

# SPECIFICATIONS

Dot matrix Display 点阵产品规格书

# TOPLITE



MODEL: TOP-CA-1457BH-B3-A

客户承认 APPROVED		
承认日期 APPROVED DATE		

**上海鼎晖科技股份有限公司**

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APPROVED 批准: \_\_\_\_\_ CHECKED 审核: Liuqiang PREPARED 制作: Liucuiping



## TECHNICAL DATA SHEET

### TOP-CA-1457BH-B3-A <FOR 4.2\*4.5MM /5\*7 DOT MATRIX DIGITI>

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## 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-1457BH-B3-A is a 1.3 inch (31.8mm) matrix height 5×7 dot matrix display.
- ※ This device is made with white dots and black surface.

## 3. APPLICATION

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

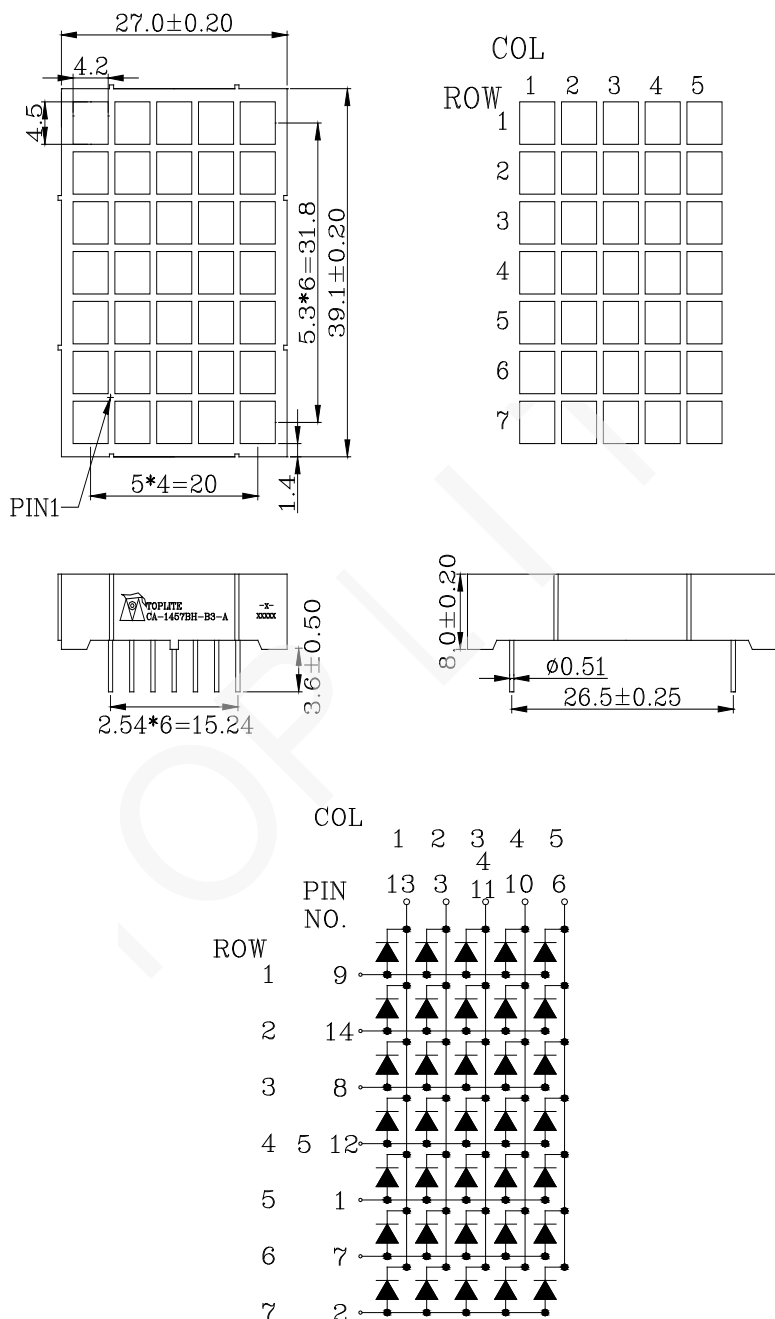
PART NO.	SIZE	CHIP EMITTED COLOR	FACE COLOR
TOP-CA-1457BH-B3-A	4.2*4.5MM /5*7 DOT MATRIX DIGITI	Red	Black

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## 4. PACKAGE DIMENSIONS & CIRCUIT DIAGRAM



Note:

All dimension tolerance is  $\pm 0.25$ mm unless otherwise noted.

