



LED Display

Product Data Sheet

LTC-47C1SW

Spec No.: DS30-2012-0028

Effective Date: 01/14/2014

Revision: C

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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LED DISPLAY

LTC-47C1SW DATA SHEET

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>BY</u>	<u>DATE</u>
1.	New Spec.	Eason Lin	2011/12/26
2.	Add Symbol Picture in Page 3	Reo.Lin	2012/05/04
3.	Revised Symbol location in Page 3	Reo.Lin	2012/05/31
4.	- Change Pin tip's shift tolerance from +/-0.40 mm To +/-0.25 mm as customer requested - Change to hardness pin	<u>ANON B.</u>	2013/09/27

FEATURES

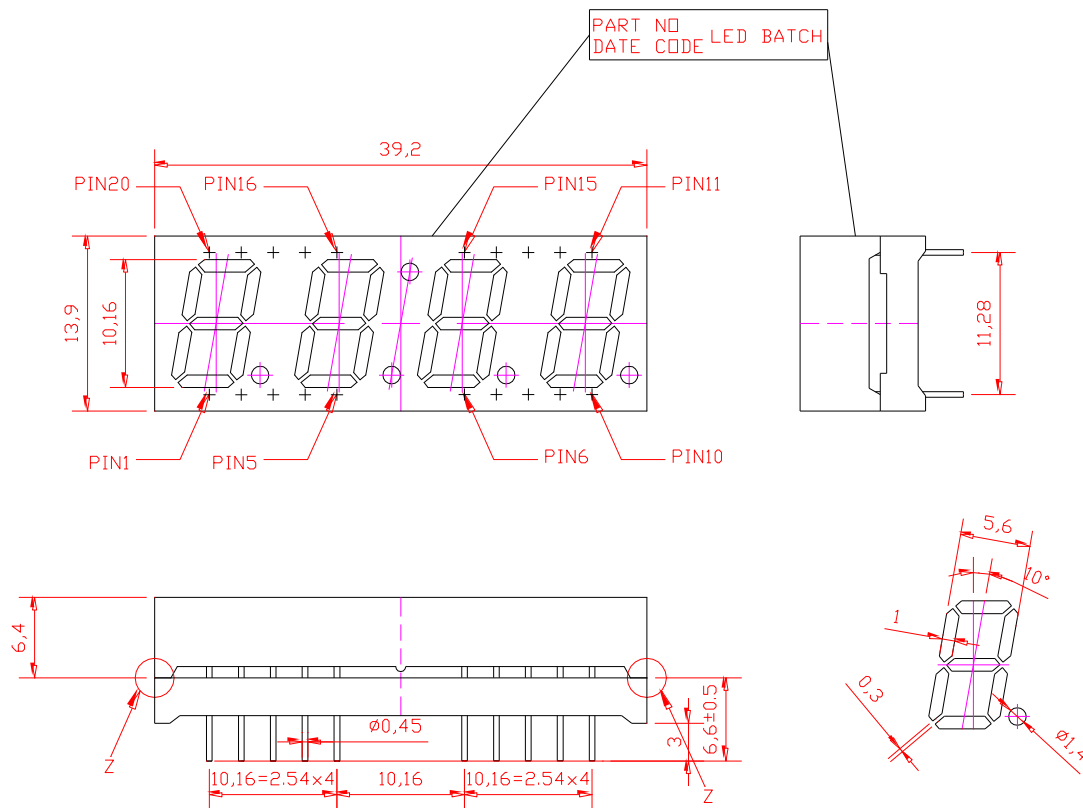
- * 0.4 inch (10.16 mm) DIGIT HEIGHT
- * CONTINUOUS UNIFORM SEGMENTS
- * LOW POWER REQUIREMENT
- * EXCELLENT CHARACTERS APPEARANCE
- * HIGH BRIGHTNESS & HIGH CONTRAST
- * WIDE VIEWING ANGLE
- * SOLID STATE RELIABILITY
- * **LEAD-FREE PACKAGE (ACCORDING TO ROHS)**

