

**Harvatek International 0.28" quadruple Display
HCD89045**

Official Product	HCD89045	Customer Part No.	Data Sheet No.
	*****	*****	HCD89045
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Revision History

Revision	Page	Version No.	Revision Date
DS original HCD89045		1.0	05-10-2012
Changed package	8	2.0	08-23-2013

Official Product	HCD89045	Customer Part No.	Data Sheet No.
	*****	*****	HCD89045
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			Page 2/8

DISCLAIMER

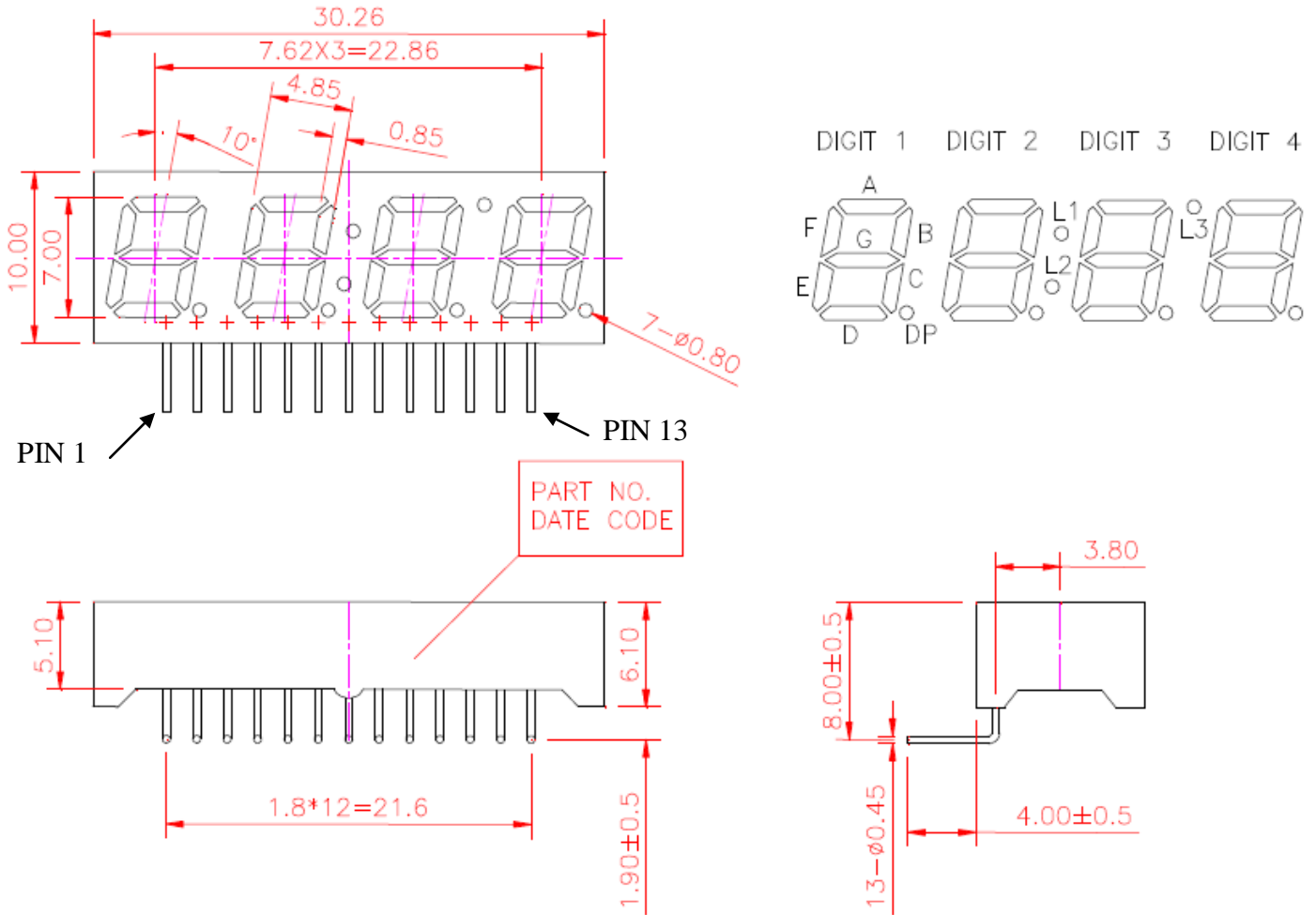
The HCD89045 is a 0.28 inch (7 mm) digit height quadruple digit seven-segment display. This device utilizes blue LED chips(InGaP epi on a Sapphire substrate), and has a black face and white segments.

