Proven Reliability

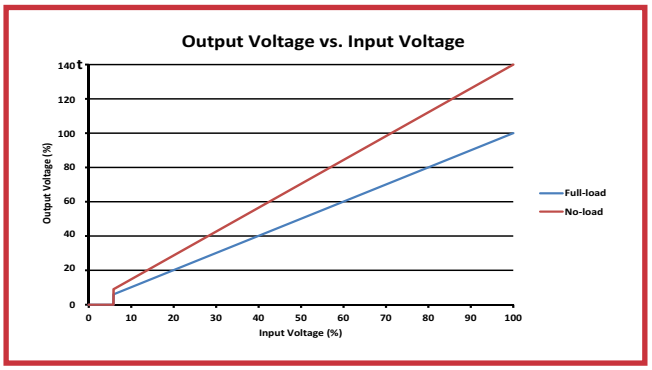
F SERIES

ISOLATED, PROPORTIONAL DC TO HV DC CONVERTERS

0 to 100 through 0 to 12,000 @ 10 Watts

PRODUCT DESCRIPTION

The F Series is a broad line of robust, field-proven DC to HV DC converters which deliver 10 Watts continuous output power. Outputs range from 100 VDC to 12,000 VDC. The input and output are galvanically isolated so a unit can be used to deliver a positive or negative high-voltage. The output voltage is proportional to input voltage with a low 0.7V typical turn-on voltage. The F Series employs EMCO's quasi-sinewave oscillator, a fully enclosed transformer, input and output filtering, and a 5-sided metal enclosure. As a result, these modules exhibit very low EMI/RFI, noise and ripple. An output center-tap option provides positive and negative outputs from one compact module.



APPLICATIONS

- Electrophoresis
- Capacitor Charging
- Piezo Devices
- Field Generation
- Grid Bias
- Mass Spectrometry
- Electrostatic Chuck
- Igniter / Spark Module
- Sustaining Ion Pumps

OPTIONS

- Center Tap Models Available (CT Suffix)
- Mounting Holes (F01 thru F60 only)(H Suffix)
- RoHS Version Available (R suffix)
- Low Outgassing Epoxy (Consult factory)

PRODUCT SELECTION TABLE

MODEL	OUTPUT VOLTAGE*2	OUTPUT CURRENT*1
F01	0 to 100V	100 mA
F02	0 to 200V	50 mA
F03	0 to 300V	33.3 mA
F04	0 to 400V	25 mA
F05	0 to 500V	20 mA
F06	0 to 600V	16 mA
F08	0 to 800V	12.5 mA
F10	0 to 1,000V	10 mA
F12	0 to 1,200V	8.3 mA
F15	0 to 1,500V	6.6 mA
F20	0 to 2,000V	5 mA
F30	0 to 3,000V	3.3 mA
F40	0 to 4,000V	2.5 mA
F50	0 to 5,000V	2 mA
F60	0 to 6,000V	1.66 mA
F70	0 to 7,000V	1.5 mA
F80	0 to 8,000V	1.25 mA
F101	0 to 10,000V	1 mA
F121	0 to 12,000V	.834 mA

FEATURES

- Proportional Input/Output
- Compact, PCB Mount Package
- Metal Case / Shielded Transformer
- Short Circuit Protection
- Low Ripple, Low EMI / RFI
- Proven Reliability
- Input/Output Isolation
- Low Leakage Current
- Low Input/Output Coupling Capacitance
- No External Components Required
- No Minimum Load Required
- UL94 V0 Listed Proprietary Encapsulant
- MTBF: >810K hrs per Bellcore TR-332

ISO 9001:2008 CERTIFIED ISO 14001:2004 CERTIFIED RoHS COMPLIANT IPC Certified J-STD-001 Application Specialist