DESCRIPTION

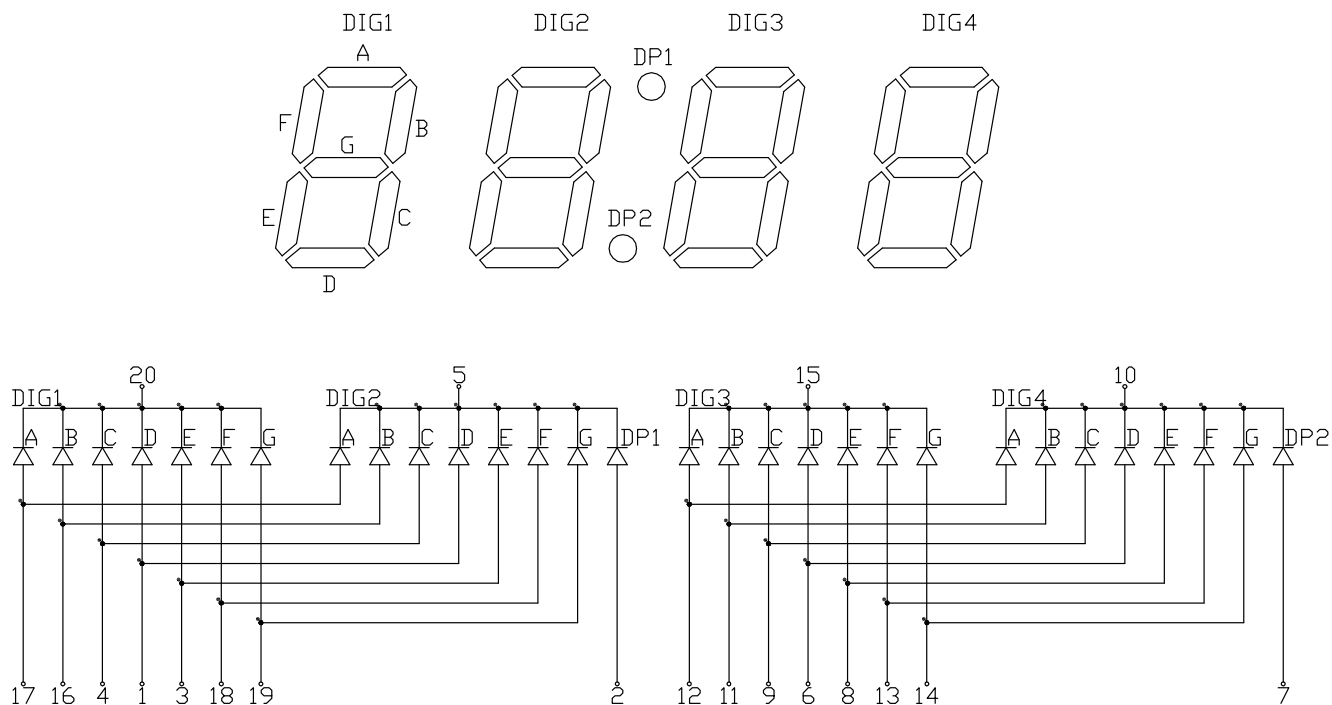
The LTC-47C1SW is a 0.4 inch (10.16 mm) digit height quadruple digit seven-segment display. The device uses InGaN white SMD chips (InGaN on Sapphire substrate). The device has a black face and white segments.

DEVICE

PART NO.	DESCRIPTION
InGaN WHITE	MULTIPLEX COMMON CATHODE
LTC-47C1SW	

PACKAGE DIMENSIONS

NOTES:

1. All dimensions are in millimeters. Tolerances are ± 0.25 mm unless otherwise noted.
2. Pin tip's shift tolerance is ± 0.25 mm.
3. Details Z: The spacer allow to slip out ± 0.5 mm
4. Recommend the best pcb hole :diameter 0.9mm.
5. Foreign material on segment ≤ 10 mils
6. Ink contamination (surface) ≤ 20 mils
7. Bending $\leq 1\%$ of reflector length
8. Bubble in segment ≤ 10 mils
9. Use hardness pin only

INTERNAL CIRCUIT DIAGRAM

PIN CONNECTION

No.	CONNECTION	No.	CONNECTION
1	Anode D (Dig. 1, Dig. 2)	11	Anode B (Dig. 3, Dig. 4)
2	Anode DP1	12	Anode A (Dig. 3, Dig. 4)
3	Anode E (Dig. 1, Dig. 2)	13	Anode F (Dig. 3, Dig. 4)
4	Anode C (Dig. 1, Dig. 2)	14	Anode G (Dig. 3, Dig. 4)
5	Common Cathode Dig. 2	15	Common Cathode Dig. 3
6	Anode D (Dig. 3, Dig. 4)	16	Anode B (Dig. 1, Dig. 2)
7	Anode DP2	17	Anode A (Dig. 1, Dig. 2)
8	Anode E (Dig. 3, Dig. 4)	18	Anode e F (Dig. 1, Dig. 2)
9	Anode C (Dig. 3, Dig. 4)	19	Anode G (Dig. 1, Dig. 2)
10	Common Cathode Dig. 4	20	Common Cathode Dig. 1

