

SPECIFICATIONS

Dot matrix Display **点阵产品规格书**

TOPLITE



MODEL: TOP-CA-7188BSA-B4H4

客户承认 APPROVED		
承认日期 APPROVED DATE		

上海鼎晖科技股份有限公司

SHANGHAI TOPLITE TECHNOLOGY CO.,LTD.

www.ledtoplight.com.cn

www.ledtoplite.com



TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR \varnothing 1.9 MM/8*8 DOT MATRIX DIGITI >

1 / 7

1. PRODUCT INTRODUCTION

- ※ Low power requirement,
- ※ Solid state reliability.
- ※ Wide viewing angle.
- ※ Easy mounting on P.C. boards.
- ※ RoHS compliant.

2. FEATURES

- ※ The TOP-CA-7188BSA-B4H4 is a 0.7 inch (17.5mm)matrix height 8×8 dot matrix display.
- ※ This device is made with white dots and black surface.

3. APPLICATION

- ※ Digital readout display.
- ※ Instrument panels.
- ※ Elevator.

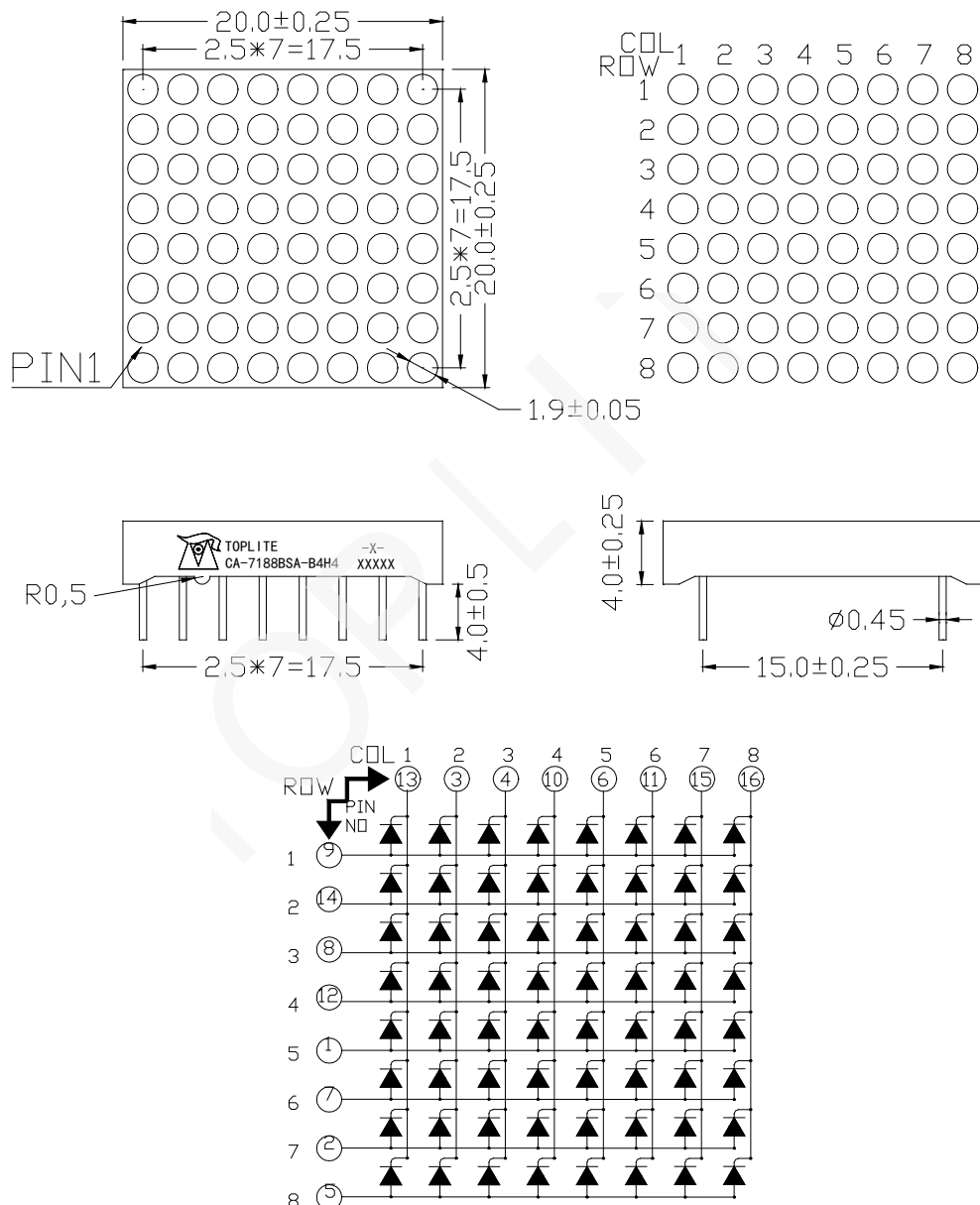
PART NO.	SIZE	CHIP EMITTED COLOR	FACE COLOR
TOP-CA-7188BSA-B4H4	\varnothing 1.9 MM/8*8 DOT MATRIX DIGITI	Amber	Black

TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR $\varnothing 1.9$ MM/8*8 DOT MATRIX DIGIT >

2 / 7

4. PACKAGE DIMENSIONS & CIRCUIT DIAGRAM



Note:

All dimension tolerance is ± 0.25 mm unless otherwise noted.



TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR \varnothing 1.9 MM/8*8 DOT MATRIX DIGIT >

3 / 7

5. ELECTRICAL/OPTICAL CHARACTERISTIC

5-1. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Reverse Voltage	V_R	5	V/dot*
Forward Current	I_F	20	mA/dot*
Peak Forward Current (1/10 Duty Cycle)	I_{PEAK}	120	mA/dot*
Power Dissipation	P_D	80	mW/dot*
Operating Temperature Range	T_A	- 25 ~ + 85	°C
Storage Temperature Range	T_{STG}	- 30 ~ + 85	°C
welding condition/ Preheating Temperature & time	T_{sol}	≤ 110 & 110	°C/s
welding condition/Solder temperature & time	T_{sol}	≤ 245 & 3	°C/s

5-2. ELECTRICAL-OPTICAL CHARACTERISTICS (Ta=25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Luminous Intensity	I_V	T	26326	32907	39489	ucd	$I_F=10mA$
		U	39490	49362	59235		
		V	59236	74045	88854		
Forward Voltage	V_F	1.80	2.10	2.40	v/dot*	$I_F=20mA$	
Dominant Wavelength	λ_d	600	-	610	nm	$I_F=20mA$	
Spectral Line Half-Width	$\Delta \lambda$	-	20-	-	nm	$I_F=20mA$	
Reverse Current	I_R	-	-	20	uA	$V_R=5V$	

