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FOUR DIGIT SMD DISPLAY (0.20")

# LSFD205/6DBK-XX

## DATA SHEET

DOC.NO : QW0905- LSFD205/6DBK-XX

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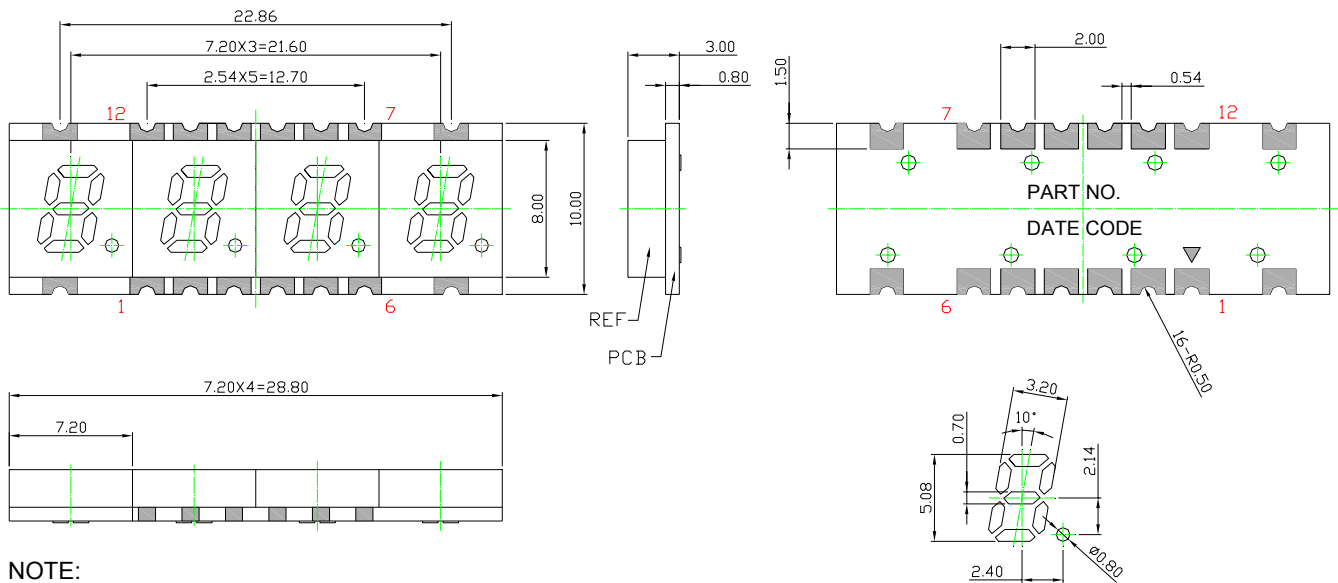
REV. : A

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DATE : 17 – May. – 2013

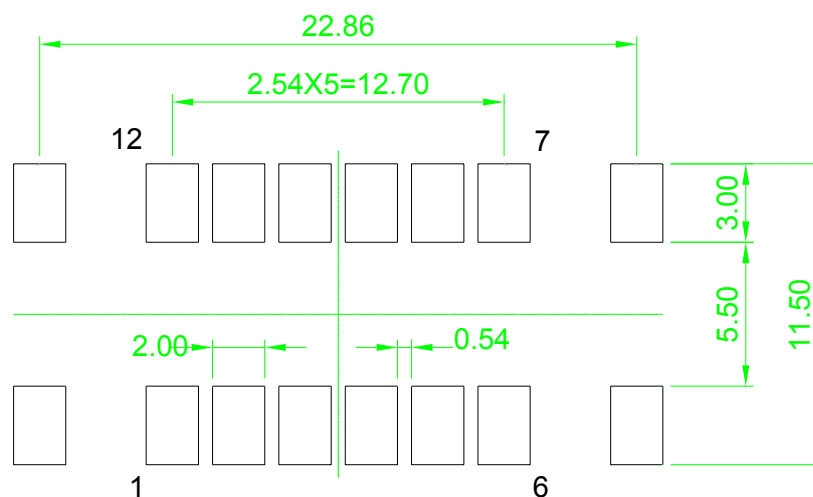
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## Package Dimensions

