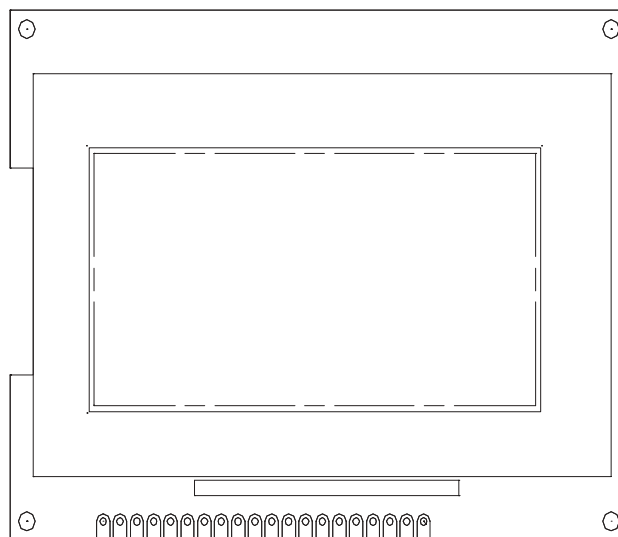




# PRODUCT SPECIFICATION

## HDR12864

128x64 GRAPHICS  
OLED DISPLAY MODULE



<b>HANTRONIX, INC.</b> 10080 BUBB RD. CUPERTINO, CA 95014	<b>Q.A.:</b> JK	<b>REV.:</b> 1.1	<b>HDR12864</b>	<b>SHEET 1 OF 9</b>
				<b>DATE:</b> 8/27/02

## 1. MECHANICAL DATA

NO	ITEM	SPECIFICATION	UNIT
1	Dot matrix	128 (W) x 64 (H)	dot
2	Dot size	0.48 (W) x 0.48 (H)	mm
3	Dot pitch	0.52(W) x 0.52(H)	mm
4	Aperture rate	85	%
5	Active area	66.82(W) x 33.34(H)	mm
6	View area	68.5(W) x 35.3(H)	mm
7	Panel size	86(W) x 52.2(H)	mm
8	Panel thickness	2.15 (with polarizer)	mm
9	Module size	93(W) x 70(H) x 8.5(T)	mm
10	Weight	-	g

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HDR12864

SHEET 2 OF 9

DATE: 8/27/02

## 2. MAXIMUM RATING OF MODULE

ITEM	MIN	MAX	UNIT	COMMENT
Supply voltage ( $V_{cc}$ )	-0.3	5.5	V	Ta=25 °C
Input output pin voltage	-0.3	$V_{cc}+0.3$	V	Ta=25 °C
Operating temp.	-20	70	°C	
Storage temp	-40	85	°C	
Operating life time	10,000		Hours	Ta=25 °C
Storage life time	20,000		Hours	Ta=25 °C

Note: Operation life time condition: @ 11 V

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JK

REV.:

1.1

HDR12864

SHEET 3 OF 9

DATE: 8/27/02

### 3. ELECTRICAL CHARACTERISTICS OF DRIVER IC

#### D.C ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETERS	TEST CONDITION	MIN	TYP.	MAX	UNIT
V <sub>CC</sub>	Operating voltage		4.5	5.0	5.5	V
I <sub>CC</sub>	Operating current	V <sub>CC</sub> =5V XSCL=1MHZ No output load			1	mA
V <sub>IH</sub>	Input high voltage		2.4		V <sub>CC</sub>	V
V <sub>IL</sub>	Input low voltage		0		0.8	V
I <sub>SEGOH</sub>	Segment on output current	V <sub>SEGOH</sub> = 7V	-30		-300	uA
I <sub>ROWOL</sub>	Row on output current	V <sub>ROWOL</sub> = 0.4V			100	mA
I <sub>LI</sub>	Input Leakage current	V <sub>CC</sub> =5V			2	uA