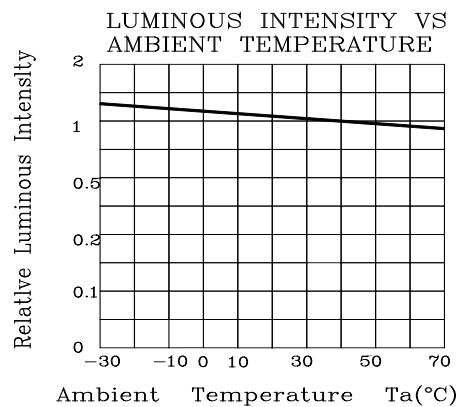
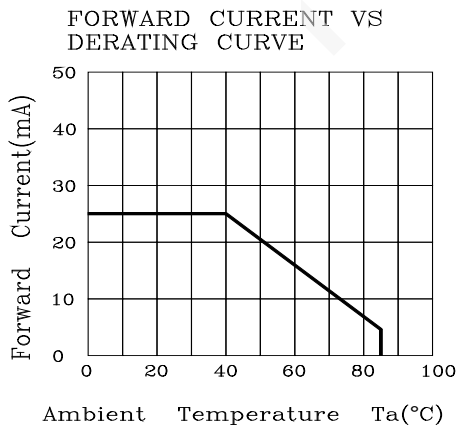
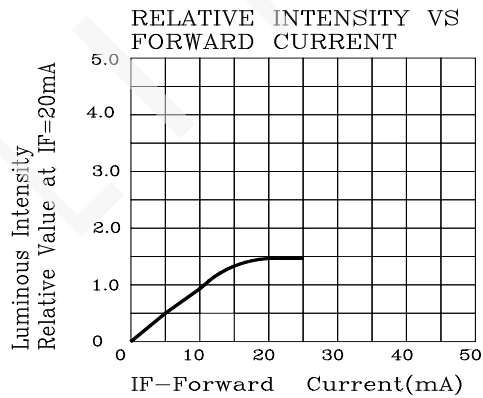
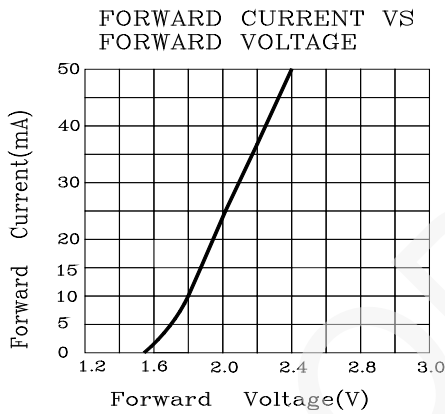
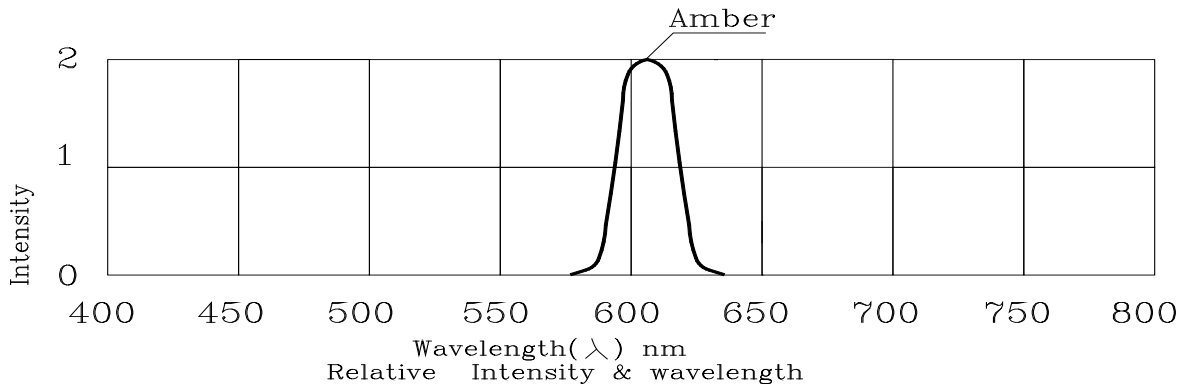
*The dot represents a chip. Each segment according to the principle diagram calculation of voltage and current.

TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR ϕ 1.9 MM/8*8 DOT MATRIX DIGIT >

4 / 7

5-3. OPTICAL CHARACTERISTIC CURVES





TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR \varnothing 1.9 MM/8*8 DOT MATRIX DIGIT >

5 / 7

6. QUALITY CONTROL AND ASSURANCE

CLASSIFICATION	TEST ITEM	TEST CONDITION
ENDUTRANCE TEST	OPERATION LIFE	Ta= Natural temperature If=12mA-25mA per dot or Ip=80mA/duty=1/8,Pw=1.25mS Ip=160mA/duty=1/16,Pw=1.mS(DOT) Test time=1000HRS(-24HRS+72HRS)
	HIGH TEMPERATURE HIGH HUMIDITY STORAGE	Evaluate storage time of the device under high temperature and high humidity Ta=65°C±5°C RH=90-95% Test time=240HRS±2HRS
	HIGH TEMPERATURE HIGH HUMIDITY REVERSE BIAS	Evaluate leakage current of the device under high temperature and high humidity Ta=65°C±5°C RH=90-95% VR=5V Test time=500hrs(-24HRS+48HRS)
	HIGH TEMPERATURE STORAGE	Evaluate reliability test of the device under high temperature Ta=85°C±5°C Test time=1000HRS(-24HRS+72HRS)
	LOW TEMPERATURE STORAGE	Evaluate reliability test of the device under low temperature Ta=-35°C±5°C Test time=1000HRS(-24HRS+72HRS)
ENVIRONMENTAL TEST	TEMPERATURE CYCLING	Evaluate thermal expansion and cold contraction of the device under harsh temperature Ta=85°C~25°C~-35°C~25°C time=30min 5min 30min 5min Cycle test:10cycles
	THERMAL SHOCK	Evaluate structural and mechanical of the device under sudden thermal shock Ta=85°C±5°C~-35°C±5°C time=10min 10min Cycle test:10cycles
	SOLOER RESISTANCE	Evaluate performance of the device withstand thermal shock during soldering T.sol=260°C±5°C time=10±1sec
	SOLOER ABILITY	Evaluate solderability of the device T.sol=230°C±5°C time=5±1sec

TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR ϕ 1.9 MM/8*8 DOT MATRIX DIGIT >

6 / 7

7. SOLDERING CONDITIONS

The recommended conditions for soldering are as follows.

