LED DISPLAY

LTC-4609JF-J
DATASHEET

Rev	Description	By
01	ORIGINAL (Refer to contour drawing Revision (-))	KITTISAK Nov 28/2008
02	Change face color from gray to black Change to round pin and length from 3.9 mm to 22.1mm	KITTISAK Dec 25/2008
03	Change pin length from 22.1mm to 23.6mm	WARINS Mar 23.09
04	Revise IF on page 5/6 from 20mA to 1mA and 10mA	KITTISAK Mar 25.09
05	Revise IF on page 5/6 from 1mA and 10mA to 20mA	KITTISAK Apr 06/2009
06	Add structural on page 5/7	KITTISAK Apr 27/2009
07	Add Production Country on page 1 of 7	KITTISAK Apr 30/2009
(Above data for PD and Customer tracking only)		
-	NPPR Received and Upload on OPNC	KITTISAK B. May 12/2009

SPEC. NO.: DS30-2009-0051

D A T E : May 12/2009

REV. NO. : -

PAGE NO. : 0 OF 7

FEATURES

* 0.4inch (10.0mm) 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

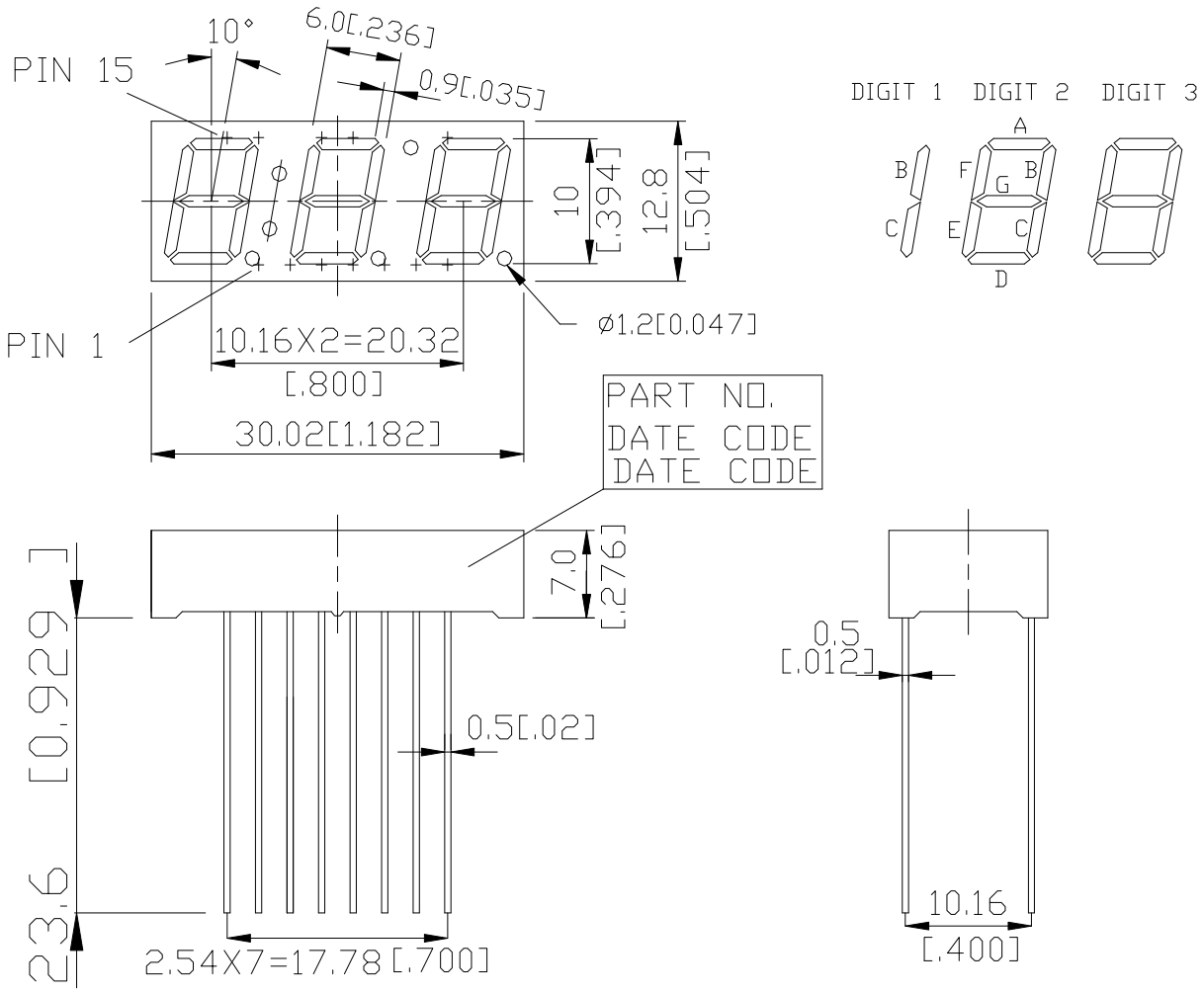
The LTC-4609JF-J is a 0.4 inch (10.0 mm) digit height triple digit seven-segment display. This device utilizes AlInGaP yellow orange LED chips, which are made from AlInGaP on a non-transparent GaAs substrate, and has a black face and white segments and process in Thailand production.

