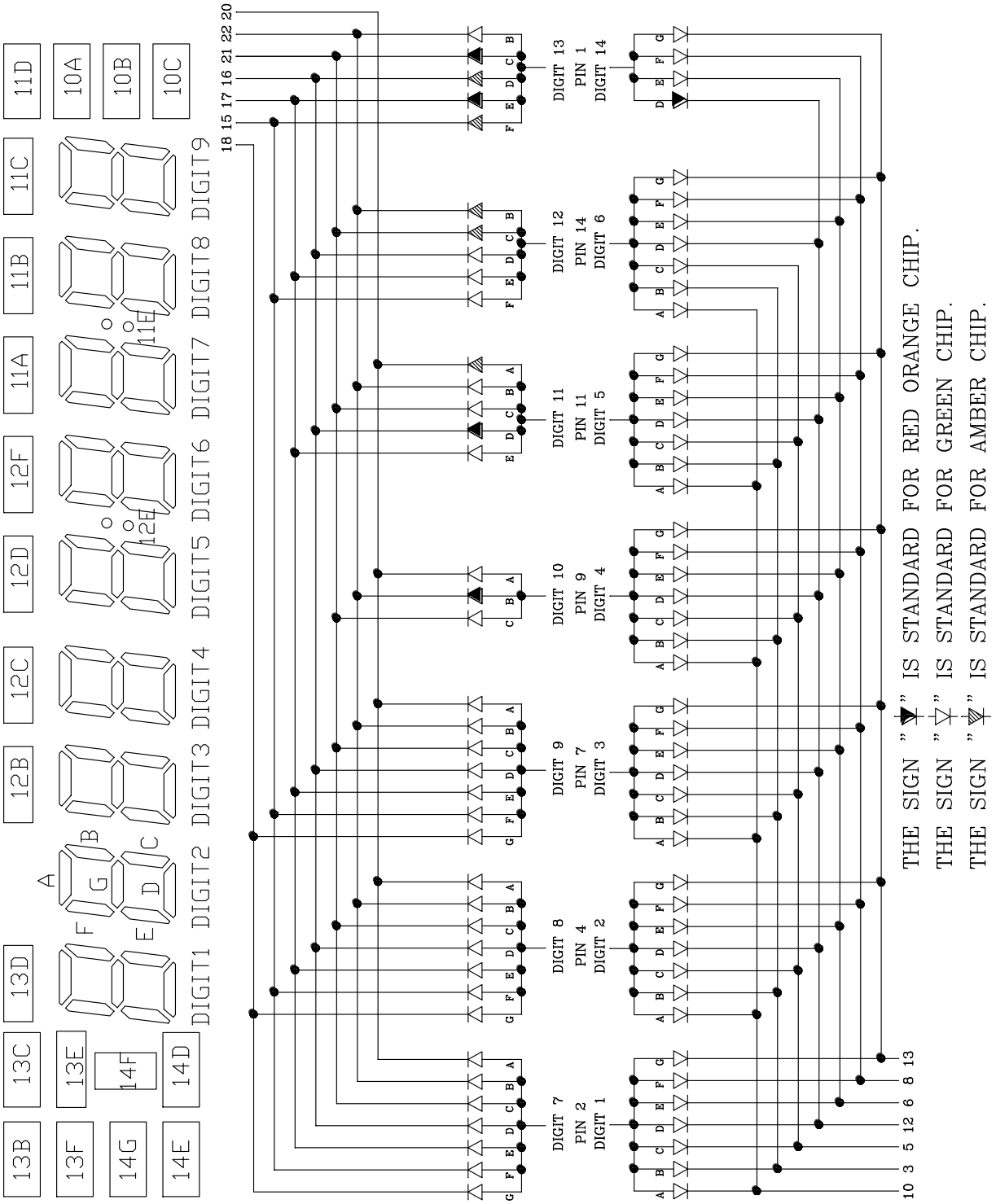
PART NO.	DESCRIPTION
MULTI-COLOR	Multiplex Common Anode
LTG-Y2K31M	

PACKAGE DIMENSIONS



NOTES: All dimensions are in millimeters. Tolerances are ± 0.25 mm unless otherwise noted.

INTERNAL CIRCUIT DIAGRAM



PIN CONNECTION

No.	CONNECTION
1	COMMON ANODE (DIGIT 13,14)
2	COMMON ANODE (DIGIT 1,7)
3	CATHODE B
4	COMMON ANODE (DIGIT 2,8)
5	CATHODE C
6	CATHODE E
7	COMMON ANODE (DIGIT 3,9)
8	CATHODE F
9	COMMON ANODE (DIGIT 4,10)
10	CATHODE A
11	COMMON ANODE (DIGIT 5,11)
12	CATHODE D
13	CATHODE G
14	COMMON ANODE (DIGIT 6,12)
15	CATHODE F
16	CATHODE D
17	CATHODE E
18	CATHODE G
19	NO CONNECTION
20	CATHODE A
21	CATHODE C
22	CATHODE B

ABSOLUTE MAXIMUM RATING AT T_a=25℃

PARAMETER	GREEN	RED ORANGE	AMBER	UNIT
Power Dissipation Per Chip	75	75	75	mW
Peak Forward Current Per Chip (1/10 Duty Cycle, 0.1ms Pulse Width)	100	100	100	mA
Continuous Forward Current Per Chip Derating Linear From 25℃ Per Chip	25 0.28	25 0.28	25 0.28	mA mA/℃
Reverse Voltage Per Chip	5	5	5	V
Operating Temperature Range	-35℃ to +105℃			
Storage Temperature Range	-35℃ to +105℃			
Solder Temperature: max 260℃ for max 3sec at 1.6mm below seating plane				

