



# LED Display Product Data Sheet LTC-3698KF

Spec No.: DS30-2010-0282

Effective Date: 11/28/2012

Revision: B

**LITE-ON DCC**

**RELEASE**

BNS-OD-FC001/A4

**LED DISPLAY****LTC-3698KF**  
**DATA SHEET**

<b>ITEM</b>	<b>DESCRIPTION</b>	<b>ISSUER</b>	<b>DATE</b>
1	New	Reo	11/09/2010
2	1.Change the height 15.8 to 15.3 mm 2.Change spacer drawing.	Reo	12/08/2010
3	Change Dice from KR to KF	Reo	12/09/2010
4	4.1 Modify Luminous Intensity Matching Ratio from 2:1 to 1.6:1 in Page 6 4.2 Modify Spacer structure in Page 3 4.3 Add Liteon Spec. Note in Page 3	Reo	08/07/2012
5	Revised Package Dimensions in Page 3	Reo	11/08/2012

**FEATURES**

- \* 0.39 inch (9.8 mm) DIGIT HEIGHT
- \* CONTINUOUS UNIFORM SEGMENTS
- \* LOW POWER REQUIREMENT
- \* EXCELLENT CHARACTERS APPEARANCE
- \* HIGH BRIGHTNESS & HIGH CONTRAST
- \* WIDE VIEWING ANGLE
- \* SOLID STATE RELIABILITY
- \* CATEGORIZED FOR LUMINOUS INTENSITY
- \* **LEAD-FREE PACKAGE (ACCORDING TO ROHS)**