PRODUCTION COUNTRY : THAILAND

DEVICE

PART NO.	DESCRIPTION
AlInGaP Yellow Orange	Multiplex Common Anode
LTC-4609JF-J	Rt. Hand Decimal

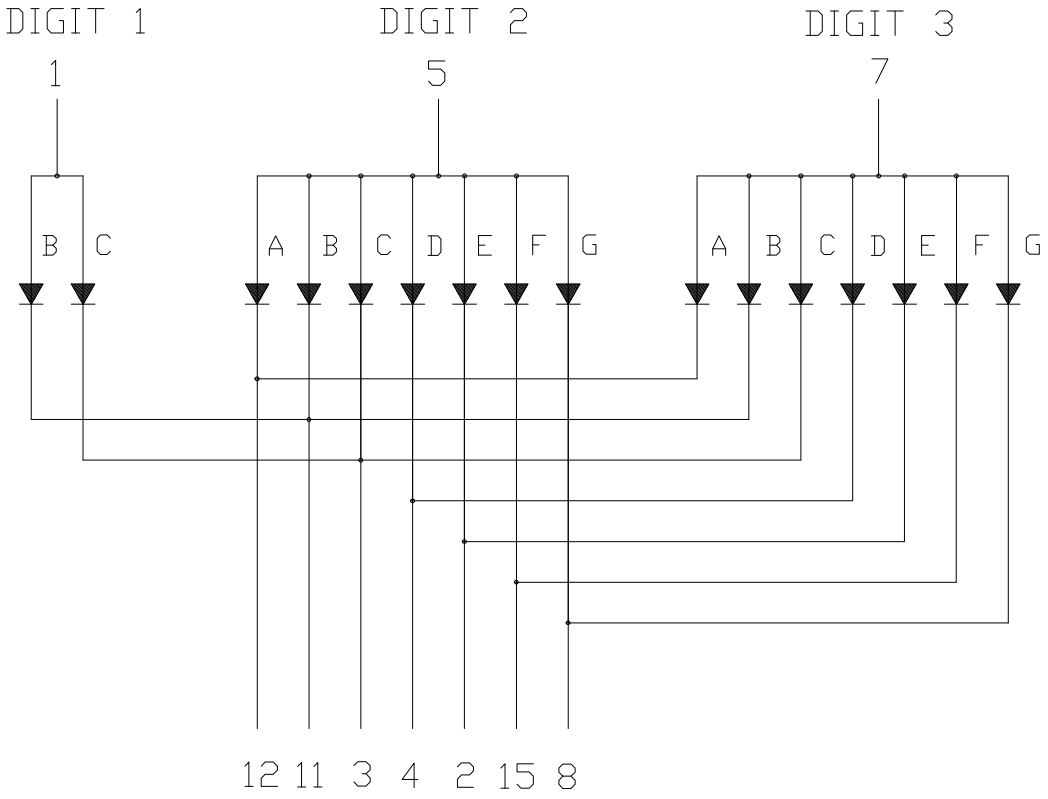
PACKAGE DIMENSIONS



NOTES: 1.All dimensions are in millimeters. Tolerances are± 0.25 mm (0.01“) unless otherwise noted.

