

Miniature, Regulated High Voltage Power Supplies

0 TO ± 100 THROUGH 0 TO ± 8000 VDC @ 1 WATT
C SERIES

www.emcohighvoltage.com

EMCO
High Voltage Corporation



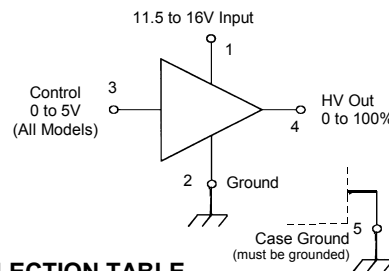
The C Series is a line of miniature, regulated high voltage power supplies. The output voltage is programmable via a 0 to +5 volt control voltage. Temperature drift is typically less than 50 PPM/ $^{\circ}$ C. These modules exhibit very low ripple, noise, and EMI/RFI by utilizing a quasi-sinewave oscillator, shielded transformer, excellent filtering techniques and an isolated steel enclosure featuring a separate

grounding pin. An externally accessible potentiometer provides adjustable gain trim allowing for individual calibration of units. Positive and negative outputs are standard, and delivery of small quantities is available from stock. Call, fax, or e-mail with your requirements for immediate attention. Technical assistance is readily available.

FEATURES

- Low Ripple
- Miniature Size
- Regulated
- 0 To 100% Programmable Output
- High Stability, Typically <50 PPM/ $^{\circ}$ C
- Wide Input Voltage Range, 11.5 To 16 V
- Very Low EMI/RFI
- Steel Case With Isolated Case Ground
- External Gain Adjust

SCHEMATICAL EQUIVALENT



ELECTRICAL SPECIFICATIONS

Input Voltage: 11.5 To 16 Volts

Input Current: See Table

Control Voltage: 0 To +5 Volts, <100 μ A

Operating Temperature: -10 $^{\circ}$ To +60 $^{\circ}$ C

Storage Temperature: -20 $^{\circ}$ To +90 $^{\circ}$ C

Case Sizes:

A: 1.40" x 1.10" x .50" (35.56 x 27.94 x 12.70mm)

B: 1.75" x 1.10" x .50" (44.45 x 27.94 x 12.70mm)

C: 2.10" x 1.10" x .50" (53.34 x 27.94 x 12.70mm)

D: 2.50" x 1.25" x .60" (63.50 x 31.75 x 15.24mm)