#### A.C ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETERS	MIN.	TYP.	MAX.	UNIT
T <sub>SD</sub>	Data latch in setup time	50			ns
T <sub>DH</sub>	Data latch in hold time	50			ns
T <sub>WCP</sub>	XSCL pulse cycle time	140			ns
T <sub>CL</sub>	XSCL low to LP high	20			ns
T <sub>WLD</sub>	LP high width	140			ns
T <sub>CDH</sub>	Common scan pulse latch hold time	50			ns
T <sub>LSEG</sub>	LP low to segment outputs	200			ns
T <sub>LCOM</sub>	LP low to common outputs	10			ns

## 4. ELECTRO-OPTICAL CHARACTERISTICS OF MODULE

### GENERAL ELECTRICAL SPECIFICATION

Minimum luminance (with circular polarizer)	30 cd/m <sup>2</sup>
Forward voltage	11 V
Duty	1/64
Frame rate	120 Hz

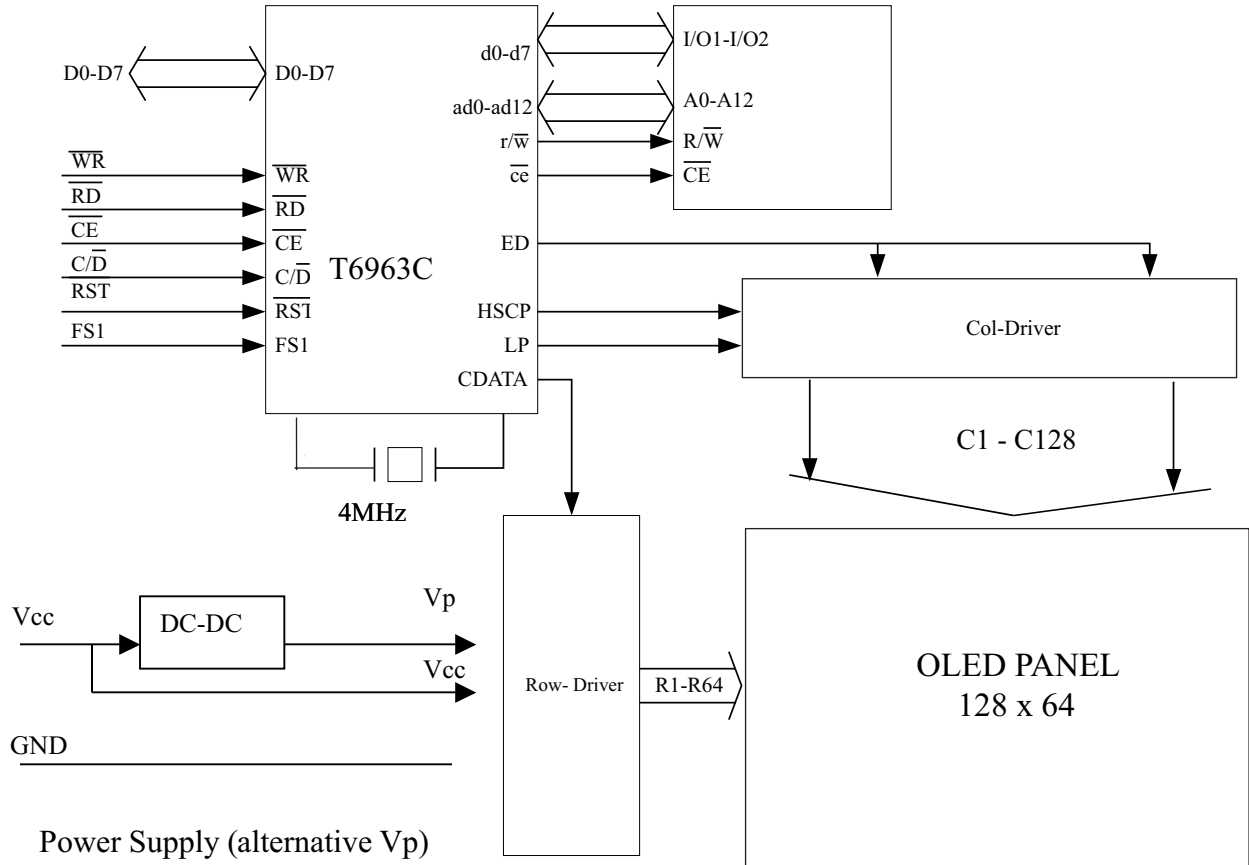
### PULSED ELECTRICAL SPECIFICATIONS AND OPTICAL CHARACTERISTICS

PARAMETER	MIN	TYP.	MAX	UNITS	COMMENTS
Forward voltage		11		V	Initial
I <sub>vp</sub>		10	15	mA	All pixels on
I <sub>vcc</sub>		26	30	mA	All pixels on whole module
Emissive power consumption		90	135	mW	All pixels on
Pixel luminance	30	35		cd/m <sup>2</sup>	Display average
Peak emission frequency		524		nm	Green
Emission frequency range		503-553		nm	1/2 max intensity