FEATURES

- *0.28-inch (7 mm) 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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	*****	*****	HCD89045
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Aug. 23, 2013	Version of 2.0
			Page 3/8

PACKAGE DIMENSIONS

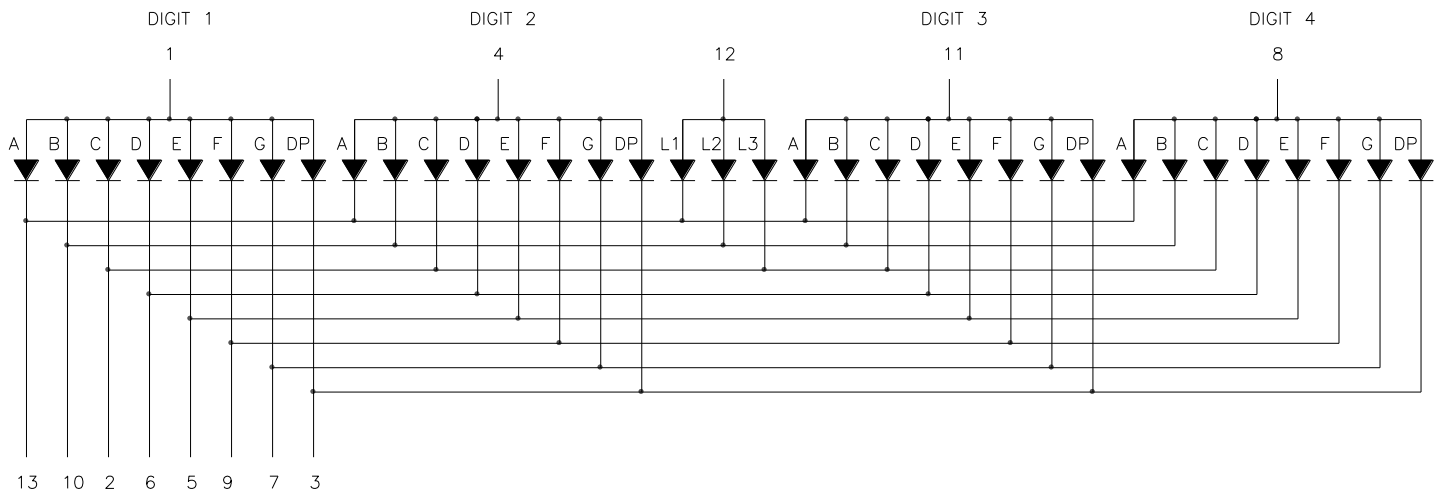


NOTES: 1.All dimensions are in millimeters. Tolerances are $\pm 0.25\text{mm}$ (0.01") unless otherwise noted.

- 2.Pin tip's shift tolerance is ± 0.4 mm.
- 3.Foreign material on segment $\leq 10\text{mils}$
- 4.Ink contamination(surface) $\leq 20\text{mils}$
- 5.Bending $\leq 1\%$ of reflector length
- 6.Bubble in segment $\leq 10\text{mils}$
- 7.Recommend the best pcb hole: diameter 0.9mm

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	*****	*****	HCD89045
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			Page 4/8

INTERNAL CIRCUIT DIAGRAM



Official Product	HCD89045	Customer Part No.	Data Sheet No.
	*****	*****	HCD89045
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Aug. 23, 2013	Version of 2.0
			Page 5/8

ABSOLUTE MAXIMUM RATING AT Ta = 25°C

PARAMETER	MAXIMUM RATING	UNIT
Power Dissipation Per Segment	70	mW
Peak Forward Current Per Segment (Frequency 1Khz, 15% duty cycle)	100	mA
Continuous Forward Current Per Segment	20	mA
Operating Temperature Range	-35°C to +85°C	
Storage Temperature Range	-35°C to +85°C	
Wave Solder Temperature: max 260°C for max 5 sec at 1.6mm below seating plane.		