PRODUCT SELECTION TABLE

MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	RIPPLE		INPUT CURRENT		REGULATION		CASE
			NO LOAD	FULL LOAD	NO LOAD	FULL LOAD	LOAD 0 to 100%	LINE 11.5 TO 16.0V	
C01	0 to 100V	0 to 10 mA	<0.03 %	<0.75 %	<8 mA	<250 mA	<0.10 %	<0.10 %	A
C02	0 to 200V	0 to 5 mA	<0.02 %	<0.05 %	<15 mA	<200 mA	<0.10 %	<0.10 %	
C02N	0 to -200V	0 to 5 mA	<0.02 %	<0.05 %	<8 mA	<210 mA	<0.10 %	<1.00 %	
C03	0 to 300V	0 to 3.3 mA	<0.0025 %	<0.03 %	<10 mA	<175 mA	<0.10 %	<0.10 %	
C05	0 to 500V	0 to 2 mA	<0.002 %	<0.004 %	<16 mA	<150 mA	<0.07 %	<0.10 %	
C05N	0 to -500V	0 to 2 mA	<0.005 %	<0.005 %	<20 mA	<160 mA	<0.50 %	<0.50 %	
C06	0 to 600V	0 to 1.67 mA	<0.001 %	<0.003 %	<20 mA	<150 mA	<0.05 %	<0.10 %	
C06N	0 to -600V	0 to 1.67 mA	<0.007 %	<0.007 %	<30 mA	<150 mA	<0.50 %	<0.25 %	
C10	0 to 1,000V	0 to 1 mA	<0.004 %	<0.05 %	<50 mA	<150 mA	<0.30 %	<0.30 %	
C10N	0 to -1,000V	0 to 1 mA	<0.001 %	<0.002 %	<35 mA	<175 mA	<0.50 %	<0.30 %	
C12	0 to 1,250V	0 to 1 mA	<0.002 %	<0.004 %	<35 mA	<170 mA	<0.10 %	<0.10 %	
C12N	0 to -1,250V	0 to 1 mA	<0.002 %	<0.003 %	<50 mA	<190 mA	<0.175 %	<0.10 %	
C15	0 to 1,500V	0 to 0.67 mA	<0.001 %	<0.002 %	<50 mA	<150 mA	<0.10 %	<0.10 %	
C15N	0 to -1,500V	0 to 0.67 mA	<0.001 %	<0.002 %	<60 mA	<170 mA	<0.20 %	<0.20 %	
C20	0 to 2,000V	0 to 0.5 mA	<0.001 %	<0.002 %	<50 mA	<150 mA	<0.15 %	<0.10 %	B
C20N	0 to -2,000V	0 to 0.5 mA	<0.002 %	<0.002 %	<70 mA	<190 mA	<0.15 %	<0.10 %	
C25	0 to 2,500V	0 to 0.4 mA	<0.025 %	<0.10 %	<40mA	<150mA	<0.30 %	<0.20 %	
C25N	0 to -2,500V	0 to 0.4 mA	<0.02 %	<0.08 %	<50mA	<160mA	<0.30 %	<0.20 %	
C30	0 to 3,000V	0 to 0.33 mA	<0.02 %	<0.08 %	<60 mA	<180 mA	<0.20 %	<0.05 %	
C30N	0 to -3,000V	0 to 0.33 mA	<0.02 %	<0.20 %	<75 mA	<200 mA	<0.30 %	<0.075 %	
C40	0 to 4,000V	0 to 0.25 mA	<0.025 %	<0.1 %	<70 mA	<150 mA	<0.25 %	<0.20 %	
C40N	0 to -4,000V	0 to 0.25 mA	<0.03 %	<0.07 %	<85 mA	<200 mA	<0.20 %	<0.10 %	C
C50	0 to 5,000V	0 to 0.200 mA	<0.1 %	<0.1 %	<80 mA	<200 mA	<0.25%	<0.10 %	
C50N	0 to -5,000V	0 to 0.200 mA	<0.1 %	<0.1 %	<80 mA	<200 mA	<0.25%	<0.10 %	
C60	0 to 6,000V	0 to 0.166 mA	<0.1 %	<0.1 %	<100 mA	<200 mA	<0.25%	<0.10 %	
C60N	0 to -6,000V	0 to 0.166 mA	<0.1 %	<0.1 %	<100 mA	<225 mA	<0.25%	<0.15 %	D
C80	0 to 8,000V	0 to 0.125 mA	<0.2 %	<0.2 %	<100 mA	<250 mA	<0.75%	<0.15 %	
C80N	0 to -8,000V	0 to 0.125 mA	<0.2 %	<0.2 %	<100 mA	<250 mA	<0.75%	<0.15 %	

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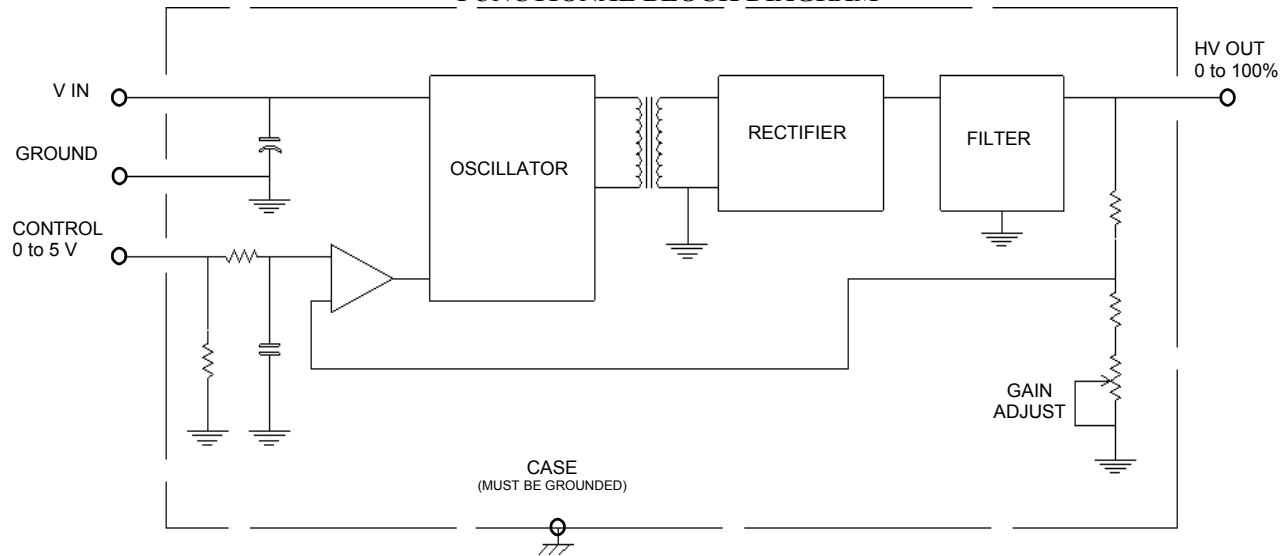
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FUNCTIONAL BLOCK DIAGRAM



NOTES: ¹OFF TIME MEASURED USING RESISTIVE LOAD.

