128 X 64 DOT MATRIX, GAS-PLASMA DISPLAY SYSTEM

PLASMADOT™ full field dot matrix DC plasma display systems include driver electronics. Babcock's display drivers have been designed for applications that have requirements for customized fonts, overlays or detailed graphic animation. Model PD02B104 requires +5 V(dc) from the host system and +70 V (dc) and –110 V (dc) from an external power supply to operate. The refresh control of the display is then performed externally by the host system processor.

FEATURES

Display Format:	64 rows x 128 columns
Overall Size:	8.00" x 5.00" x .95"
Overall Viewing Area:	5.10" x 2.54"
Pixel Size:	. 020" x .020"
Row Pitch:	. 040"
Column Pitch:	. 040"
Luminance:	50 fL
Viewing Angle:	130^{o}
Contrast Ratio:	20:1
Color:	Orange

ELECTRICAL SPECIFICATIONS

Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit
Logic Supply Voltage	Vcc	-0.5	+7.0	V
Row Driver Supply Voltage	Vrw	Vsn –0.5	Vsn +15.0	V
Column High Voltage Supply	Vsp		+80	V
Anode High Voltage Supply	Vsn		-135	V
Total High Voltage (Vsp to Vsn)	Vtotal		215	V
Logic Input High	Vih	+2.40	Vcc +1.5	V
Logic Input Low	Vil	-0.50	+ 0.08	V

Recommended Operating Conditions (Measured with all pixels lit.)

Item	Symbol	Min	Typ	Max	Unit
Logic Supply Voltage	Vcc	4.75	5.0	5.25	Volts
Logic Supply Current	Icc			50	mA
Column High Voltage Supply	Vsp	60.0	70.0	75.0	Volts
Column High Voltage Current	Isp			100	mA
Row Drive Logic Supply	Vrw	Vsn +10.8	Vsn +12.0	Vsn +13.2	Volts
Row Drive Logic Supply Current				30	mA
Row Driver High Voltage Supply	Vsn	-100	-110	-120	Volts
Row Drive High Voltage Current	Isn			130	mA

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Environmental Specifications

Item	Min	Max	Unit
Operating Temperature	0	+60	°C
Storage Temperature	-40	+ 85	°C
Humidity (Non-Condensing)	0	95	%
Vibration (10-55 Hz, .06" P-P)		3	G
Shock P (acceleration, 11 Msec)		30	G
Altitude (Operating)		20,000	ft.
Altitude (Non-Operating)		70,000	ft.

CUSTOMER INTERFACE

Interface Connector

Mating Connector: AMP Part No. 746285-2, Molex 71247-0429, 3M 3385-6600

Pin No.	Name	Description	Pin No.	Name	Description
1	DE	Display Enable Signal	2	GND	Signal Ground
3	RDATA	Row Driver Data Input	4	GND	Signal Ground
5	RCLK	Row Driver Clock Input	6	GND	Signal Ground
7	COLLATCH	Column Driver Latch Input	8	GND	Signal Ground
9	DOTCLOCK	Column Driver Clock Input	10	GND	Signal Ground
11	SDATA	Column Driver Data Input	12	GND	Signal Ground
13	GND	Signal Ground	14	GND	Signal Ground

Power Supply Connector

Mating Connector: Amp Part No. 640428-8, Molex 09-50-3081, 09-06-5087, Methode 3300-108

Pin No.	Name	Description
1	Vsn	Row Driver Negative High Voltage Supply
2	Vrw	Row Driver Logic Supply
3	KEY	Keying Position (no pin)
4	GND	High Voltage Supply Ground
5	GND	Logic Supply Ground
6	Vcc	Digital Logic Supply (-5V)
7		No Connection
8	Vsp	Column Driver Position High Voltage

