

**Harvatek International 0.52" Single Digit Number Display  
HCD89396**

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	*****	*****	HCD89396
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## Revision History

Revision	Page	Version No.	Revision Date
DS original		1.0	2017-06-17
Update Internal circuit diagram drawing	4	1.1	2017-07-06

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## DESCRIPTION

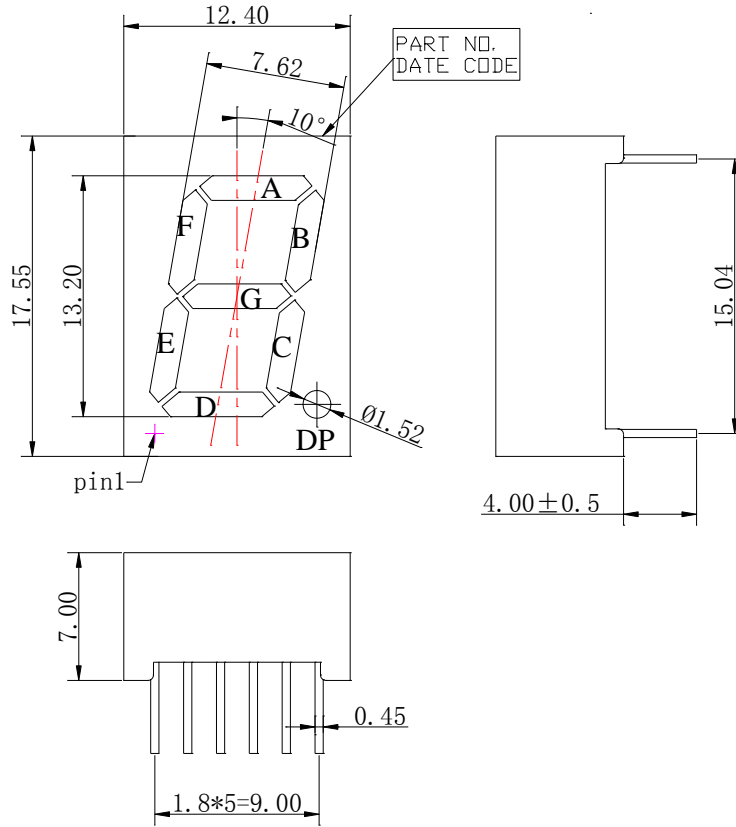
This HCD89396 is a 0.52 inch (13.2mm) digit height single digit seven-segment display. This device utilizes RGB SMD LED , and has a black face and white segments.

## FEATURES

- \*0.52 inch (13.2mm) 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

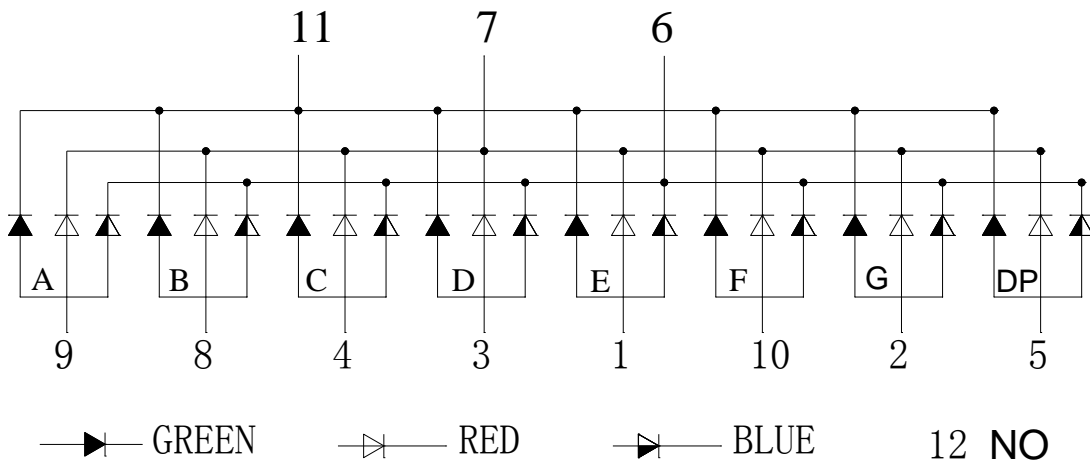
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## PACKAGE DIMENSIONS



NOTES: 1.All dimensions are in millimeters. Tolerances are  $\pm 0.25\text{mm}$  ( $0.01''$ ) unless otherwise noted.

## INTERNAL CIRCUIT DIAGRAM



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**ABSOLUTE MAXIMUM RATING AT Ta = 25°C**

PARAMETER	R	G	B	UNIT
Power Dissipation Per Segment	150	150	150	mW
Continuous Forward Current Per Segment	10	5	5	mA
Peak Forward Current ( Frequency 1Khz, 15% duty cycle)	30	15	15	mA
Reverse Voltage Per Segment	5	5	5	V
Operating Temperature Range	-35°C to +85°C			
Storage Temperature Range	-35°C to +85°C			
Soldering Conditions:Max 260°C for max 3sec at 1.6mm below seating plane.				

Remarks:This product should be operated in forward bias.If a reverse voltage is continuously applied to the product, such operation can cause migration resulting in LED damage.

**ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta = 25°C**

RED

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	Iv	13.7	21.7		mcd	IF=10mA
Peak Emission Wavelength	λp		629		nm	IF=10mA
Spectral Line Half-Width	Δλ		16		nm	IF=10mA
Dominant Wavelength	λd		622		nm	IF=10mA
Forward Voltage Per Dot	VF		2.0	2.4	V	IF=10mA
Reverse Current Per Dot	IR			10	μA	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=10mA

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GREEN

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	Iv	34	70		mcd	IF=10mA
Peak Emission Wavelength	$\lambda_p$		520		nm	IF=5mA
Spectral Line Half-Width	$\Delta\lambda$		32		nm	IF=5mA
Dominant Wavelength	$\lambda_d$		530		nm	IF=5mA
Forward Voltage Per Dot	VF		2.85	3.4	V	IF=5mA
Reverse Current Per Dot	IR			10	$\mu$ A	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=10mA

BLUE

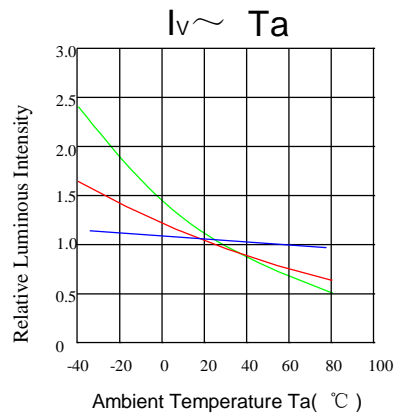
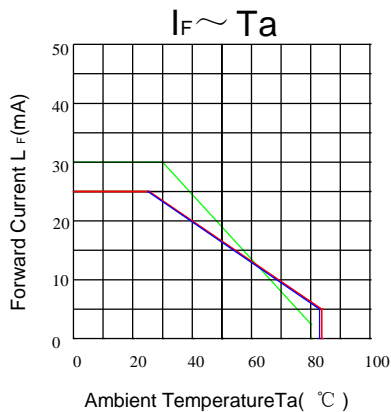
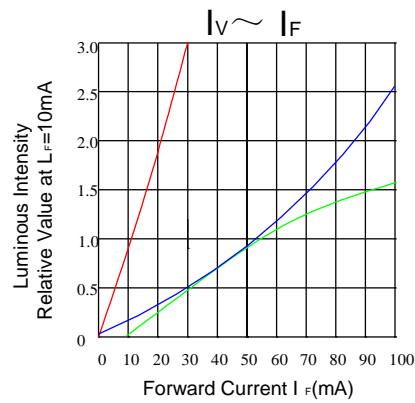
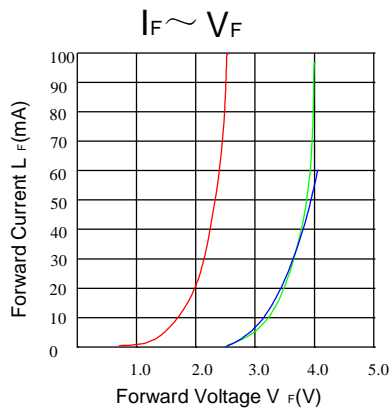
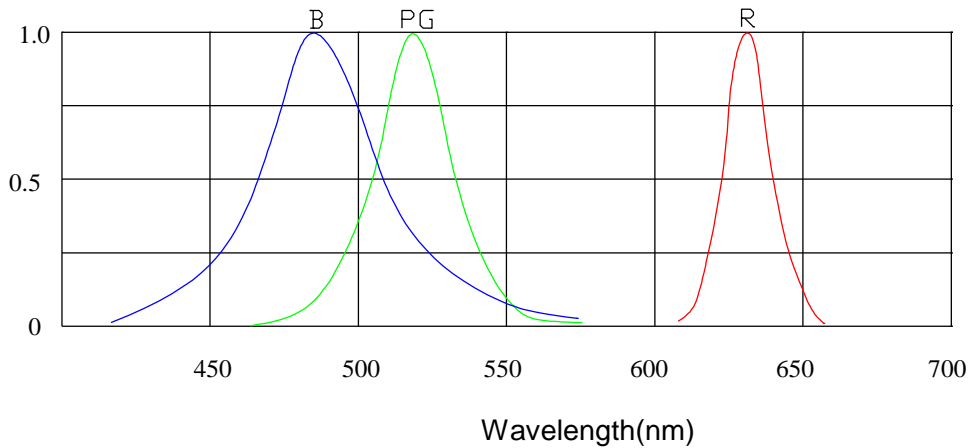
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	Iv	13.7	21.7		mcd	IF=10mA
Peak Emission Wavelength	$\lambda_p$		464		nm	IF=5mA
Spectral Line Half-Width	$\Delta\lambda$		22		nm	IF=5mA
Dominant Wavelength	$\lambda_d$		470		nm	IF=5mA
Forward Voltage Per Dot	VF		2.95	3.4	V	IF=25mA
Reverse Current Per Dot	IR			10	$\mu$ A	VR=5V
Luminous Intensity Matching Ratio	Iv-m			2:1		IF=5mA

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

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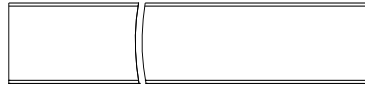
## TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES (25°C Ambient Temperature Unless Otherwise Noted)

### RELATIVE INTENSITY vs WAVELENGTH

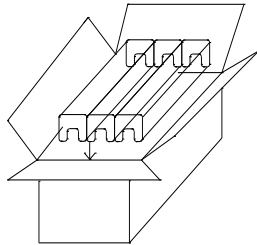
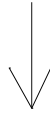


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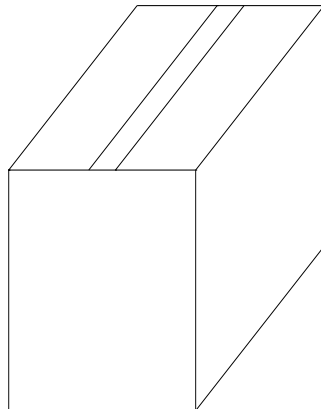
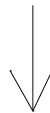
**Pack process:**



40PCS/TUBE



1920PCS/I-CARTON



7680PCS/O-CARTON

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