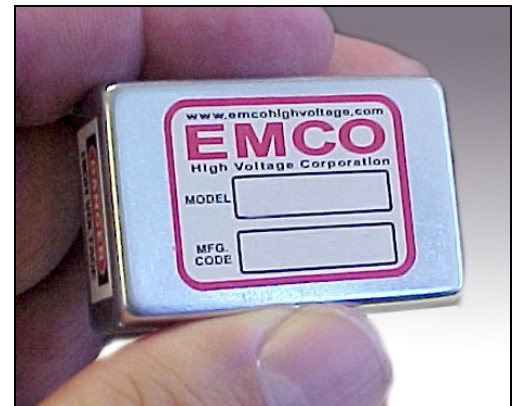


## 0.2kV – 2kV, 1W

### PRECISION REGULATED, LOW RIPPLE, HIGH VOLTAGE POWER SUPPLIES

**EMCO** HIGH VOLTAGE CORPORATION

- Very low ripple
- Precision regulated
- Miniature shielded case
- 0 to 100% programmable
- Voltage monitor output
- High stability
- Wide input voltage range
- Arc, Short Circuit Protected
  - 12V Input models: indefinite
  - 5V Input models: short duration, up to 1 minute
- UL94-V0 Compliant Epoxy



### ● APPLICATIONS

- Photomultiplier Tubes
- Avalanche Photodiodes
- Precision EO Lenses
- Piezo Devices

The new CA Series of high performance, precision regulated, high voltage power supplies offers improved performance and added features. Improvements in stability and ripple, along with an on-board precision reference, voltage monitor and increased protection, enable these modules to replace much larger, more expensive power supplies in many applications.

| Model   | Output Voltage | Output Current <sup>*5</sup> | Regulation <sup>*3</sup> |         | Ripple <sup>*3</sup><br>(Full Load) | Input Voltage | Input Current |           |
|---------|----------------|------------------------------|--------------------------|---------|-------------------------------------|---------------|---------------|-----------|
|         |                |                              | Line                     | Load    |                                     |               | No Load       | Full Load |
| CA02P   | 0 – +0.2kV     | 0 – 5mA                      | <0.01%                   | <0.05%  | <0.01%p-p                           | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA02P-5 | 0 – +0.2kV     | 0 – 5mA                      | <0.01%                   | <0.01%  | <0.01%p-p                           | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA02N   | 0 – -0.2kV     | 0 – 5mA                      | <0.01%                   | <0.05%  | <0.01%p-p                           | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA02N-5 | 0 – -0.2kV     | 0 – 5mA                      | <0.003%                  | <0.005% | <0.01%p-p                           | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA05P   | 0 – +0.5kV     | 0 – 2mA                      | <0.01%                   | <0.01%  | <0.01% p-p                          | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA05P-5 | 0 – +0.5kV     | 0 – 2mA                      | <0.002%                  | <0.003% | <0.005% p-p                         | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA05N   | 0 – -0.5kV     | 0 – 2mA                      | <0.01%                   | <0.01%  | <0.01%p-p                           | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA05N-5 | 0 – -0.5kV     | 0 – 2mA                      | <0.002%                  | <0.005% | <0.005%p-p                          | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA10P   | 0 – +1kV       | 0 – 1mA                      | <0.001%                  | <0.005% | <0.001%p-p                          | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA10P-5 | 0 – +1kV       | 0 – 1mA                      | <0.001%                  | <0.005% | <0.001%p-p                          | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA10N   | 0 – -1kV       | 0 – 1mA                      | <0.001%                  | <0.005% | <0.001%p-p                          | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA10N-5 | 0 – -1kV       | 0 – 1mA                      | <0.001%                  | <0.005% | <0.001%p-p                          | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA12P   | 0 – +1.25kV    | 0 – 0.8mA                    | <0.001%                  | <0.005% | <0.0005%p-p                         | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA12P-5 | 0 – +1.25kV    | 0 – 0.8mA                    | <0.001%                  | <0.005% | <0.001%p-p                          | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA12N   | 0 – -1.25kV    | 0 – 0.8mA                    | <0.001%                  | <0.005% | <0.0005%p-p                         | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA12N-5 | 0 – -1.25kV    | 0 – 0.8mA                    | <0.001%                  | <0.005% | <0.001%p-p                          | 4.75 – 5.25V  | <65mA         | <420mA    |
| CA20P   | 0 – +2kV       | 0 – 0.5mA                    | <0.01%                   | <0.01%  | <0.001%p-p                          | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA20P-5 | 0 – +2kV       | 0 – 0.5mA                    | <0.003%                  | <0.005% | <0.001%p-p                          | 4.75 – 5.25V  | <185mA        | <500mA    |
| CA20N   | 0 – -2kV       | 0 – 0.5mA                    | <0.01%                   | <0.01%  | <0.001%p-p                          | 11.5 – 15.5V  | <80mA         | <220mA    |
| CA20N-5 | 0 – -2kV       | 0 – 0.5mA                    | <0.001%                  | <0.001% | <0.001%p-p                          | 4.75 – 5.25V  | <185mA        | <450mA    |