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25℃

DIGIT(GREEN)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I_V		930		μcd	I_F=10mA
Peak Emission Wavelength	λp		565		nm	I_F=20mA
Spectral Line Half-Width	Δλ		30		nm	I_F=20mA
Dominant Wavelength	λd		569		nm	I_F=20mA
Forward Voltage Per Chip	V_F		2.1	2.6	V	I_F=20mA
Reverse Current Per Chip	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

ICON(GREEN)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I_V		1170		μcd	I_F=10mA
Peak Emission Wavelength	λp		565		nm	I_F=20mA
Spectral Line Half-Width	Δλ		30		nm	I_F=20mA
Dominant Wavelength	λd		569		nm	I_F=20mA
Forward Voltage Per Chip	V_F		2.1	2.6	V	I_F=20mA
Reverse Current Per Chip	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

ICON(RED ORANGE)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I_V		1060		μcd	I_F=10mA
Peak Emission Wavelength	λp		630		nm	I_F=20mA
Spectral Line Half-Width	Δλ		40		nm	I_F=20mA
Dominant Wavelength	λd		621		nm	I_F=20mA
Forward Voltage Per Chip	V_F		2.0	2.6	V	I_F=20mA
Reverse Current Per Chip	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

ICON(AMBER)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I_V		650		μcd	I_F=10mA
Peak Emission Wavelength	λp		610		nm	I_F=20mA
Spectral Line Half-Width	Δλ		35		nm	I_F=20mA
Dominant Wavelength	λd		602		nm	I_F=20mA
Forward Voltage Per Chip	V_F		2.1	2.6	V	I_F=20mA
Reverse Current Per Chip	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=10mA

Note: Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Internationale De L'Eclariage) eye-response curve.

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Oherwise Noted)

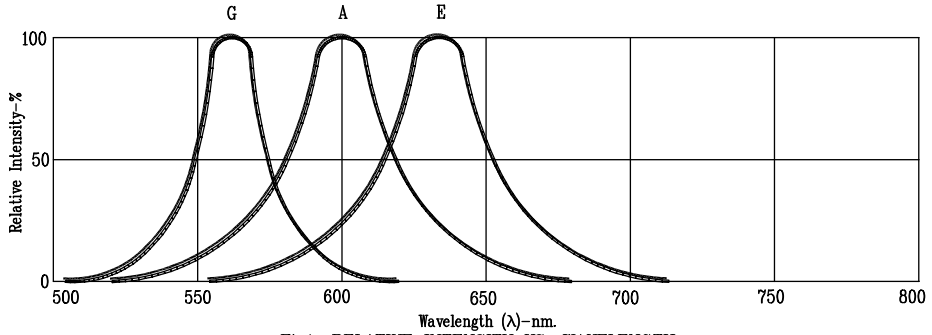


Fig1. RELATIVE INTENSITY VS. WAVELENGTH

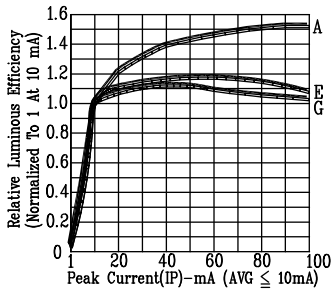


Fig2. RELATIVE LUMINOUS EFFICIENCY (LUMINOUS INTENSITY PER UNIT CURRENT) VS. PEAK CURRENT (REFRESH RATE 1KHz)

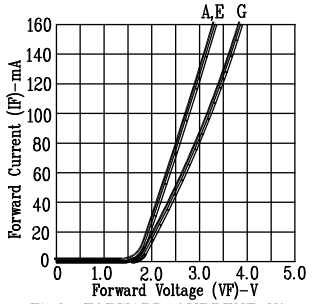


Fig3. FORWARD CURRENT VS. FORWARD VOLTAGE

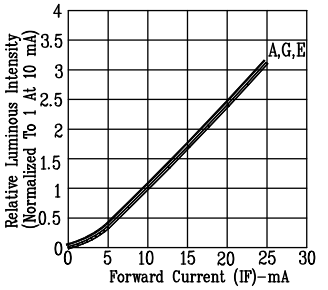


Fig4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

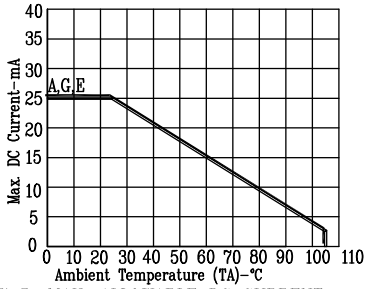


Fig5. MAX. ALLOWABLE DC CURRENT VS. AMBIENT TEMPERATURE.

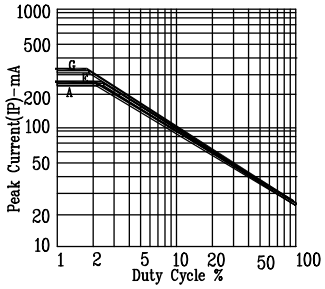


Fig6. MAX. PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE 1KHz)

NOTE: A=AMBER G=GREEN E=RED ORANGE