

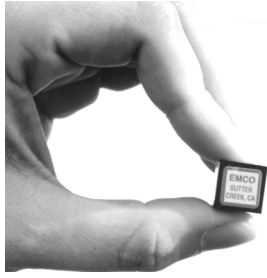
Ultra-Miniature DC to HV DC Converters

www.emcohighvoltage.com

EMCO
High Voltage Corporation

0 to + or -100 through 0 to + or - 10,000 VDC @ 0.5 Watts

Q Series



DESCRIPTION

The Q Series is a broad line of ultra-miniature, DC to HV DC converters supplying up to 5,000 volts in 0.125 cubic inches and up to 10,000 volts in 0.614 cubic inches. These component-sized converters are ideal for applications requiring minimal size and weight. The output is directly proportional to the input voltage and is linear from approximately 0.7V input to maximum input voltage, allowing for a controllable output voltage. Isolation is 500V + Vout and output power is 0.5 watts. No external components or minimum load are required. The output ripple is extremely low for this package size, as low as 0.05% (typical) and can be further reduced with the addition of an external capacitor. Light weight, low power consumption and wide temperature range make these units ideal for portable, battery-powered equipment. Application notes are available on this series. Technical assistance is readily available. Call, fax or email for immediate attention.

FEATURES

Ultra-Miniature Case Size
No External Components Required
Low Ripple and EMI/RFI
Proportional Input/Output
Input/Output Isolation
Short Circuit Protection

OPTIONS

External Copper Shield
1.25 Watt Output Power

WINNER!

- 2001 UC Davis Connect
Most Innovative New Product Award
- 1999 Electronic Products
Product of the Year Award
- 1998 EE Product News
Runner up – Product of the Year Award

APPLICATIONS

Avalanche Photodiodes
Photomultiplier Tubes
Light Sources
Piezo Devices
Sustaining Ion Pumps
Electrophoresis
Printers
Igniters
Capacitor Charging