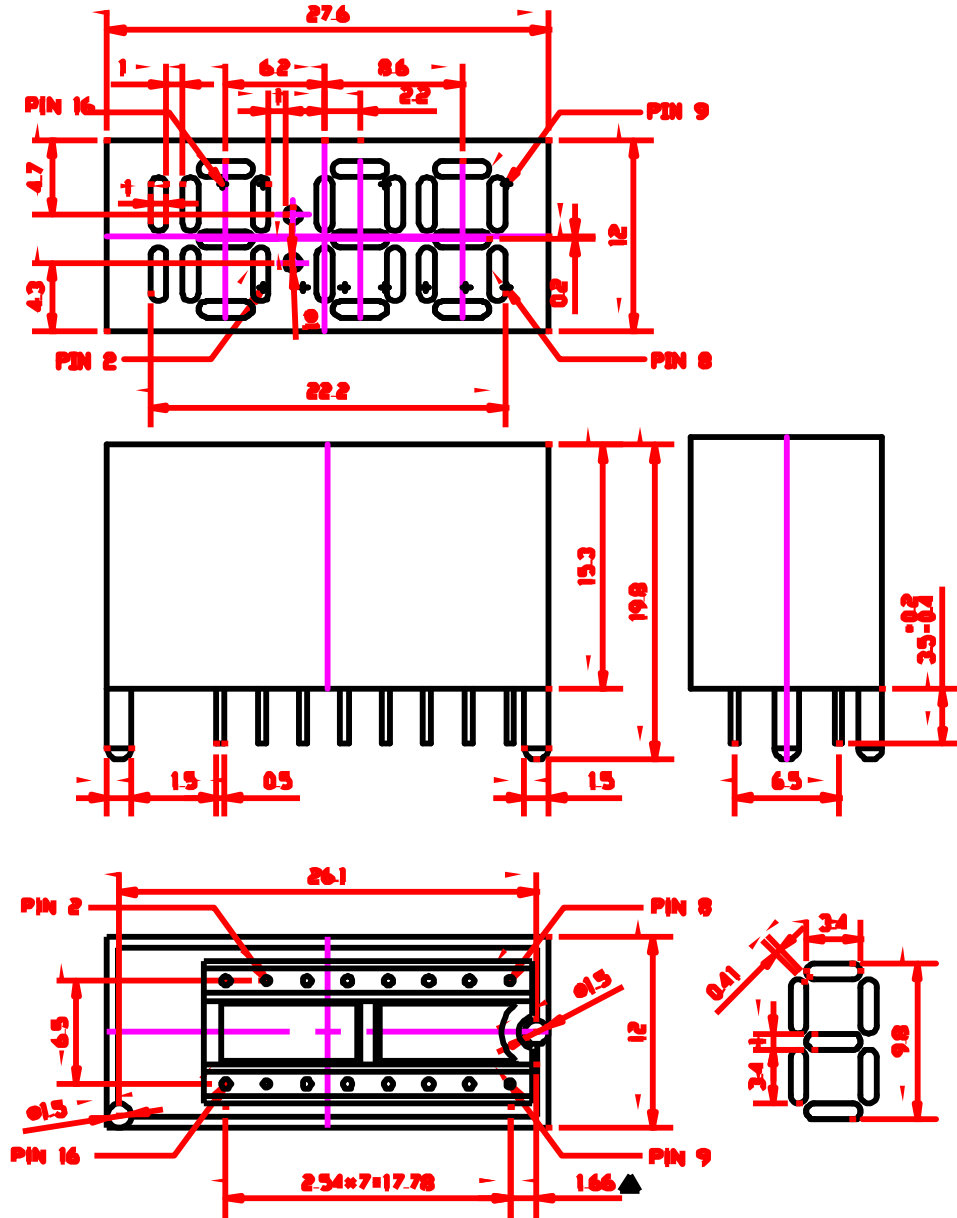
**DESCRIPTION**

The LTC-3698KF is a 0.39inch (9.8 mm) height digit display. The devices utilize AlInGaP yellow orange LED chips, which are made from AlInGaP on a non-transparent GaAs substrate, and has a light gray face and white segments.

