

**128 x 64 DOT MATRIX, GAS-PLASMA DISPLAY WITH DC – DC CONVERTER**

PLASMADOT™ full field dot matrix DC plasma display systems include driver electronics and a on-board DC-DC converter. Babcock's display drivers have been designed for applications that have requirements for customized fonts, overlays or detailed graphic animation. Model PD02F104 with its integrated dc-dc converter requires a single unregulated input voltage of +10.8 to +30 VDC to generate the high voltages required for operating the display. 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 1.50" Max
Overall Viewing Area:	5.10" x 2.54"
Pixel Size:	.020" Dia.
Row Pitch:	.040"
Column Pitch:	.040"
Luminance:	50 fL
Viewing Angle:	130°
Contrast Ratio:	20:1
Color:	Orange

**ELECTRICAL SPECIFICATIONS****Absolute Maximum Ratings**

Item	Symbol	Min	Max	Unit
Power Supply Input Voltage	V <sub>in</sub>	+10.8	+30.0	V
Input Power Requirements	P <sub>in</sub>		15	W (Max)
Logic Input High	V <sub>ih</sub>	+2.40	+5.10	V
Logic Input Low	V <sub>il</sub>	-0.50	+0.08	V
Refresh Rate		60		Hz

**Recommended Operating Conditions (Measured with all pixels lit.)**

Item	Symbol	Min	Typ	Max	Unit
Input Voltage	V <sub>in</sub>	10.8	18	26	V
Input Power	P <sub>in</sub>			15	Watts

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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** (14 Pin Dual Row .10" centers)

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	SDADA	Column Driver Data Input	12	GND	Signal Ground
13	GND	Signal Ground	14	GND	Signal Ground

**Power Supply Connector**

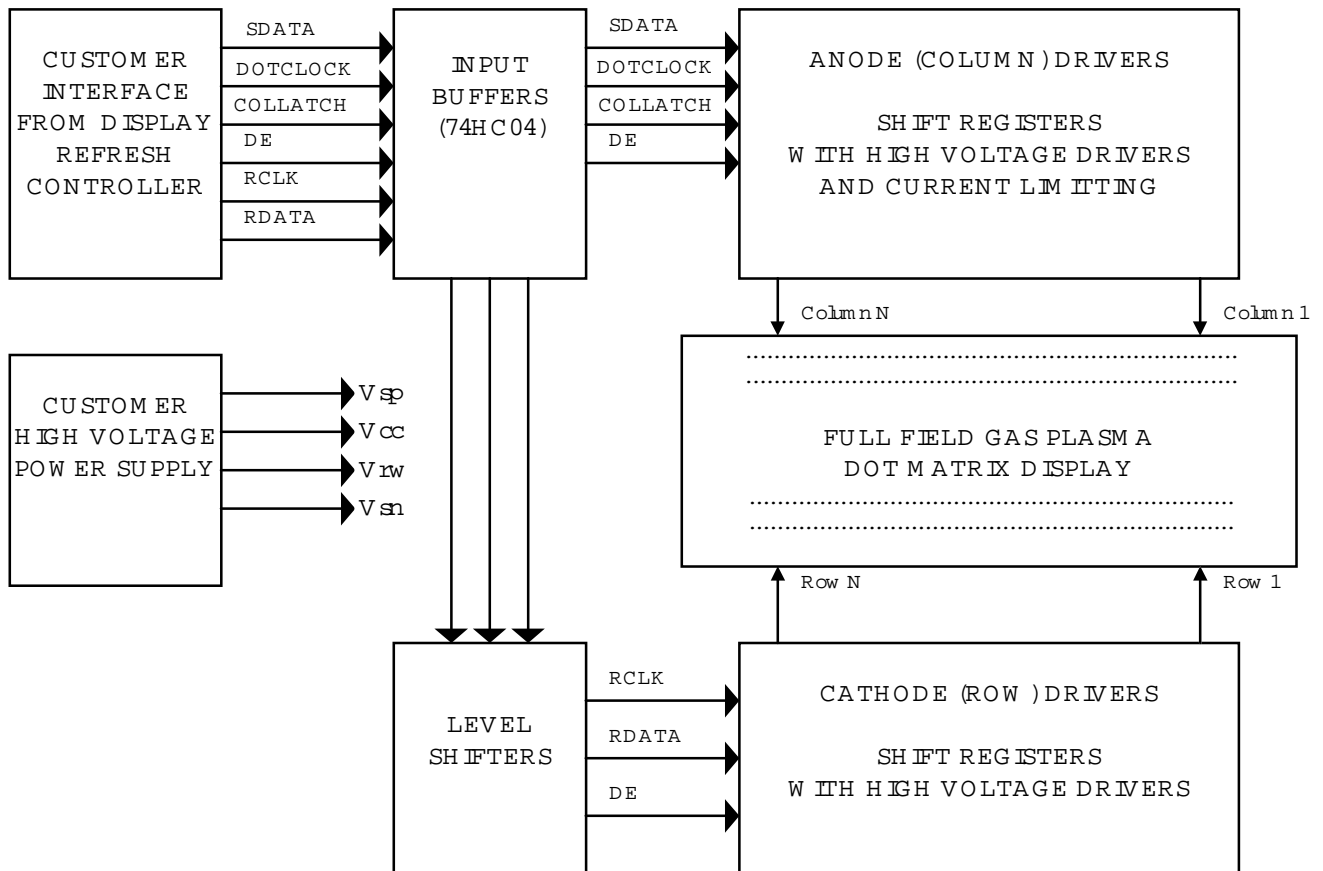
Mating Connector: Amp Part No. 1-480424-0

Pin No.	Name	Description
1	Vin	Positive Supply Input
2	Gnd	Negative Supply Input
3	Gnd	Negative Supply Input
4		No Connection

**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. More of this will be discussed later.

**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 achieved.

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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Outline and Mounting Dimensions:

