

# Compact, 10 Watt, High Voltage Modules

0 to + or - 100 through 0 to + or - 12,000 VDC @ 10 Watts  
F Series



## FEATURES

Metal Case and Shielded Transformer *result in* Very Low EMI/RFI  
Low Ripple  
Compact Package  
PCB Mountable  
Input/Output Isolation  
Input/Output Filtering  
Proven Reliability  
Cost Effective HV Power

## OPTIONS

Mounting Holes, F01 – F60 add H to model number (e.g. F10H)  
Output Center Tap, See CT Series  
Low Outgassing Epoxy

## APPLICATIONS

Capacitor Charging  
Spectrometry  
Piezo Devices  
Lamp Ignition  
Lamp Drive  
Q Switches  
Ion Pumps  
Electrostatic Field Generation  
Grid Bias  
Electrophoresis  
Lasers  
Electrostatic Chucks

## PHYSICAL CHARACTERISTICS

F01-F60: 2.8 x 1.7 x 0.85 (71 x 43 x 21) *see Dwg on Sheet 2*  
F70-F121: 2.8 x 1.7 x 0.95 (71 x 43 x 24) *see Dwg on Sheet 2*  
WEIGHT: <5 Ounces (142 grams)  
PACKAGING: Epoxy Encapsulated  
CASE MATERIAL: Black Anodized Aluminum

## ELECTRICAL SPECIFICATIONS

INPUT VOLTAGE: *See Table*  
TYPICAL TURN-ON VOLTAGE: 0.7 Volts  
OUTPUT VOLTAGE: *See Table*  
OUTPUT CURRENT: *See Table*  
RIPPLE: *See Table*  
ISOLATION: 3,500 Volts + Vout  
F70 – F121: 500V + Vout  
EFFICIENCY: >70% Typical  
OPERATING TEMP: -10° to +50° C  
MAXIMUM CASE TEMP: +85° C (measured at point indicated)  
F70 – F121: +70° C (measured at point indicated)

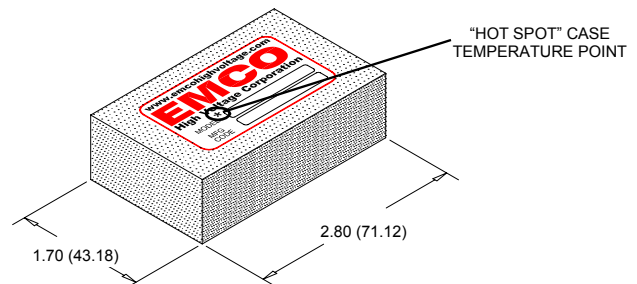
SEE SHEET 2  
FOR  
MECHANICAL  
DETAILS

The F Series is a broad line of versatile, robust, DC to HV DC converters providing 100 VDC to 12,000 VDC (positive or negative polarity) at 10 Watts continuous output power.\*<sup>1</sup> The output is proportional to the input voltage and features a low 0.7 typical turn-on voltage. Nineteen models are available covering the range of 0 to 100 through 0 to 12,000 volts, positive or negative. These modules exhibit very low EMI/RFI, noise and

ripple by means of a quasi-sinewave oscillator, a fully enclosed transformer, input and output filtering, and a five sided metal enclosure. The isolated output allows for user selectable output polarity. Options include two mounting holes and an output center-tap option which, when grounded, provides both positive and negative outputs from one compact, low cost module. Contact our Applications Department for immediate technical assistance.

| MODEL | INPUT VOLTAGE | INPUT CURRENT NO LOAD | INPUT CURRENT FULL LOAD | OUTPUT VOLT-AGE | OUTPUT* <sup>1</sup> CURRENT | RIPPLE P-P |
|-------|---------------|-----------------------|-------------------------|-----------------|------------------------------|------------|
| F01   | 0 to 12       | <500 mA               | <1.75                   | 0 to +/-100     | 100 mA                       | <1.0%      |
| F02   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-200     | 50 mA                        | <1.0%      |
| F03   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-300     | 33.3 mA                      | <1.0%      |
| F04   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-400     | 25 mA                        | <1.0%      |
| F05   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-500     | 20 mA                        | <0.1%      |
| F06   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-600     | 16 mA                        | <0.1%      |
| F08   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-800     | 12.5 mA                      | <0.1%      |
| F10   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-1,000   | 10 mA                        | <0.1%      |
| F12   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-1,200   | 8.3 mA                       | <0.1%      |
| F15   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-1,500   | 6.6 mA                       | <0.1%      |
| F20   | 0 to 12       | <500 mA               | <1.5 A                  | 0 to +/-2,000   | 5 mA                         | <1.0%      |
| F30   | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-3,000   | 3.3 mA                       | <1.0%      |
| F40   | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-4,000   | 2.5 mA                       | <1.0%      |
| F50   | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-5,000   | 2 mA                         | <1.0%      |
| F60   | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-6,000   | 1.66 mA                      | <1.0%      |
| F70   | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-7,000   | 1.5 mA                       | <2.5%      |
| F80   | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-8000    | 1.25 mA                      | <2.5%      |
| F101  | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-10,000  | 1 mA                         | <2.5%      |
| F121  | 0 to 15       | <500 mA               | <1.5 A                  | 0 to +/-12,000  | .834 mA                      | <2.5%      |

\*Note 1. At Maximum Rated Output Voltage.