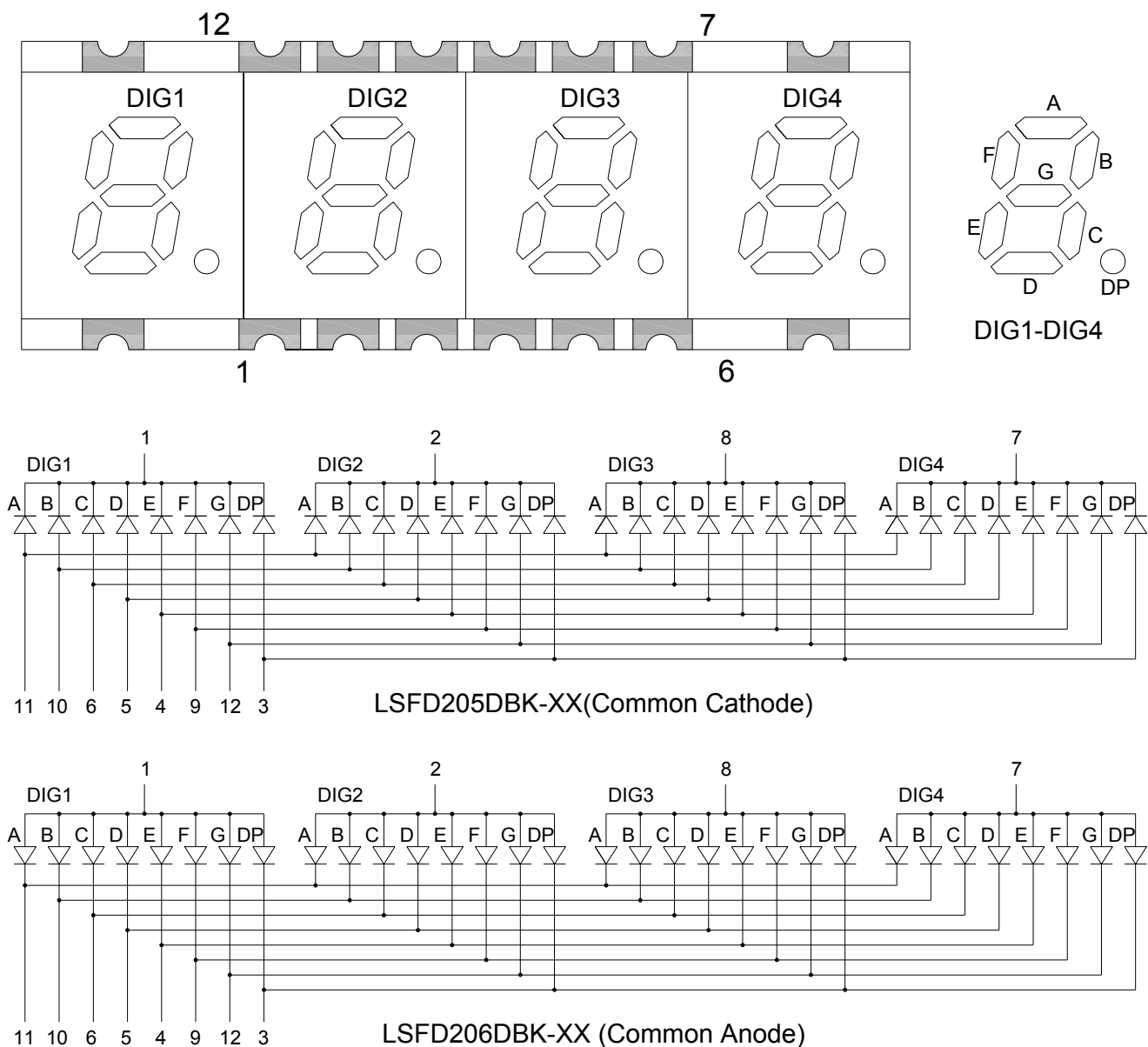


NOTE:  
Dimensions in millimeters (inches),  
And tolerances are  $\pm 0.25\text{mm}$  (.01") specified.