TYPICAL PERFORMANCE

MODEL	INTERNAL OSCILLA-FREQUENCY	% TRIM GAIN ADJUST	CONTROL RESPONSE TIME	
			ON	OFF ¹
C01	200 KHZ - 250 KHZ	10 %	2 mS	1.5 mS
C02	250 KHZ - 334 KHZ	11 %	3.5 mS	4 mS
C02N	91 KHZ - 143 KHZ	5 %	30 mS	35 mS
C03	200 KHZ - 285 KHZ	10 %	16 mS	12 mS
C05	250 KHZ - 334 KHZ	10 %	25 mS	35 mS
C05N	200KHZ - 334 KHZ	11 %	30 mS	30 mS
C06	250 KHZ - 285 KHZ	12 %	30 mS	35 mS
C06N	142 KHZ - 200 KHZ	12 %	25 mS	35 mS
C10	200 KHZ - 250 KHZ	7 %	60 mS	80 mS
C10N	111 KHZ - 125 KHZ	7 %	70 mS	70 mS
C12	100 KHZ - 125 KHZ	8 %	60 mS	100 mS
C12N	91 KHZ - 100 KHZ	8 %	80 mS	100 mS
C15	91 KHZ - 111 KHZ	10 %	50 mS	120 mS
C15N	91 KHZ to 100 KHZ	10 %	60 mS	140 mS
C20	125 KHZ - 142 KHZ	5 %	100 mS	300 mS
C20N	91 KHZ - 100 KHZ	5 %	140 mS	500 mS
C25	125 KHZ - 142 KHZ	9 %	35 mS	35 mS
C25N	125 KHZ - 142 KHZ	9 %	35 mS	35 mS
C30	77 KHZ - 100 KHZ	9 %	35 mS	120 mS
C30N	84 KHZ - 91 KHZ	10 %	60 mS	140 mS
C40	72 KHZ - 125 KHZ	6 %	90 mS	160 mS
C40N	77 KHZ - 100 KHZ	6 %	160 mS	160 mS
C50	90 KHZ - 145 KHZ	5 %	140 mS	200 mS
C50N	140 KHZ - 170 KHZ	5 %	140 mS	180 mS
C60	125 KHZ - 160 KHZ	5 %	100 mS	250 mS
C60N	140 KHZ - 170 KHZ	5 %	60 mS	60 mS
C80	100 KHZ - 150 KHZ	10 %	200 mS	250 mS
C80N	100 KHZ - 150 KHZ	10 %	200 mS	250 mS