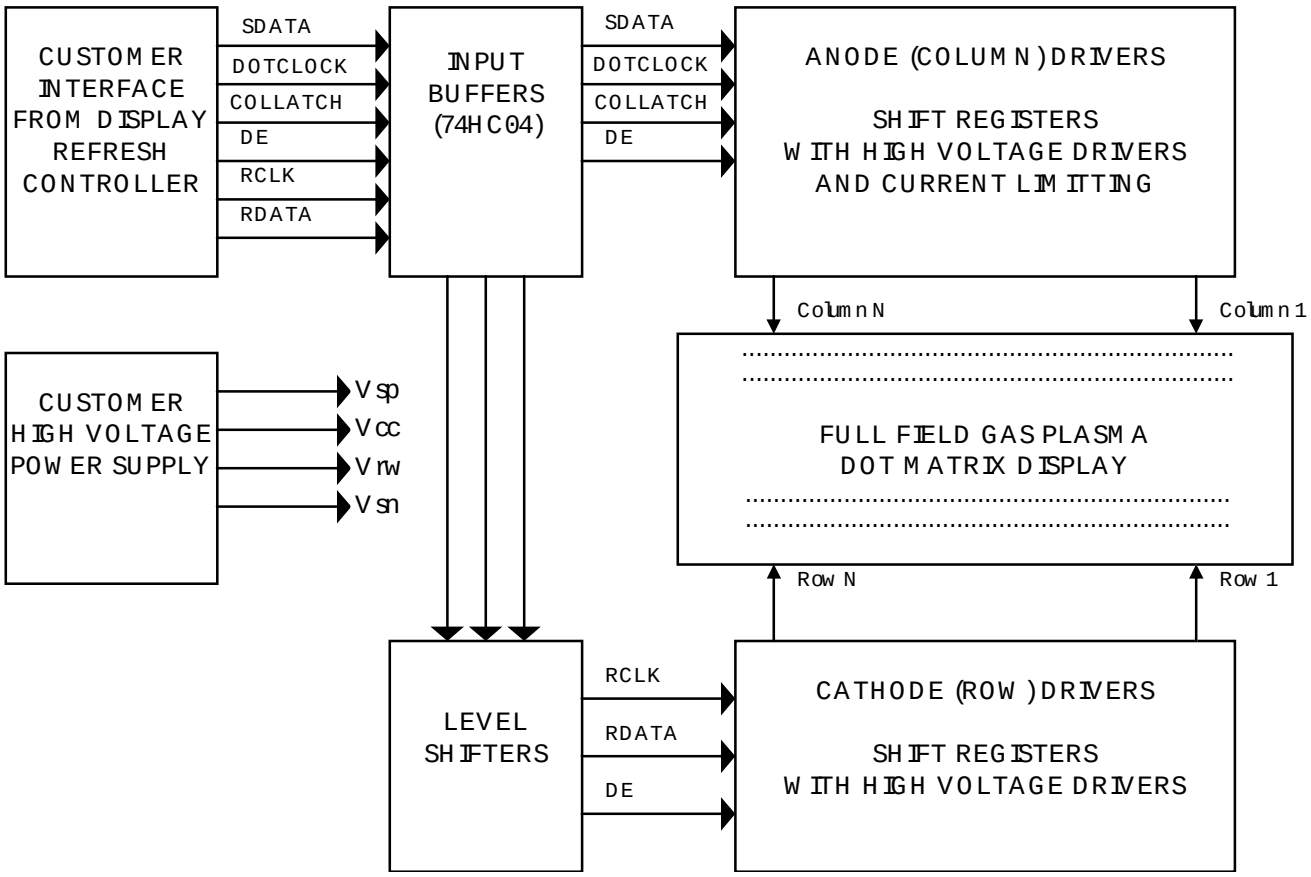
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Block Diagram

To drive a dot matrix display, both the columns and the rows need to be independently driven. Figure 1 shows how a PLASMADOT™ display is driven. There is one driver for each column that sources current to the display and one driver for each row that sinks that current to the return supply. When the display is scanned, only one row driver is on at a time but any number of the column drivers can be on.

FIGURE 1:



Display Intensity Control:

There are two methods of controlling the brightness of the display.

- To control the brightness of the entire display, vary the display on time with the DE signal.
- Second method is by frame rate modulation, this method requires less hardware complexity but limits the number of intensity levels that may be achieve.