## Recommended Soldering Pad Dimensions



## Internal Circuit Diagram



## Electrical Connection

PIN NO.	LSFD205DBK-XX	PIN NO.	LSFD206DBK-XX
1	Common Cathode DIG1	1	Common Anode DIG1
2	Common Cathode DIG2	2	Common Anode DIG2
3	Anode DP	3	Cathode DP
4	Anode E	4	Cathode E
5	Anode D	5	Cathode D
6	Anode C	6	Cathode C
7	Common Cathode DIG4	7	Common Anode DIG4
8	Common Cathode DIG3	8	Common Anode DIG3
9	Anode F	9	Cathode F
10	Anode B	10	Cathode B
11	Anode A	11	Cathode A
12	Anode G	12	Cathode G

## Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings	UNIT
Power Dissipation	PD	120	mW
Peak pulse current Duty 1/10@10KHz	I <sub>FP</sub>	100	mA
Forward Current Per Chip	I <sub>F</sub>	30	mA
Debating liner from 25°C per segment	---	0.3	mA / °C
Storage Temperature	T <sub>stg</sub>	-40 ~ +105	°C
Operating Temperature	T <sub>opr</sub>	-40 ~ +105	°C

## Typical Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	IV	----	20		mcd	IF=20mA
Dominant Wavelength	λ D	----	470	-----	nm	IF=20mA
Spectral Line Half-Width	ΔP	----	30	----	nm	IF=20mA
Forward Voltage	VF	----	3.2	4.0	V	IF=20mA
Reverse Current	I <sub>r</sub>	----	----	10	μ A	VR=5V

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.

2.The luminous intensity data did not including ±15% testing tolerance.

## Typical Electro-Optical Characteristics Curve

(25 °C Free Air Temperature Unless Otherwise Specified)

DBK: SUPER BRIGHT BLUE (InGaN) CURVE

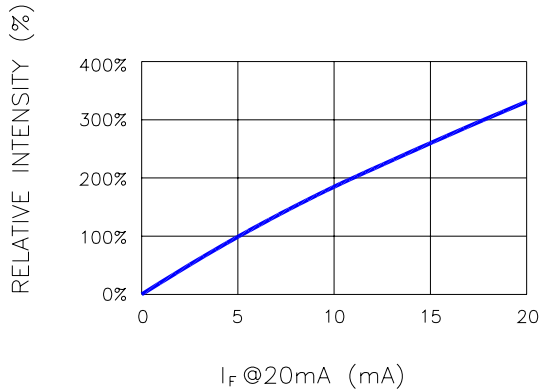


Fig.1 RELATIVE INTENSITY VS. FORWARD CURRENT

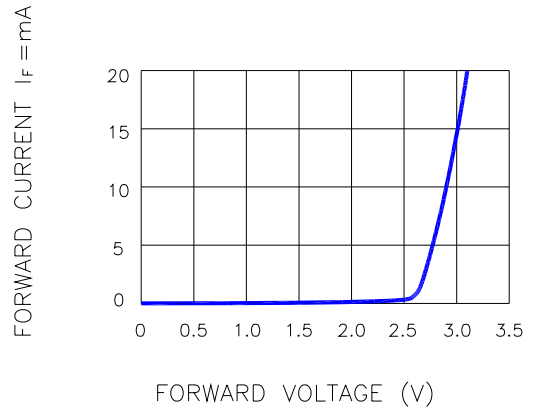


Fig.2 FORWARD CURRENT VS. FORWARD VOLT.

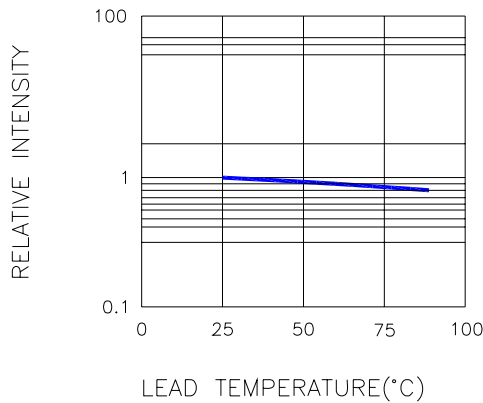


Fig.3 RELATIVE INTENSITY VS.LEAD TEMPERATURE  
(PULSED 20 mA; 300us  
PULSE,10ms PERIOD)

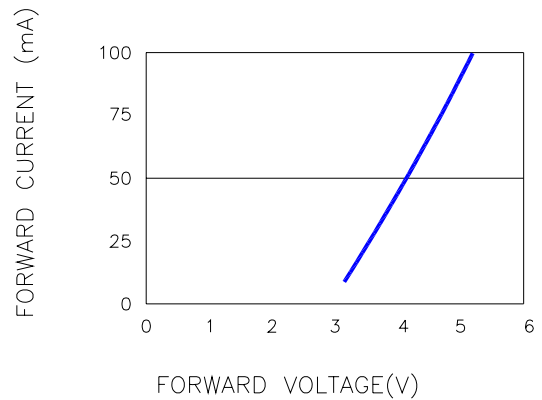


Fig.4 PEAK FORWARD VOLTAGE  
VS.FORWARD(100us TEST PULSE,  
1% DUTY CYCLE)