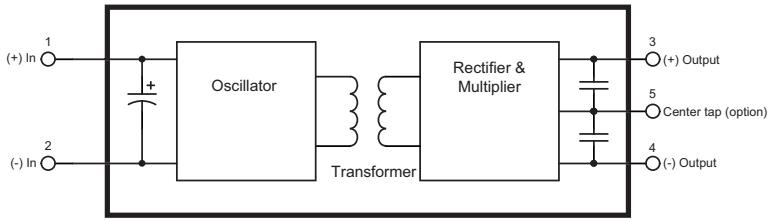
ELECTRICAL SPECIFICATIONS*2

MODELS	INPUT VOLTAGE	OUTPUT CURRENT	RIPPLE*4	REVERSIBLE MODEL	OUTPUT VOLTAGE	CENTER TAP MODEL	OUTPUT VOLTAGE
F01/F01CT	0 to 12VDC	100mA	<1.0%	F01	0 to 100VDC	F01CT	0 to +/- 50VDC
F02/F02CT	0 to 12VDC	50mA	<1.0%	F02	0 to 200 VDC	F02CT	0 to +/- 100VDC
F03/F03CT	0 to 12VDC	33.3mA	<1.0%	F03	0 to 300 VDC	F03CT	0 to +/- 150VDC
F04/F04CT	0 to 12VDC	25mA	<1.0%	F04	0 to 400VDC	F074CT	0 to +/- 200VDC
F05/F05CT	0 to 12VDC	20mA	<0.1%	F05	0 to 500VDC	F05CT	0 to +/- 250VDC
F06/F06CT	0 to 12VDC	16mA	<0.1%	F06	0 to 600VDC	F06CT	0 to +/- 300VDC
F08/F08CT	0 to 12VDC	12.5mA	<0.1%	F08	0 to 800VDC	F08CT	0 to +/- 400VDC
F10/F10CT	0 to 12VDC	10mA	<0.1%	F10	0 to 1,000VDC	F10CT	0 to +/- 500VDC
F12/F12CT	0 to 12VDC	8.3mA	<0.1%	F12	0 to 1,200VDC	F12CT	0 to +/- 600VDC
F15/F15CT	0 to 12VDC	6.6mA	<0.1%	F15	0 to 1,500VDC	F15CT	0 to +/- 750VDC
F20/F20CT	0 to 12VDC	5mA	<1.0%	F20	0 to 2,000VDC	F20CT	0 to +/- 1,000VDC
F30/F30CT	0 to 15VDC	3.3mA	<1.0%	F30	0 to 3,000VDC	F30CT	0 to +/- 1,500VDC
F40/F40CT	0 to 15VDC	2.5mA	<1.0%	F40	0 to 4,000VDC	F40CT	0 to +/- 2,000VDC
F50/F50CT	0 to 15VDC	2mA	<1.0%	F50	0 to 5,000VDC	F50CT	0 to +/- 2,500VDC
F60/F60CT	0 to 15VDC	1.66mA	<1.0%	F60	0 to 6,000VDC	F60CT	0 to +/- 3,000VDC
F70/F70CT	0 to 15VDC	1.5mA	<2.5%	F70	0 to 7,000VDC	F70CT	0 to +/- 3,500VDC
F80/F80CT	0 to 15VDC	1.25mA	<2.5%	F80	0 to 8,000VDC	F80CT	0 to +/- 4,000VDC
F101/F101CT	0 to 15VDC	1mA	<2.5%	F101	0 to 10,000VDC	F101CT	0 to +/- 5,000VDC
F121/F121CT	0 to 15VDC	0.834mA	<2.5%	F121	0 to 12,000VDC	F121CT	0 to +/- 6,000VDC

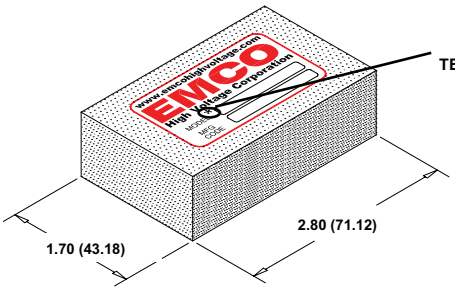
F-SERIES ELECTRICAL SPECIFICATIONS*3

PARAMETER	VALUE
INPUT VOLTAGE	0 TO 12VDC (F01 TO F20)
	0 TO 15VDC (F30 TO F121)
TURN-ON VOLTAGE	<0.7VDC
INPUT CURRENT	<500MA, NO LOAD
	<1.5A, FULL LOAD
ISOLATION	< +/-3,500VDC BIAS (F01 TO F60)
	< +/-500VDC BIAS (F70 TO F121)
INPUT CAPACITANCE	~240uF
RESPONSE TIME	260 ms (typical)
OUTPUT VOLTAGE TOLERANCE	+/-5% (Full Load, 100% output voltage)
FREQUENCY	25 kHz TO 125 kHz
OPERATING TEMPERATURE*5	-10C to +70C (Case)
STORAGE TEMPERATURE	-25C to +90C