2. Pin tip’s shift tolerance is ± 0.4 mm.
3. Foreign material on segment ≦10mils
4. Ink contamination (surface) ≦20mils
5. Bending≦1/100
6. Bubble in segment ≦10mils

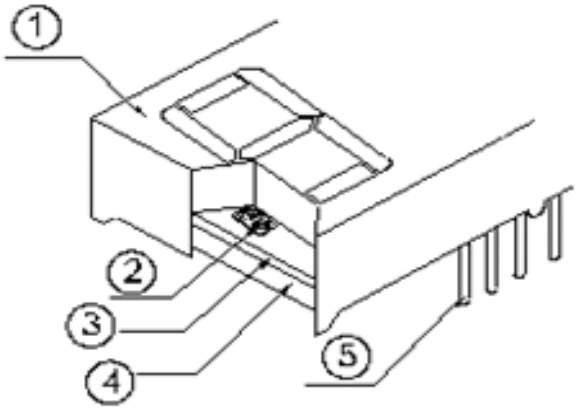
INTERNAL CIRCUIT DIAGRAM



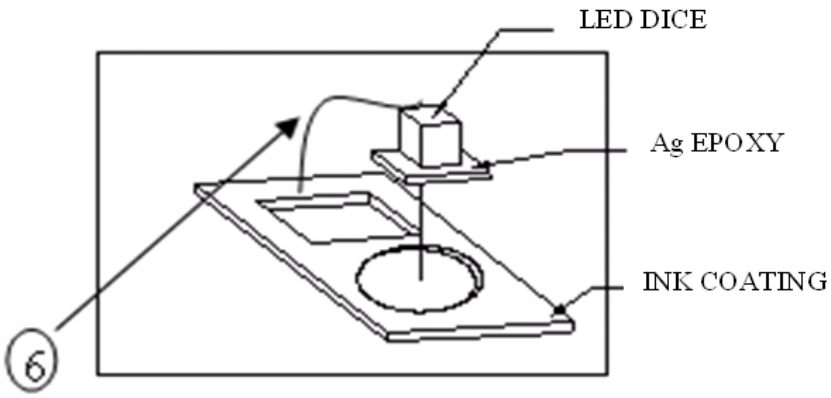
PIN CONNECTION

NO	CONNECTION
1	COMMON ANODE DIGIT 1
2	CATHODE E
3	CATHODE C
4	CATHODE D
5	COMMON ANODE DIGIT 2
6	NO PIN
7	COMMON ANODE DIGIT 3
8	CATHODE G
9	NO PIN
10	NO PIN
11	CATHODE B
12	CATHODE A
13	NO PIN
14	NO PIN
15	CATHODE F

Cross Section & Material List



1.Ag CONDUTIVE EPOXY USING
2.ON THE PCB, COATING A LAYER OF INK
FOR CONTROLLING THE Ag EPOXY SCOPE



No.	Items	Material	CRITICAL POINT (SC)
1	Reflector (China)	Polycarbonate PCM-910G2N	N/A
2	LED chip (Taiwan)	AlInGaP Yellow Orange	N/A
3	PCB (China)	CEM-3 + Glass + Fiber	N/A
4	Epoxy (Taiwan)	Resin (12E183,12E184,12E082)	N/A
5	Round pin (China)	Cu + Fe + Sn	N/A
6	Wire Bonding (Singapore)	Al	SC FOR WIRE PULL TEST AND BOND SIZE

ABSOLUTE MAXIMUM RATING AT Ta=25°C

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	70	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	60	mA
Continuous Forward Current Per Segment Derating Linear From 25℃ Per Segment	25 0.28	mA mA/℃
Reverse Voltage Per Segment	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. or temperature of unit (during assembly) not over max. temperature rating above .		