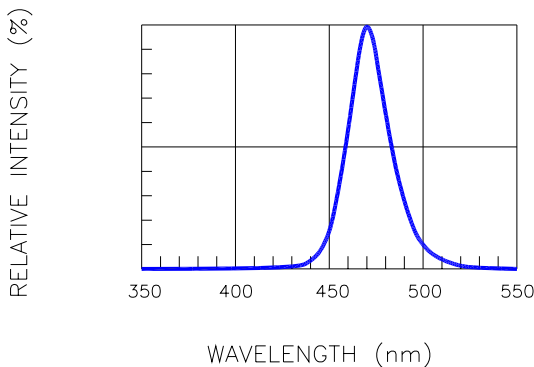


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

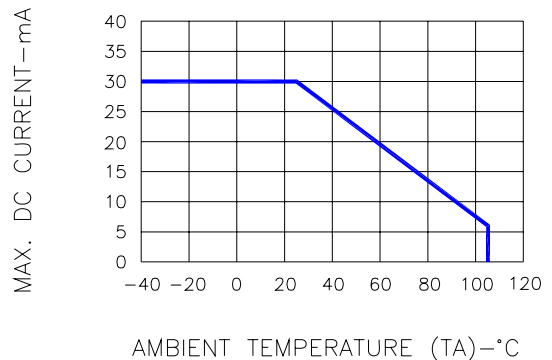
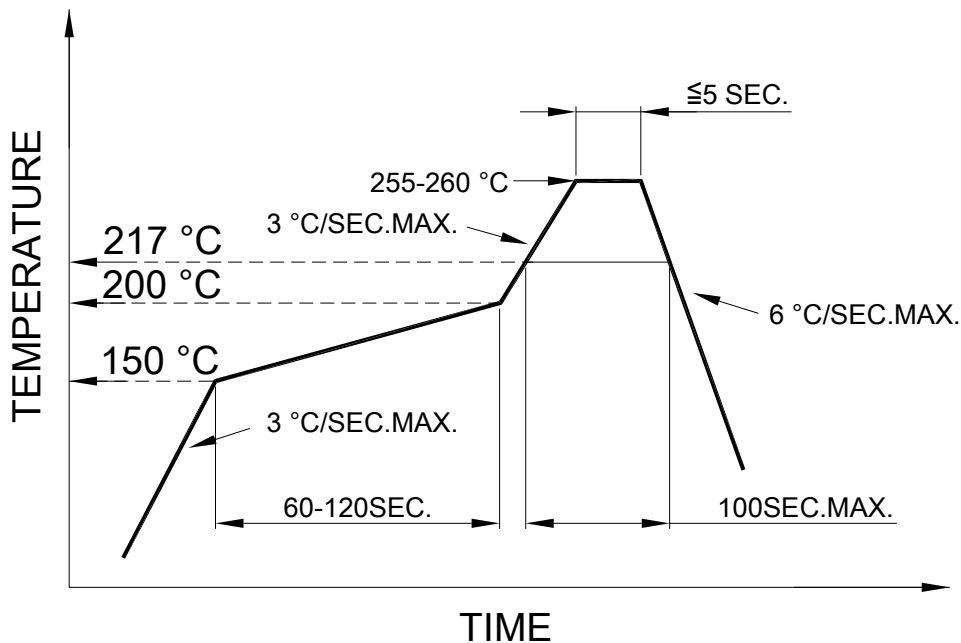


Fig.6 MAX. ALLOWABLE DC CURRENT  
VS. AMBIENT TEMPERATURE

## SMT REFLOW SOLDERING INSTRUCTIONS

SMT Soldering Profile

Pb free reflow soldering Profile



## SOLDERING IRON

Basic spec is  $\leq 4$  sec when 260°C. If temperature is higher, time should be shorter (+10°C→1 sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230°C.

## REWORK

Customer must finish rework within 3 sec. under 350°C.

The head of soldering iron cannot touch copper foil.