CHIP LED ABSOLUTE MAXIMUM RATING AT Ta=25 °C

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	35	mW
Peak Forward Current Per Segment (Frequency 1KHz,10% duty cycle)	50	mA
Continuous Forward Current Per Segment	10	mA
Forward Current Derating from 25 ° C	0.125	mA/° C
Operating Temperature Range	-35 ° C to + 80 ° C	
Storage Temperature Range	-35 ° C to + 105 ° C	
Soldering Conditions : 1/16 inch below seating plane for 3 seconds at 260 ° C, or temperature of unit (during assembly) not over max. temperature rating above.		

CHIP LED ELECTRICAL /OPTICAL CHARACTERISTICS AT Ta=25 °C

PARAMETER	SYMBOL	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	IV	12.8	18		mcd	IF = 10mA
Chromaticity Coordinates	x		0.294			IF = 5mA
	y		0.286			Note 4, 5
Forward Voltage	VF	2.70		3.2	V	IF = 5mA
Reverse Current ⁽⁶⁾	IR			100	μA	VR = 5V

Note:

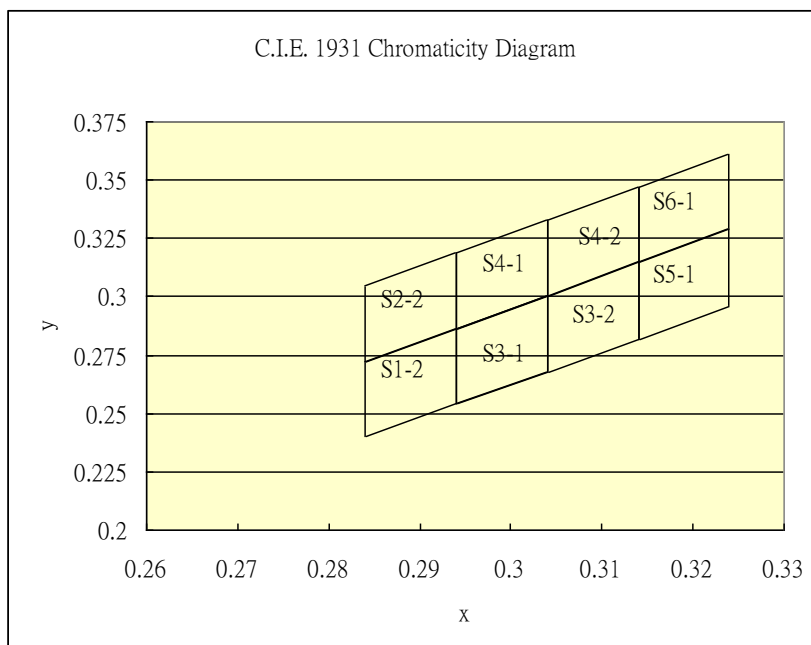
1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. The chromaticity coordinates (x, y) is derived from the 1931 CIE chromaticity diagram.
3. Caution in ESD: Static Electricity and surge damages the LED. It is recommend to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
4. Tester: CAS140B is for the chromaticity coordinates (x, y) and Iv.
5. The chromaticity coordinates (x, y) guarantee should be added ± 0.01 tolerance.
6. Reverse voltage is only for IR test. It can not continue to operate at this situation.
7. Crosstalk specification $\leq 2.5\%$

CHIP LED HUE BIN LIST:

Hue Spec. Table

Hue Bin	Color bin limits at IF = 5mA				
	CIE 1931 Chromaticity coordinates				
S1-2	x	0.284	0.284	0.294	0.294
	y	0.240	0.272	0.286	0.254
S2-2	x	0.284	0.284	0.294	0.294
	y	0.272	0.305	0.319	0.286
S3-1	x	0.294	0.294	0.304	0.304
	y	0.254	0.286	0.300	0.268
S3-2	x	0.304	0.304	0.314	0.314
	y	0.268	0.300	0.315	0.282
S4-1	x	0.294	0.294	0.304	0.304
	y	0.286	0.319	0.333	0.300
S4-2	x	0.304	0.304	0.314	0.314
	y	0.300	0.333	0.347	0.315
S5-1	x	0.314	0.314	0.324	0.324
	y	0.282	0.315	0.329	0.296
S6-1	x	0.314	0.314	0.324	0.324
	y	0.315	0.347	0.361	0.329

Tolerance on each Hue (x, y) bin is +/- 0.01.



TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES

(25°C Ambient Temperature Unless Otherwise Noted)

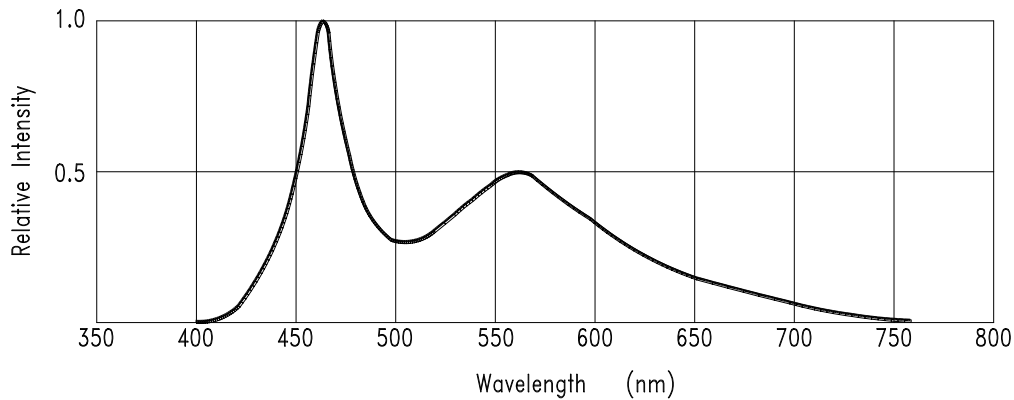


Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

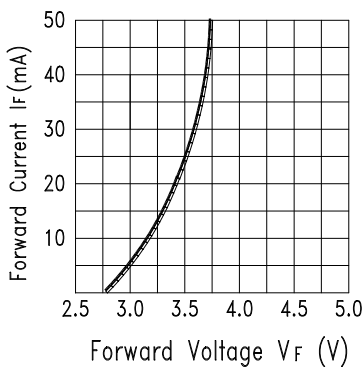


Fig.2 Forward Current vs.
Forward Voltage

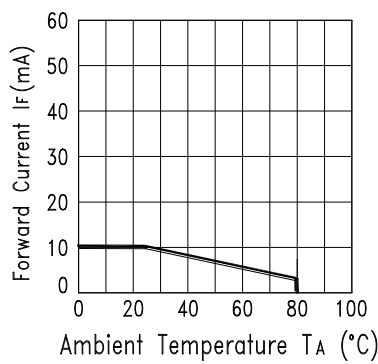


Fig.3 Forward Current
Derating Curve

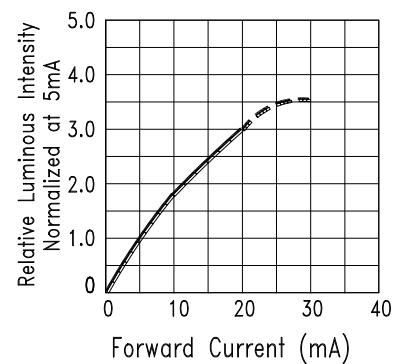


Fig.4 Relative Luminous Intensity
vs. Forward Current

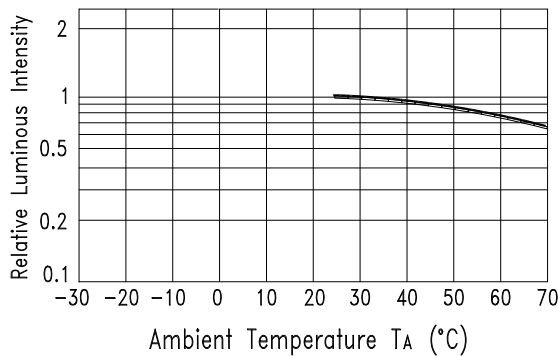


Fig.5 Luminous Intensity vs.
Ambient Temperature

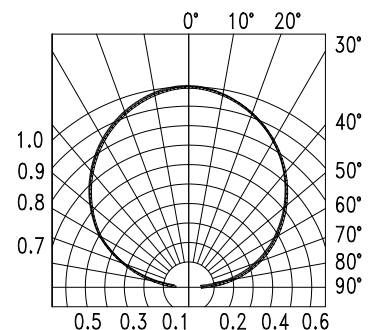


Fig.6 Spatial Distribution