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**5. ELECTRICAL/OPTICAL CHARACTERISTIC****5-1. ABSOLUTE MAXIMUM RATINGS (Ta=25℃)**

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	℃
Storage Temperature Range	$T_{STG}$	- 30 ~ + 85	℃
Solder Temperature	$T_{sol}$	260/3	℃/s

**5-2. ELECTRICAL-OPTICAL CHARACTERISTICS (Ta=25℃)**

PARAMETER	SYMBOL		MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Luminous Intensity	IV	S	17550	21937	26325	ucd	IF=10mA
		T	26326	32907	39489		
		U	39490	49362	59235		
Forward Voltage	VF		2.80	3.20	3.60	v/dot*	IF=20mA
Dominant wavelength	$\lambda_d$		635	-	650	nm	IF=20mA
Spectral Line Half-Width	$\Delta \lambda$		-	20	-	nm	IF=20mA
Reverse Current	IR		-	-	20	uA	VR=5v

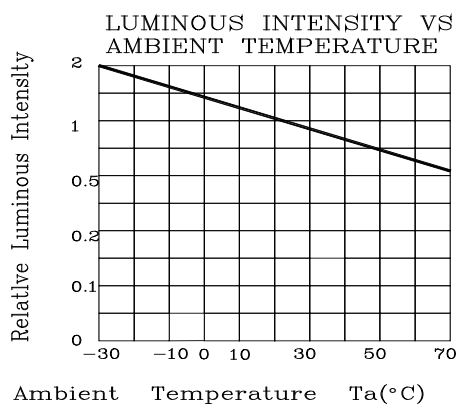
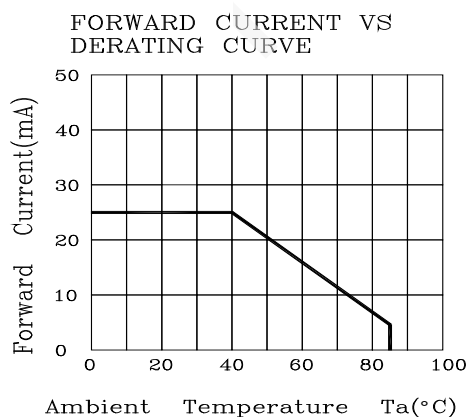
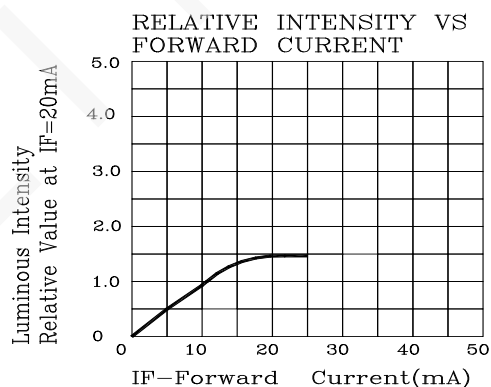
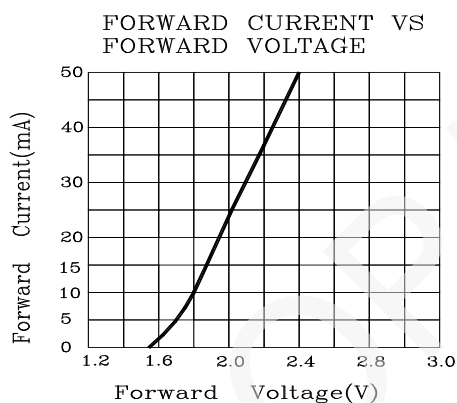
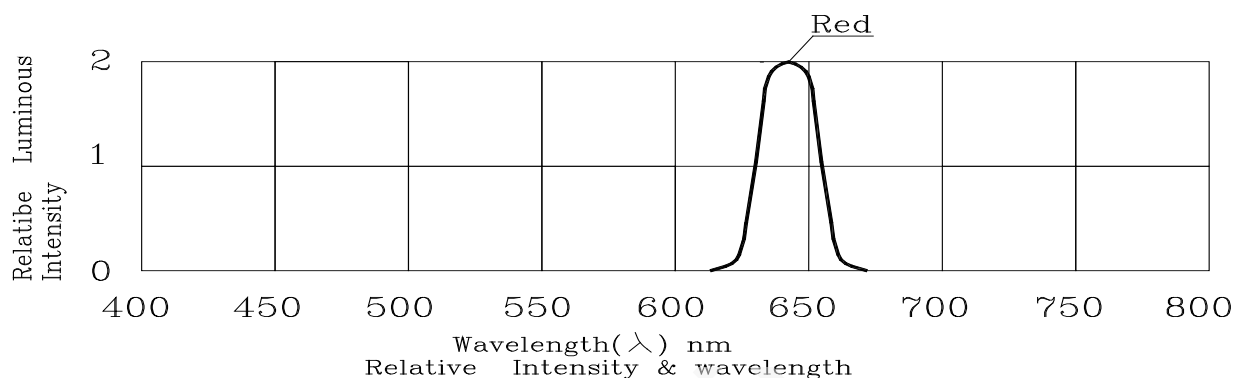
\*The dot represents a chip.Each segment according to the principle diagram calculation of voltage and current.