**DEVICE**

<b>PART NO.</b>	<b>DESCRIPTION</b>
AlInGaP Yellow Orange	COMMON ANODE
LTC-3698KF	

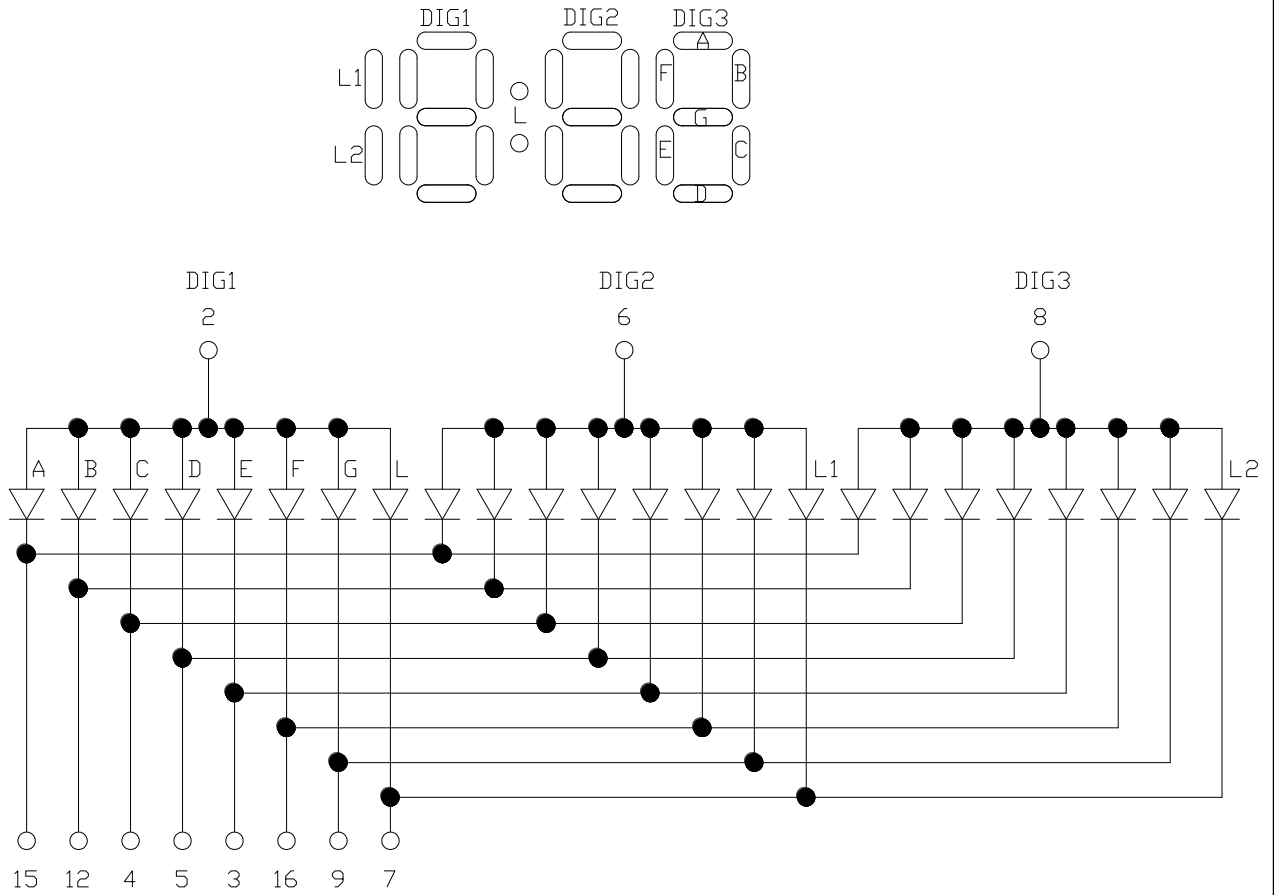
**PACKAGE DIMENSIONS**



**NOTES:**

1. All dimensions are in millimeters. Tolerances are  $\pm 0.25\text{mm}$  (0.01") unless otherwise noted.
2. Pin tip's shift tolerance is  $\pm 0.4\text{mm}$ .
3. Foreign material on segment  $\leq 10\text{mils}$
4. Ink contamination (surface)  $\leq 20\text{mils}$
5. Bending  $\leq 1\%$  of reflector length
6. Bubble in segment  $\leq 10\text{mils}$
7. Recommend the best pcb hole : diameter 1.0mm

**INTERNAL CIRCUIT DIAGRAM**



**PIN CONNECTION**

<b>No.</b>	<b>CONNECTION</b>
1	NO CONNECTION AND NO PIN
2	COMMON ANODE (DIGIT 1)
3	CATHODE E
4	CATHODE C
5	CATHODE D
6	COMMON ANODE (DIGIT 2)
7	CATHODE L / L1 / L2
8	COMMON ANODE (DIGIT 3)
9	CATHODE G
10	NO CONNECTION AND NO PIN
11	NO CONNECTION AND NO PIN
12	CATHODE B
13	NO CONNECTION AND NO PIN
14	NO CONNECTION AND NO PIN
15	CATHODE A
16	CATHODE F

## Property of Lite-On Only

### ABSOLUTE MAXIMUM RATING AT T<sub>A</sub>=25°C

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Chip	70	mW
Peak Forward Current Per Chip ( 1/10 Duty Cycle, 0.1ms Pulse Width )	60	mA
Continuous Forward Current Per Chip	25	mA
Derating Linear From 25°C Per Chip	0.28	mA/°C
Operating Temperature Range	-35°C to +105°C	
Storage Temperature Range	-35°C to +105°C	
Solder Temperature: max 260°C for max 3sec at 1.6mm below seating plane		

### TYPICAL / OPTICAL CHARACTERISTICS AT T<sub>A</sub>=25°C

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	500	1300		μcd	I <sub>F</sub> =1mA
Peak Emission Wavelength	λ <sub>p</sub>		611		nm	I <sub>F</sub> =20mA
Spectral Line Half-Width	Δλ		17		nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>		605		nm	I <sub>F</sub> =20mA
Forward Voltage Per Segment	V <sub>F</sub>		2.05	2.6	V	I <sub>F</sub> =20mA
Reverse Current Per Segment <sup>(2)</sup>	I <sub>R</sub>			100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v</sub> -m			1.6:1		I <sub>F</sub> =1mA

Note:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commision Internationale De L'Eclairage) eye-response curve.
2. Reverse voltage is only for IR test. It can not continue to operate at this situation.
3. Cross talk specification ≤ 2.5%

**TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES**

(25°C Ambient Temperature Unless Otherwise Noted)