### ● SPECIFICATIONS \*1

|                                   |  |
|-----------------------------------|--|
| Remote control voltage (Vcon-in): | 0 to 5 V <sub>DC</sub> , <150 μA<br>0 to 2.048 V <sub>DC</sub> ±1 % , <150 μA for 5V Input Power option            |
| Voltage monitor:                  | 0 to 5 V = 0 to 100% V <sub>out</sub> *2<br>0 to 2.048 V = 0 to 100% V <sub>out</sub> for 5V Input Power option *2 |
| Reference Output:                 | 5.0 V ±1% , up to 1mA,<br>2.048 V ±1% , up to 1mA for 5V Input Power option  |
| Stability:                        | <0.005%/hr *3  |
| Linearity:                        | <0.5% (15% to 100% V <sub>out</sub> ) *3   |
| Set Point Accuracy:               | 1% *3  |
| Trim:                             | 1% *3  |
| Temp. coefficient:                | <25ppm/°C *3   |
| Operating temp.:                  | -10°C to +50°C (-55° to +70°C option available)  |
| Storage temp.:                    | -25°C to +95°C   |
| Thermal Shock Limit:              | 1°C/10s  |

**\*Notes:**

- 1: Specifications after 1 hour warm-up, full load, +25°C unless otherwise noted.
- 2: On negative output models, voltage monitor output is a buffered representation of the programming voltage.
- 3: Typical performance.
- 4: All grounds internally connected, except case.
- 5: Maximum rated output current is typically available from 100% max output voltage to 50% max output voltage, and is derated below 50% max output voltage.
- 6: 5V Input Power option, programming and voltage monitor are 0 to +2.048V.

## • PHYSICAL CHARACTERISTICS

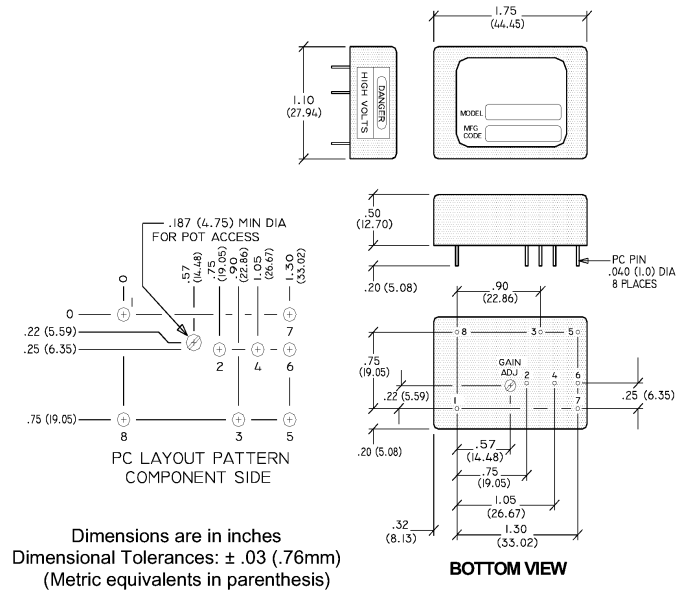
Size: 1.75" x 1.10" x 0.50"  
 (44.45 x 27.94 x 12.70 mm<sup>3</sup>)  
 Weight: 1.4 oz. (40.0 Grams)  
 Packaging: Epoxy Encapsulated (other option available)  
 Case Material: Zinc Plated Steel  
 Pins: 0.04 (1.02) Diameter,  
 0.20 ( 5.08) Long

## • DIMENSIONS inch (mm)

| PIN # | FUNCTION  |
|-------|---|
| 1     | Output Voltage  |
| 2     | Programming: 0 to +5V,<br>0 to +2.048V for 5V Input Power option    |
| 3     | Ground <sup>*1,2</sup>  |
| 4     | Voltage Reference +5V,<br>+2.048V for 5V Input Power option         |
| 5     | Case Ground <sup>*1,2</sup>   |
| 6     | + Input: 11.5 to 15.5V,<br>4.75 to 5.25V for 5V Input Power option  |
| 7     | Voltage Monitor: 0 to +5V<br>0 to +2.048V for 5V Input Power option |
| 8     | Output Return <sup>*1,2</sup>                                       |

<sup>\*1</sup> All grounds internally connected, except case.

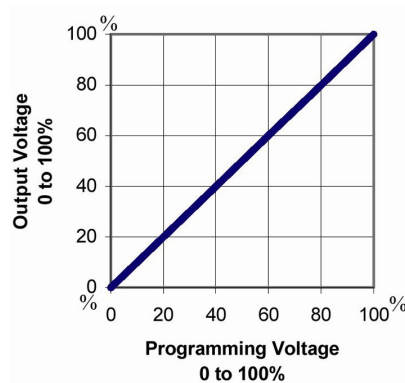
<sup>\*2</sup> There should not be more than 50 volts potential between the case ground (pin 5) and the circuit ground (pins 3 and 8).



Dimensions are in inches  
 Dimensional Tolerances: ± .03 (.76mm)  
 (Metric equivalents in parenthesis)

## • Programming Voltage vs Output Voltage

5V Input models are programmed from 0 to 100% of rated output via a 0 to +2.048V programming voltage.  
 All other CA models are programmed from 0 to 100% of rated output via a 0 to +5V programming voltage.



## • OPTIONS

- R RoHS Compliant
- T Extended Operating Temperature