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### 5-3. OPTICAL CHARACTERISTIC CURVES





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### 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℃±5℃ 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℃±5℃ RH=90-95% VR=5V Test time=500hrs(-24HRS+48HRS)
	HIGH TEMPERATURE STORAGE	Evaluate reliability test of the device under high temperature Ta=85℃±5℃ Test time=1000HRS(-24HRS+72HRS)
	LOW TEMPERATURE STORAGE	Evaluate reliability test of the device under low temperature Ta=-35℃±5℃ Test time=1000HRS(-24HRS+72HRS)
ENVIRONMENTAL TEST	TEMPERATURE CYCLING	Evaluate thermal expansion and cold contraction of the device under harsh temperature Ta=85℃~25℃~-35℃~25℃ time=30min 5min 30min 5min Cycle test:10cycles
	THERMAL SHOCK	Evaluate structural and mechanical of the device under sudden thermal shock Ta=85℃±5℃~-35℃±5℃ time=10min 10min Cycle test:10cycles
	SOLOER RESISTANCE	Evaluate performance of the device withstand thermal shock during soldering T.sol=260℃±5℃ time=10±1sec
	SOLOER ABILITY	Evaluate solderability of the device T.sol=230℃±5℃ time=5±1sec

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### 7. SOLDERING CONDITIONS

The recommended conditions for soldering are as follows.

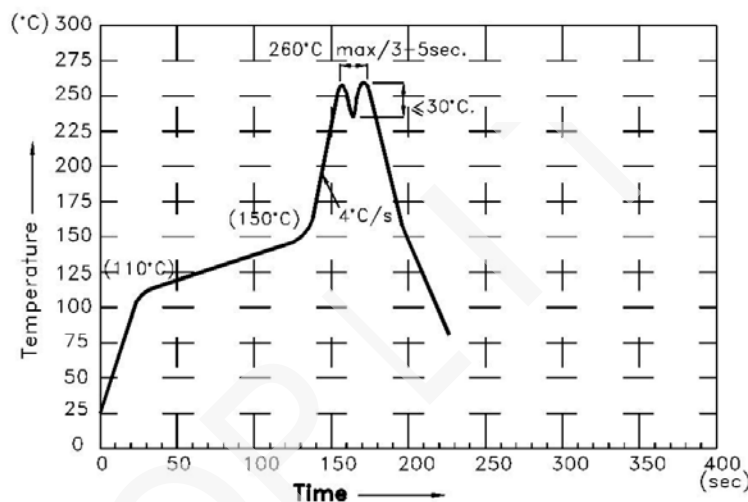
Because the component is made with epoxy resin, the units are susceptible to heat. Therefore, the preheating and soldering temperatures should be kept as low as possible to avoid damage.

**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.**



**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 for compatibility.



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### 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. \_\_\_\_\_