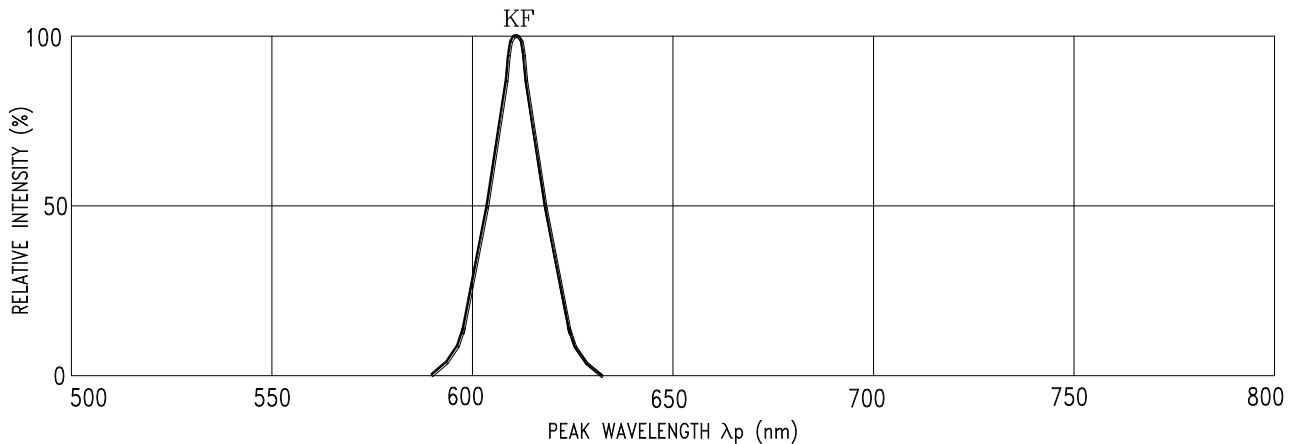


Fig1. Spectral Emission

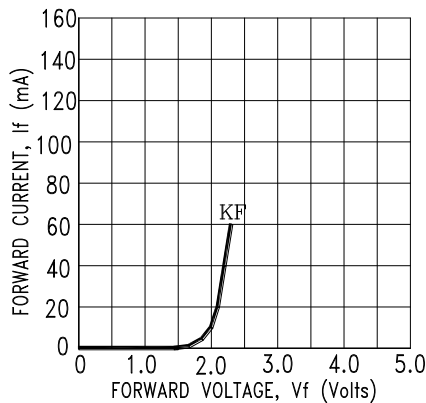


Fig2. Forward Current vs. Forward Voltage

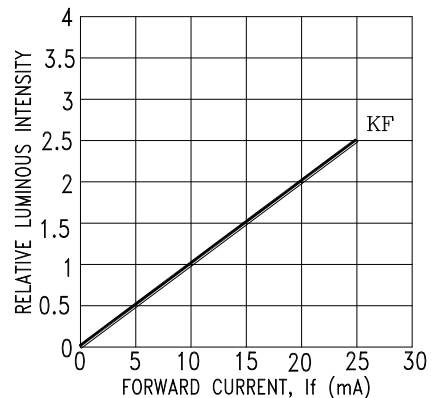


Fig3. Relative Luminous Intensity vs. DC Forward Current

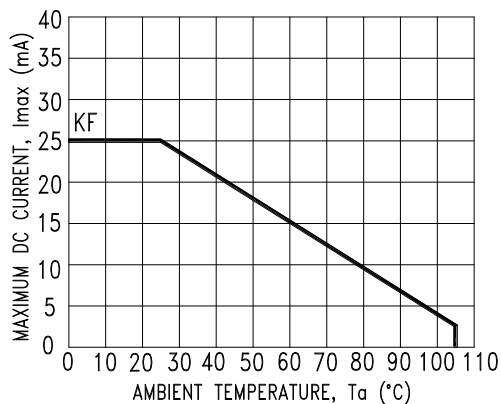


Fig4. Maximum Allowable DC Current vs. Ambient Temperature

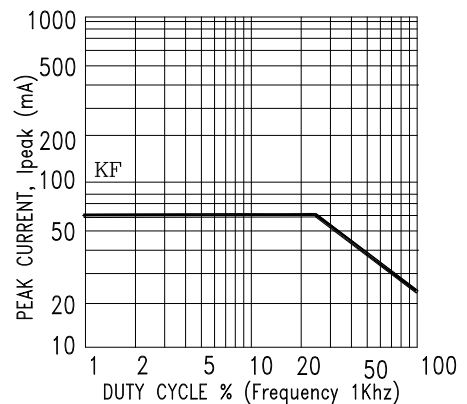


Fig5. Maximum Peak Current vs. Duty Cycle %

NOTE : KF=AlInGaP YELLOW ORANGE