Because the component is made with epoxy resin, the units are susceptible to heat. Therefore, the preheating and soldering temperatures should be kept as low as possible to avoid damage.

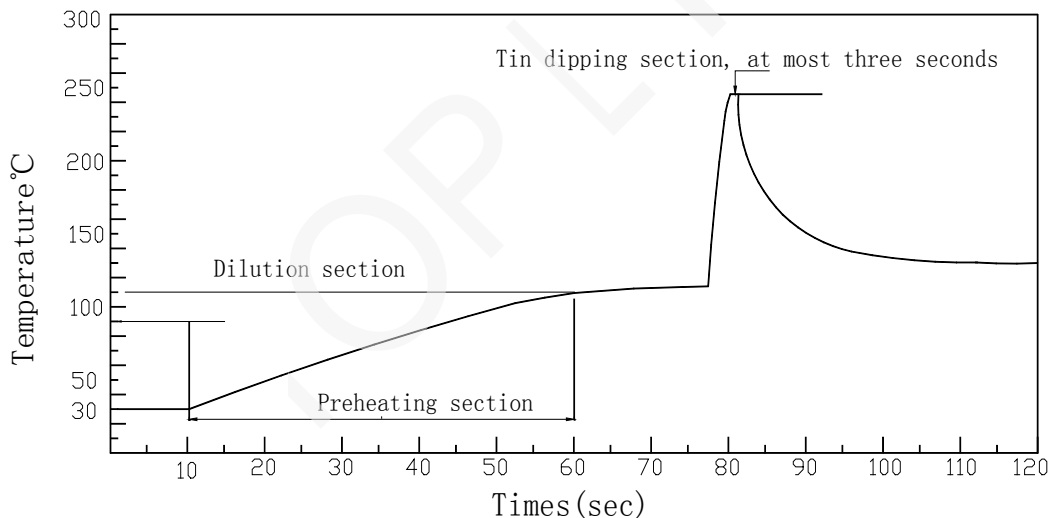
7-1. Manual Soldering Conditions(with 1.5mm Iron tip).

Iron Tip Temperature: 350°C Max, Time: 3s Max.

Position: The iron should be situated at least 2mm away from the root of the leads.

7-2. Through the Wave Soldering Conditions Wave Soldering Profile For Lead-free Through-hole LED.

Welding method	Wave soldering			
Welding condition	Preheating temperature	110 degrees below	Tin leaching time	3 seconds below
	Preheating time	110 seconds below	Tin leaching position	Distance colloid 2mm above
	Furnace temperature	245 degrees below	Tin leaching times	Once



7-3. Soldering General Notes:

- Recommend manual soldering to be used only for repair and rework purposes. The soldering iron should not exceed 30W in power. The tip of the soldering iron should not touch the reflector case to avoid heat-damage.
- Maintain the pre-heat and peak temperatures with dip units as low as possible and the times as short as is feasible, since the products are susceptible to heat during flow soldering.
- After soldering, least three minutes for the component to cool to room temperature before further operations.
- If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with toplight for compatibility.



TECHNICAL DATA SHEET

TOP-CA-7188BSA-B4H4 < FOR ϕ 1.9 MM/8*8 DOT MATRIX DIGIT >

7 / 7

8. Customer optional

※This is a TOPLITE standard specifications(no protective film, TOPLITE printing code).If you have special request, please make the following choices.

- 8-1. **protetive film** add protetive film do not add protetive film
- protetive film left side ____mm other

※protective film thickness standard is 0.1 mm.

- 8-2. **printing code** TOPLITE standard printing code
- Special printing code _____
- Other _____

8-3. Whether need products with group

- YES _____ NO _____ Other _____

8-4. Other requirements

- a. _____
- b. _____
- c. _____