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta=25°C

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I_V	27520	45000		μcd	I_F=20mA
Peak Emission Wavelength	λp		611		nm	I_F=20mA
Spectral Line Half-Width	Δλ		17		nm	I_F=20mA
Dominant Wavelength	λd		605		nm	I_F=20mA
Forward Voltage Per Segment	V_F		2.05	2.6	V	I_F=20mA
Reverse Current Per Segment	I_R			100	μA	V_R=5V
Luminous Intensity Matching Ratio	I_V-m			2:1		I_F=20mA

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

TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

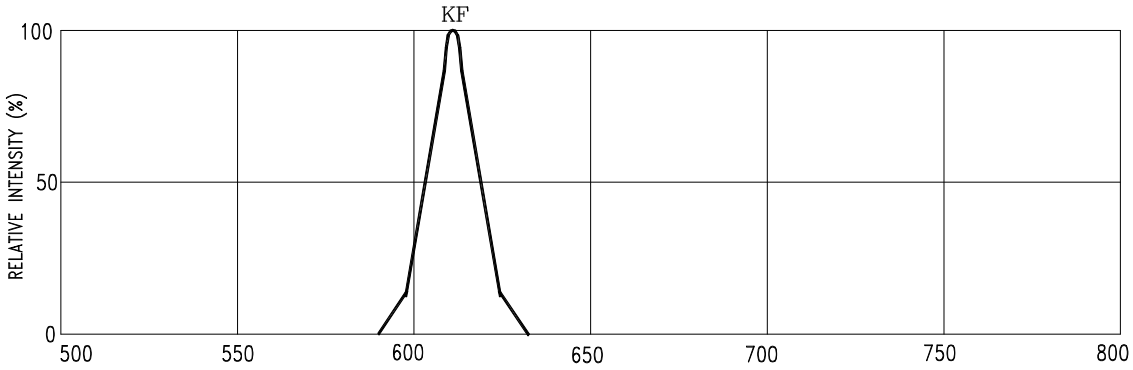


Fig1.Spectral Emission

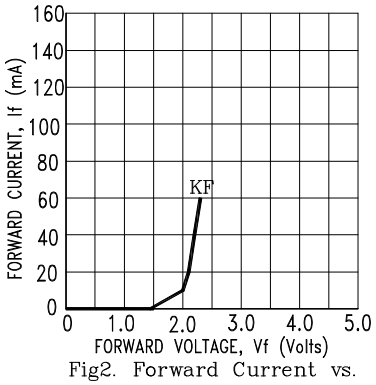


Fig2. Forward Current vs. Forward Voltage

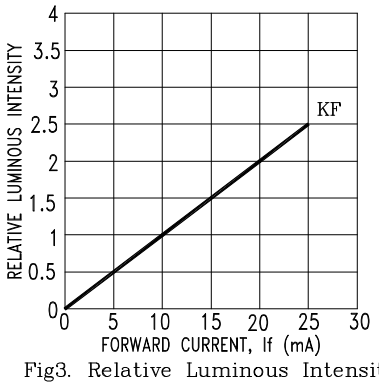


Fig3. Relative Luminous Intensity vs. DC Forward Current

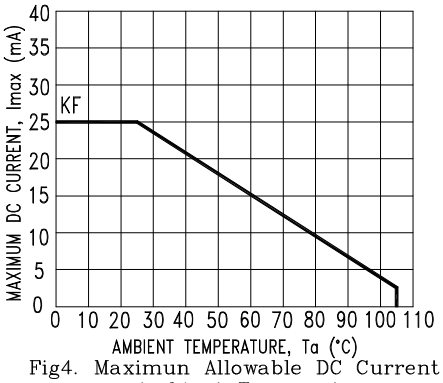


Fig4. Maximun Allowable DC Current vs. Ambient Temperature

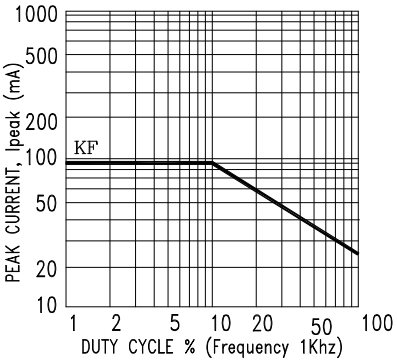


Fig5. Maximum Peak Current vs. Duty Cycle %

NOTE : KF=AlInGaP YELLOW ORANGE