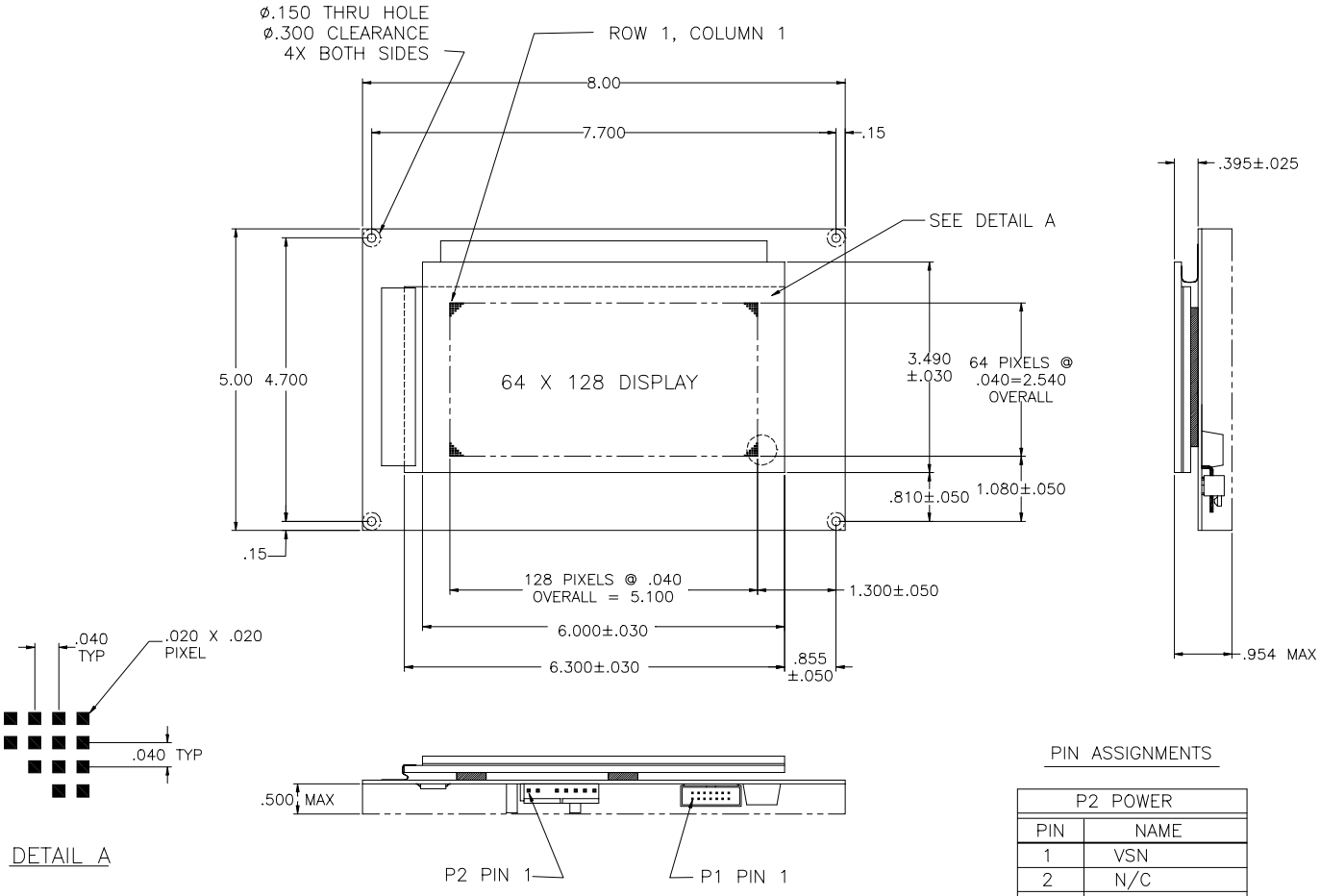
With either method of intensity control, it should be noted that the intensity of a DC plasma display is not linear with the pixels on time. (i.e. The pixel is not half as bright when left on for half the time.)

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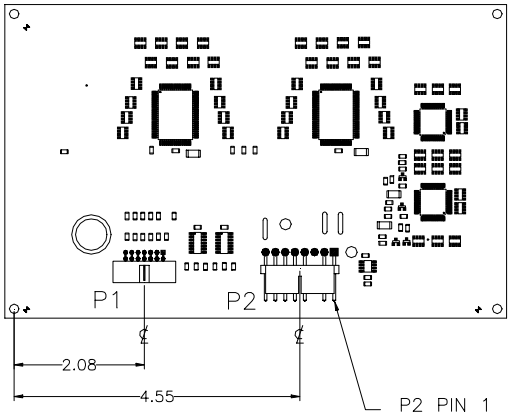
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Outline and Mounting Dimensions:



PIN ASSIGNMENTS

P2 POWER	
PIN	NAME
1	VSN
2	N/C
3	KEY
4	HI. Voltage GND
5	HI. Voltage GND
6	VCC
7	N/C
8	VSP



P1 DATA	
PIN	NAME
1	DE
3	RDATA
5	RCLK
7	COLLAT
9	DOTCLK
11	SDATA
13	Signal GND
ALL EVEN	Signal GND

SPECIFICATIONS ARE FOR REFERENCE ONLY 9200-0111 Rev. A