Pixel color coordinates	0.23 0.62	0.28 0.67	0.30 0.71		x, y (CIE 1931)
Dark room contrast		>1:100			
Viewing angle uniformity	>160			Degree	

Note: Optical Measurement taken at 1/64 duty, 120Hz frame rate

HANTRONIX, INC. 10080 BUBB RD. CUPERTINO, CA 95014	Q.A.:	REV.:	HDR12864	SHEET 5 OF 9
	JK	1.1		DATE: 8/27/02

## 5. FUNCTION BLOCK DIAGRAM



## 6. PIN ASSIGNMENTS

### PIN DESCRIPTION

Pin Name	Pin No.	Description
GND	1	Power supply (0V)
V <sub>CC</sub>	2	Power supply (5V)
NC	3	No connection
$\overline{C/D}$	4	WR =L C/D= H: Command write C/D=: H Data write RD =L C/D= H: Status read C/D= H: Data read
$\overline{WR}$	5	Data write.
$\overline{RD}$	6	Data read.
DB0	7	Data I/O pin between CPU and T6963C.
DB1	8	Data I/O pin between CPU and T6963C.
DB2	9	Data I/O pin between CPU and T6963C.
DB3	10	Data I/O pin between CPU and T6963C.
DB4	11	Data I/O pin between CPU and T6963C.
DB5	12	Data I/O pin between CPU and T6963C.
DB6	13	Data I/O pin between CPU and T6963C.
DB7	14	Data I/O pin between CPU and T6963C.
$\overline{CE}$	15	Chip enable for T6963C.
NC	16	No connection
$\overline{RST}$	17	H: Normal mode. L: Initialize T6963C.
NC	18	No connection
NC	19	No connection
DISB	20	Sleep mode controller(Active:Low)