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

4722AB

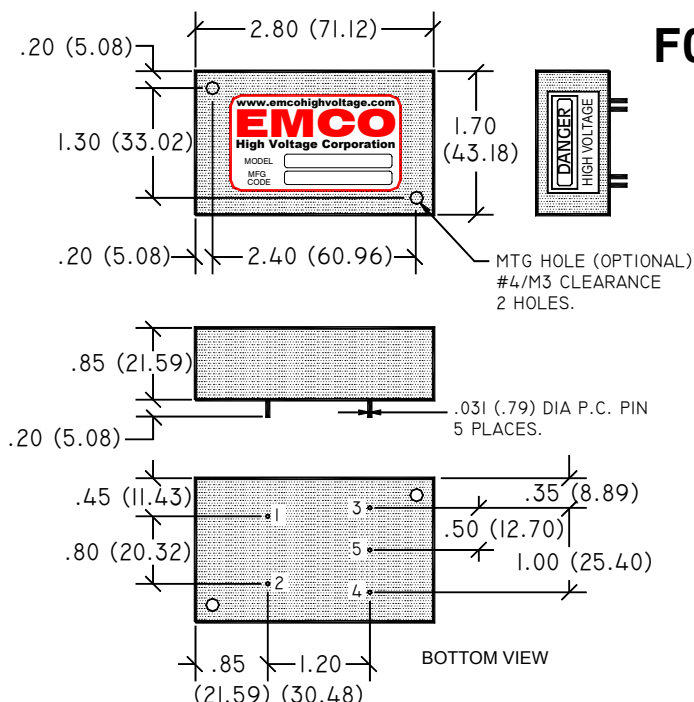
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F Series

www.emcohighvoltage.com

**EMCO**  
High Voltage Corporation

## F01-F60

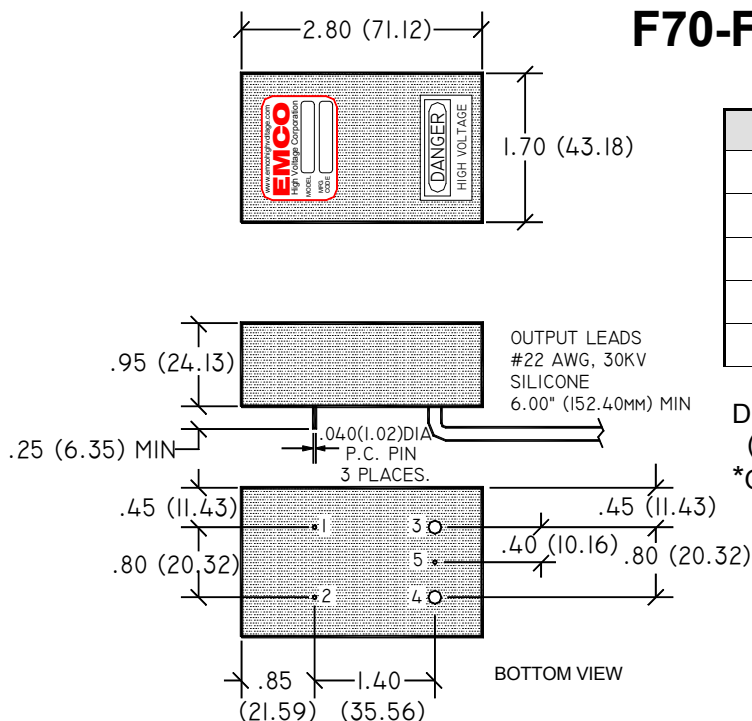


| PIN # | FUNCTION              |
|-------|-----------------------|
| 1     | (+) Input             |
| 2     | (-) Input             |
| 3     | (+) Output            |
| 4     | (-) Output            |
| 5     | Center tap (optional) |

Dimensions are in Inches  
 Dimensional Tolerances:  $\pm 0.03$  ( $\pm 0.76$ )  
 (Metric equivalents in parenthesis)

Note: Case is internally connected to (-) input.

## F70-F121



| PIN # | FUNCTION              |
|-------|-----------------------|
| 1     | (+) Input             |
| 2     | (-) Input             |
| 3*    | (+) Output            |
| 4*    | (-) Output            |
| 5     | Center tap (optional) |

Dimensions are in Inches  
 Dimensional Tolerances:  $\pm 0.03$  ( $\pm 0.76$ )  
 (Metric equivalents in parenthesis)

\*Output Leads

Note: Case is internally connected to (-) input.