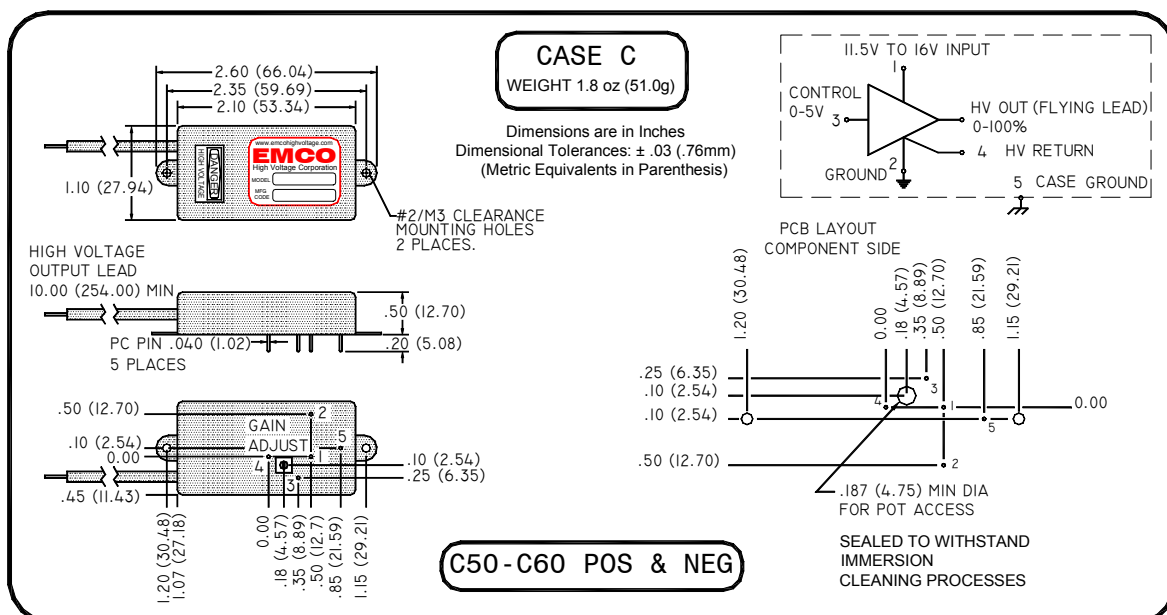
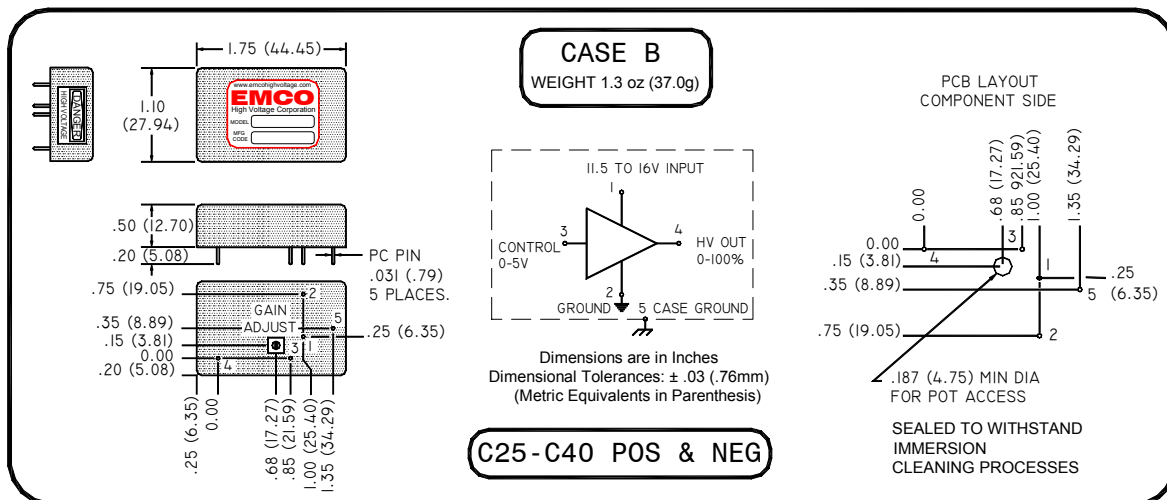
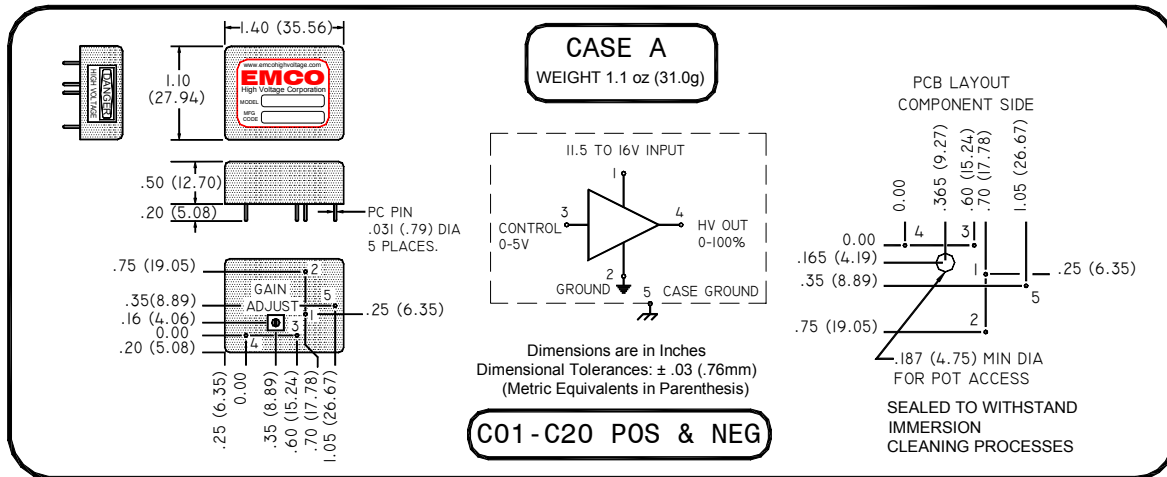
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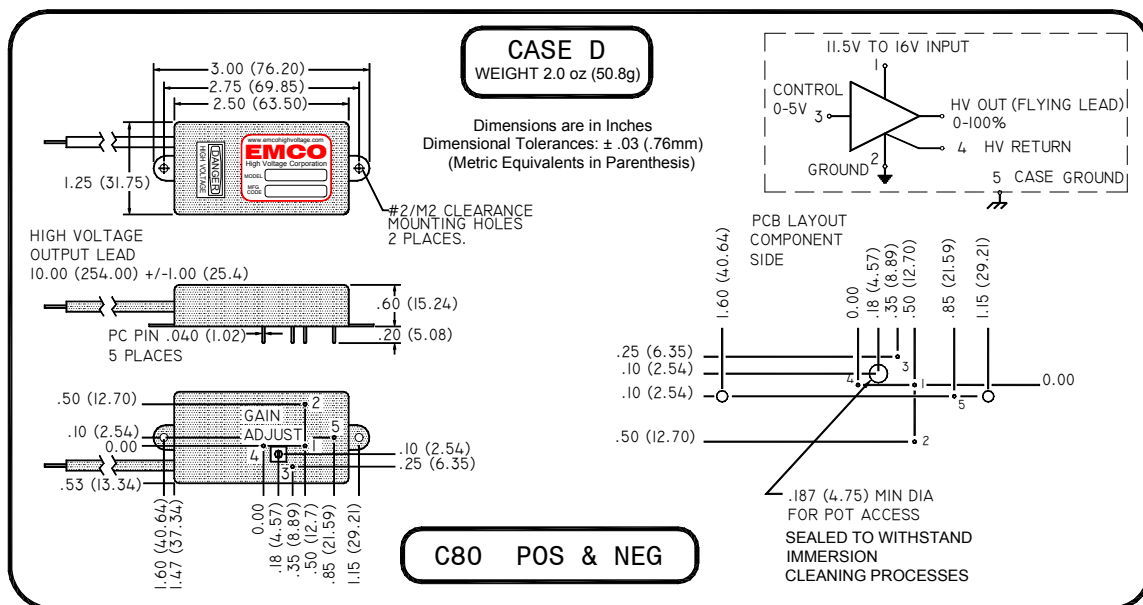
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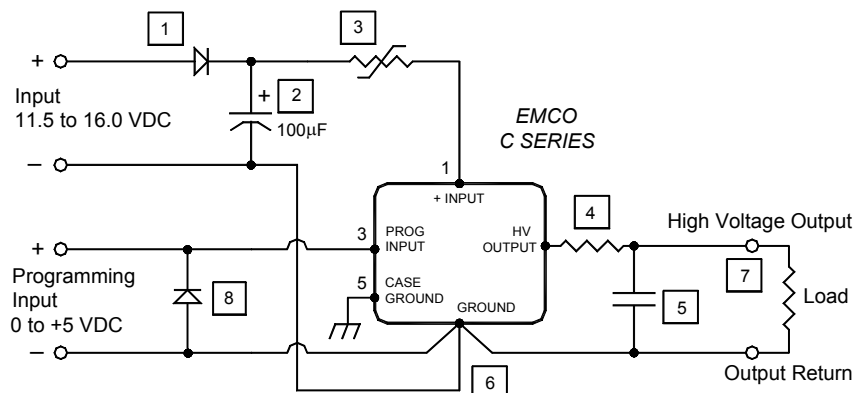
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Improved Performance and Protection



- 1 Diode provides reverse polarity protection.
- 2 Capacitor reduces ripple.
- 3 Resettable fuse (Raychem P/N RXE020,025 or 030) provides indefinite short circuit protection. Selection depends on model used, load characteristics and operating temperature range.
- 4 Series resistance increases arc protection and reduces ripple (when used with an output capacitor).
- 5 Capacitor reduces ripple.
- 6 IMPORTANT: Keep Input, Programming and Output return paths separate to eliminate ground loop accuracy errors.
- 7 Conformal coating recommended on all exposed high voltage conductors.
- 8 Diode provides protection against negative programming voltage or negative transient spike.