## 7. RELIABILITY TEST

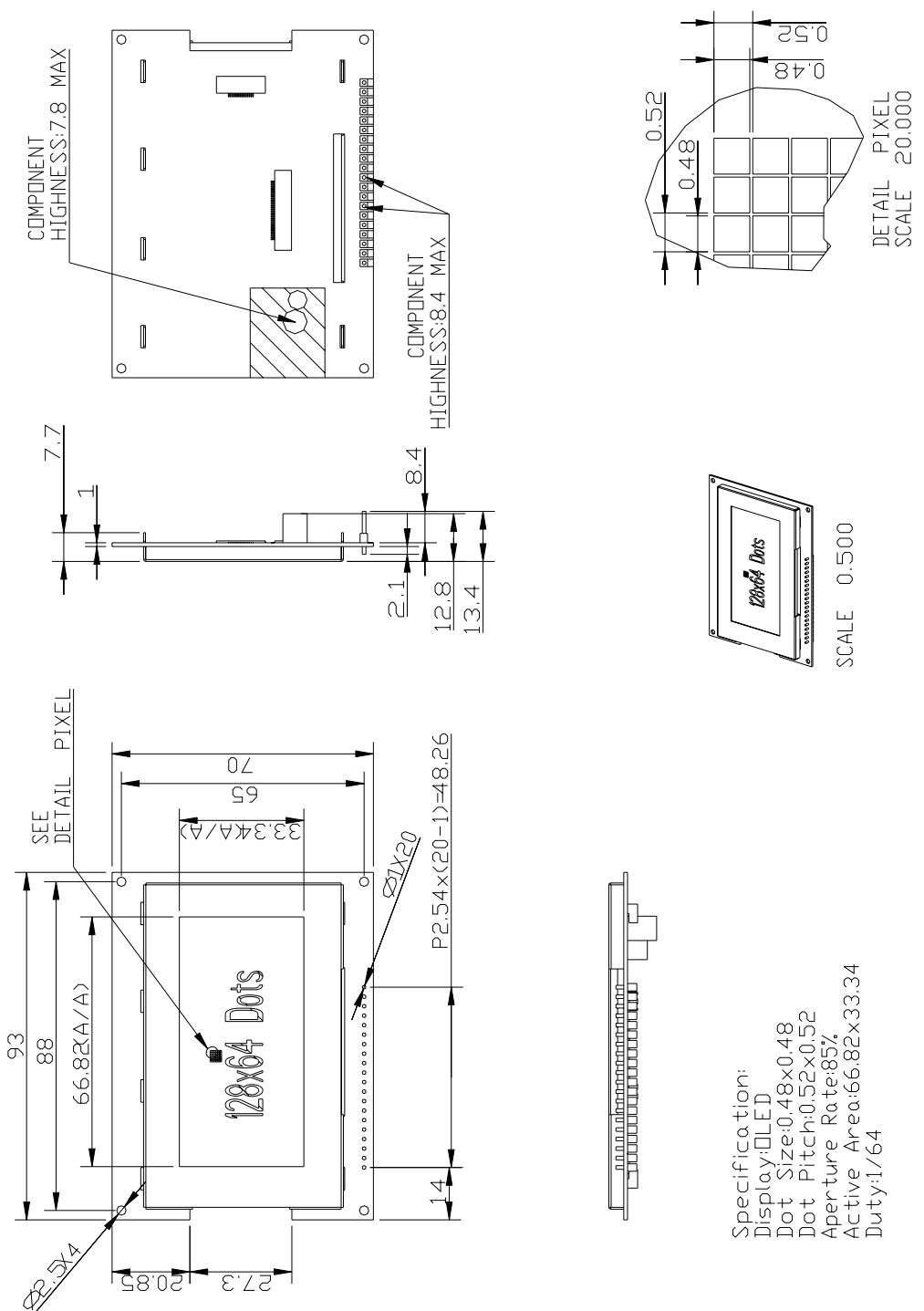
ITEM	TEST CONDITION
High Temp operation	60°C ; 24 hours
Low Temp operation	-40°C ; 24 hours
High Temp & High Humi. storage	85 °C/85%RH ; 24hours
High Temp & High Humi. operation	65 °C/90%RH ; 24hours
Thermal shock	-40°C, +85°C 30 minutes dwell, 180 seconds transition; 20 cycles
Criteria for Pass/Fail	Function test OK

Note: After test 2 hours (room temperature), check function & appearance.

<b>HANTRONIX, INC.</b> 10080 BUBB RD. CUPERTINO, CA 95014	Q.A.: JK	REV.: 1.1	HDR12864	SHEET 8 OF 9
				DATE: 8/27/02



# 8. EXTERNAL DIMENSION



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REV.:  
 1.1

**HDR12864**

**SHEET 9 OF 9**  
 DATE: 8/27/02