ELECTRICAL / OPTICAL CHARACTERISTICS AT Ta = 25°C

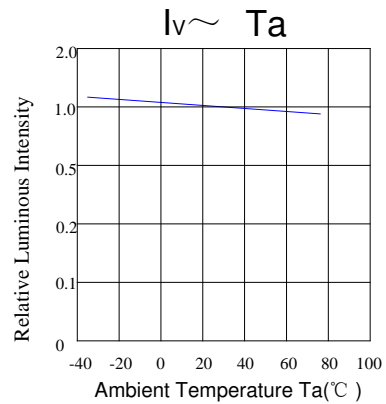
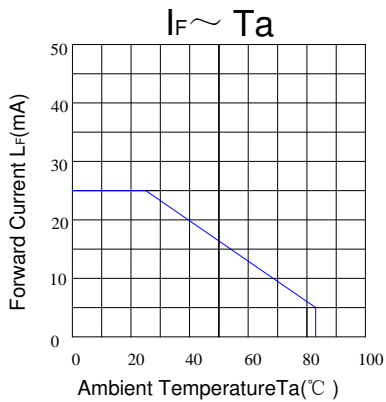
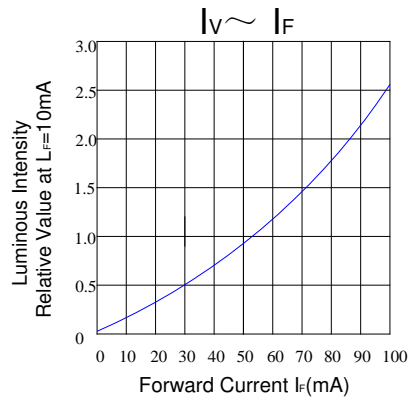
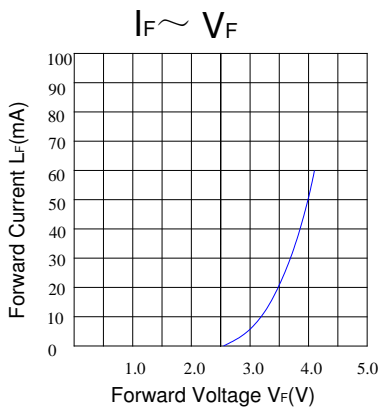
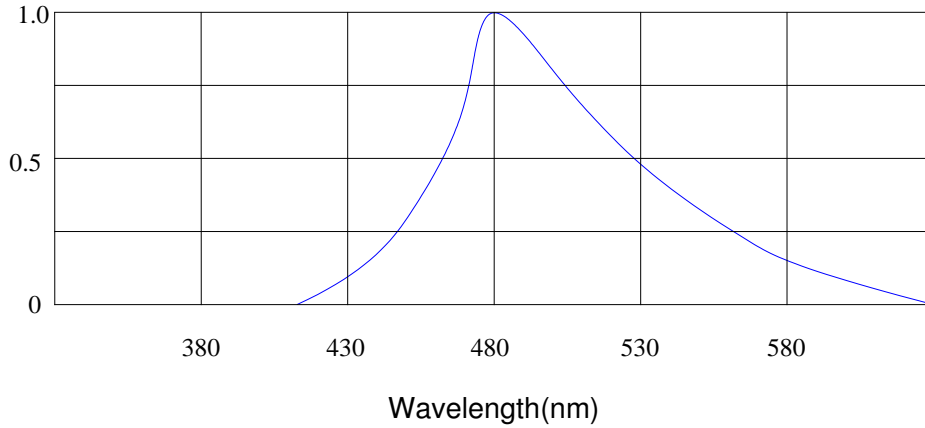
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
Average Luminous Intensity Per Segment	I _v	1700	3800		μcd	I _F = 10mA
Peak Emission Wavelength	λ _p		468		nm	I _F = 20mA
Spectral Line Half-Width	Δλ		25		nm	I _F = 20mA
Dominant Wavelength	λ _d	465	470	475	nm	I _F = 20mA
Forward Voltage Per Segment	V _F		3.3	3.8	V	I _F = 20mA
Reverse Current Per Segment	I _R			100	μA	V _R = 5V
Luminous Intensity Matching Ratio (Similar Light Area)	I _v -m			2:1		I _F = 10mA