BLOCK DIAGRAM

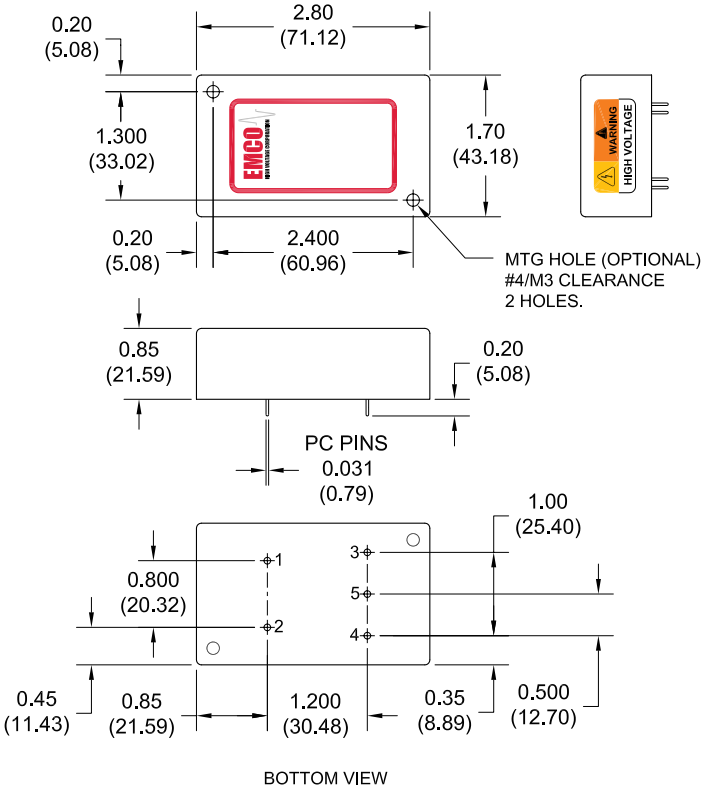


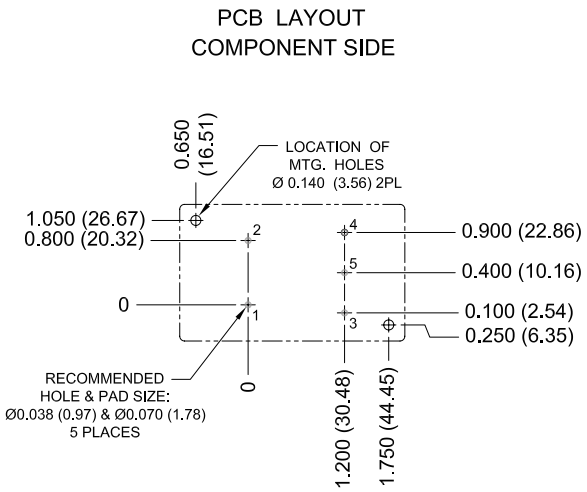
HOT SPOT CASE TEMPERATURE POINT



DIMENSIONS ARE IN INCHES (METRIC EQUIVALENTS ARE IN PARENTHESIS)
DIMENSIONAL TOLERANCES: .XX = ± 0.03 (0.76), .XXX = ± 0.005 (0.127)