- Note: 1. Luminous Intensity is measured with a light sensor and filter combination that approximates the CIE (Commision Internationale De L'Eclairage) eye-response curve.
 2. Reverse voltage is only for IR test. It can not continue to operate at this situation.
 3. Cross talk specification ≤ 2.5%

Official Product	HCD89045	Customer Part No.	Data Sheet No.
	*****	*****	HCD89045
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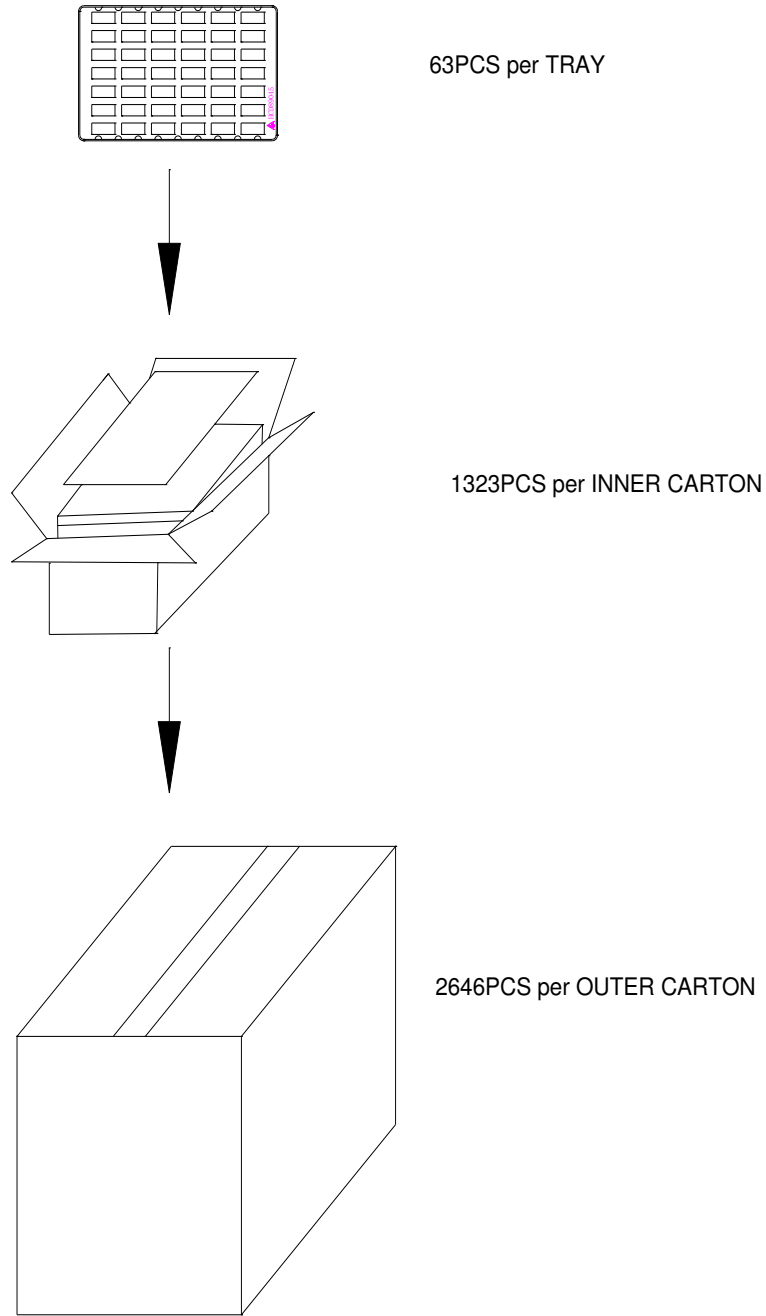
TYPICAL ELECTRICAL / OPTICAL CHARACTERISTIC CURVES
(25°C Ambient Temperature Unless Otherwise Noted)

RELATIVE INTENSITY vs WAVELENGTH



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			Page 7/8

Package process:



Official Product	HCD89045	Customer Part No.	Data Sheet No.
	*****	*****	HCD89045
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Aug. 23, 2013	Version of 2.0
			Page 8/8