MECHANICAL SPECIFICATIONS F01-F60





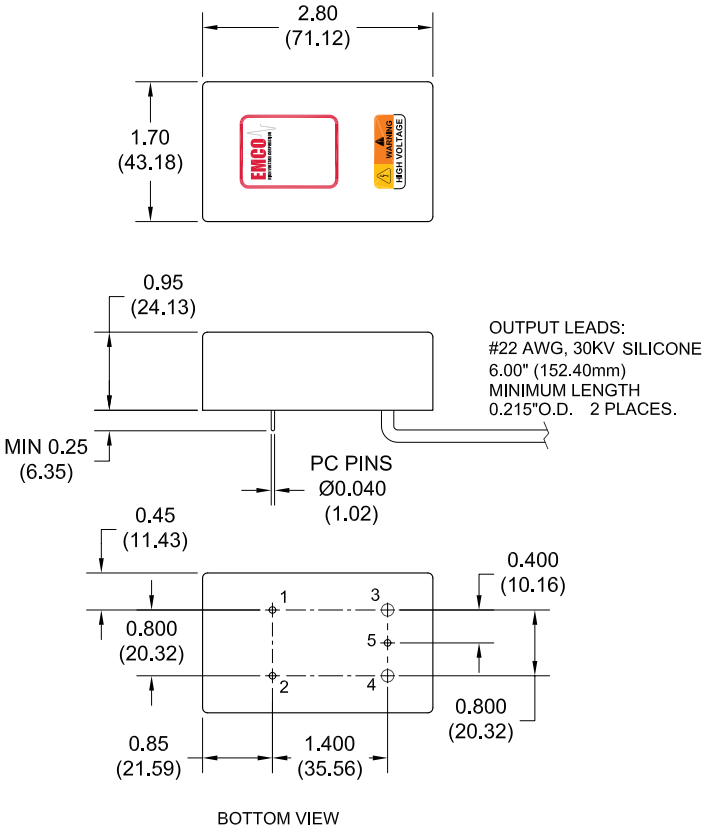
NOTE: CASE IS INTERNALLY CONNECTED TO (-) INPUT.

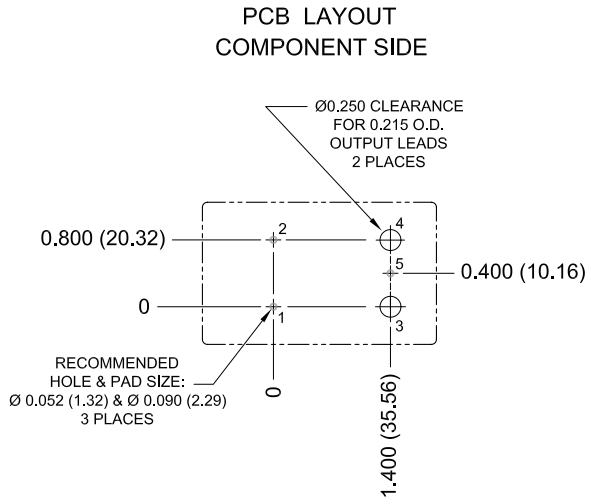
DIMENSIONS ARE IN INCHES (METRIC EQUIVALENTS ARE IN PARENTHESIS)
DIMENSIONAL TOLERANCES: .XX = ± 0.02 (0.51), .XXX = ± 0.005 (0.127)

PARAMETER	VALUE
WEIGHT	<5 OZ (142 GRAMS)
VOLUME	4.0 cu. In. (66.3 cc)
DIMENSIONS	2.8L (71.12L) x 1.7W (43.18W) x 0.85H (21.59H)
CASE MATERIAL	Black Anodized Aluminum

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

MECHANICAL SPECIFICATIONS F70-F121





NOTE: CASE IS INTERNALLY CONNECTED TO (-) INPUT.

DIMENSIONS ARE IN INCHES (METRIC EQUIVALENTS ARE IN PARENTHESIS)
DIMENSIONAL TOLERANCES: .XX = ± 0.02 (0.51), .XXX = ± 0.005 (0.127)

PARAMETER	VALUE
WEIGHT	<5 OZ (142 GRAMS)
VOLUME	4.5 cu. In. (74.1cc)
DIMENSIONS	2.8L (71.12L) x 1.7W (43.18W) x 0.95H (24.13H)
CASE MATERIAL	Black Anodized Aluminum

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

OPTION CODE TABLE

OPTION		ORDER CODE	MODELS
POLARITY	Positive / Negative reversible	Blank	ALL
	Bipolar center tap option	CT	ALL
OPTIONS	ROHS	R	ALL
	Mounting Holes	H	UP TO 6KV

HOW TO ORDER

PART NUMBER SELECTOR:

Model Number:
F30CTRH

Model
Output Voltage (See table)
Center Tap
Mounting Hole (optional)
RoHS (optional)

EXAMPLE: **F30CTRH** (**F**-Model, **30**-Output Voltage, **CT**-Center Tap, **R**-RoHS, **H**-Holes)

* Notes:
1. At maximum rated output voltage.
2. Output voltage is load dependent. Under light or no load conditions, reduce input voltage so maximum rated output voltage is not exceeded.
3. Specifications after 1 hour warm up, full load, at 25C unless otherwise indicated.
4. Ripple specification for center-tapped units applies to the voltage between the positive and negative output terminals.
5. Proper thermal management techniques are required to maintain safe case temperature at maximum power output