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	OUTPUT RIPPLE P-P	INPUT CURRENT		CASE
					NO	FULL	
Q01-5	0 to 5V	0 to +/-100V	5 mA	<1.00%	<50mA	<175mA	A
Q01-12	0 to 12V	0 to +/-100V	5 mA	<1.00%	<10mA	<100mA	A
Q01-24	0 to 24V	0 to +/-100V	5 mA	<1.00%	<10mA	<50mA	A
Q02-5	0 to 5V	0 to +/-200V	2.5 mA	<0.25%	<50mA	<175mA	A
Q02-12	0 to 12V	0 to +/-200V	2.5 mA	<0.25%	<10mA	<75mA	A
Q02-24	0 to 24V	0 to +/-200V	2.5 mA	<0.25%	<10mA	<50mA	A
Q03-5	0 to 5V	0 to +/-300V	1.6 mA	<0.25%	<50mA	<175mA	A
Q03-12	0 to 12V	0 to +/-300V	1.6 mA	<0.25%	<15mA	<100mA	A
Q03-24	0 to 24V	0 to +/-300V	1.6 mA	<0.10%	<10mA	<50mA	A
Q04-5	0 to 5V	0 to +/-400V	1.25 mA	<0.05%	<50mA	<175mA	A
Q04-12	0 to 12V	0 to +/-400V	1.25 mA	<0.05%	<10mA	<100mA	A
Q04-24	0 to 24V	0 to +/-400V	1.25 mA	<0.05%	<10mA	<50mA	A
Q05-5	0 to 5V	0 to +/-500V	1 mA	<0.10%	<50mA	<175mA	A
Q05-12	0 to 12V	0 to +/-500V	1 mA	<0.05%	<10mA	<100mA	A
Q05-24	0 to 24V	0 to +/-500V	1 mA	<0.05%	<10mA	<50mA	A
Q06-5	0 to 5V	0 to +/-600V	0.8 mA	<0.10%	<50mA	<175mA	A
Q06-12	0 to 12V	0 to +/-600V	0.8 mA	<0.10%	<10mA	<100mA	A
Q06-24	0 to 24V	0 to +/-600V	0.8 mA	<0.10%	<10mA	<50mA	A
Q07-5	0 to 5V	0 to +/-700V	0.7 mA	<0.10%	<50mA	<175mA	A
Q07-12	0 to 12V	0 to +/-700V	0.7 mA	<0.10%	<10mA	<100mA	A
Q07-24	0 to 24V	0 to +/-700V	0.7 mA	<0.25%	<10mA	<50mA	A
Q08-5	0 to 5V	0 to +/-800V	0.625 mA	<0.20%	<50mA	<175mA	A
Q08-12	0 to 12V	0 to +/-800V	0.625 mA	<0.30%	<20mA	<100mA	A
Q08-24	0 to 24V	0 to +/-800V	0.625 mA	<0.25%	<10mA	<50mA	A
Q09-5	0 to 5V	0 to +/-900V	0.555 mA	<0.10%	<50mA	<175mA	A
Q09-12	0 to 12V	0 to +/-900V	0.555 mA	<0.10%	<10mA	<100mA	A
Q09-24	0 to 24V	0 to +/-900V	0.555 mA	<0.25%	<10mA	<50mA	A
Q10-5	0 to 5V	0 to 1,000V	0.5 mA	<0.25%	<50mA	<175mA	A
Q10-12	0 to 12V	0 to 1,000V	0.5 mA	<0.25%	<10mA	<100mA	A
Q10-24	0 to 24V	0 to 1,000V	0.5 mA	<0.25%	<10mA	<50mA	A
Q10N-5	0 to 5V	0 to -1,000V	0.5 mA	<0.25%	<50mA	<175mA	A
Q10N-12	0 to 12V	0 to -1,000V	0.5 mA	<0.25%	<10mA	<100mA	A
Q10N-24	0 to 24V	0 to -1,000V	0.5 mA	<0.25%	<10mA	<50mA	A
Q12-5	0 to 5V	0 to 1,200V	0.4 mA	<0.25%	<50mA	<175mA	A
Q12N-5	0 to 5V	0 to -1,200V	0.4 mA	<0.25%	<50mA	<175mA	A
Q15-5	0 to 5V	0 to 1,500V	0.3 mA	<0.25%	<75mA	<175mA	A
Q15N-5	0 to 5V	0 to -1,500V	0.3 mA	<0.25%	<75mA	<200mA	A
Q20-5	0 to 5V	0 to 2,000V	0.25 mA	<0.25%	<100mA	<200mA	A
Q20N-5	0 to 5V	0 to -2,000V	0.25 mA	<0.25%	<100mA	<200mA	A
Q30-5	0 to 5V	0 to 3,000V	0.16mA	<0.50%	<100mA	<200mA	B
Q30N-5	0 to 5V	0 to -3,000V	0.16mA	<0.50%	<100mA	<200mA	B
Q40-5	0 to 5V	0 to 4000V	0.125mA	<0.50%	<175mA	<300mA	B
Q40N-5	0 to 5V	0 to -4000V	0.125mA	<0.50%	<175mA	<300mA	B
Q50-5	0 to 5V	0 to 5000V	0.100mA	<0.50%	<250mA	<400mA	B
Q50N-5	0 to 5V	0 to -5000V	0.100mA	<0.50%	<250mA	<400mA	B
Q60-5	0 to 5V	0 to 6000V	83µA	<1.00%	<175mA	<250mA	C
Q60N-5	0 to 5V	0 to -6000V	83µA	<1.00%	<175mA	<250mA	C
Q80-5	0 to 5V	0 to 8000V	62.5µA	<1.00%	<175mA	<250mA	C
Q80N-5	0 to 5V	0 to -8000V	62.5µA	<1.00%	<175mA	<250mA	C
Q101-5	0 to 5V	0 to 10,000V	50µA	<1.00%	<175mA	<250mA	C
Q101N-5	0 to 5V	0 to -10,000V	50µA	<1.00%	<175mA	<250mA	C

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We reserve the right to make changes without notification

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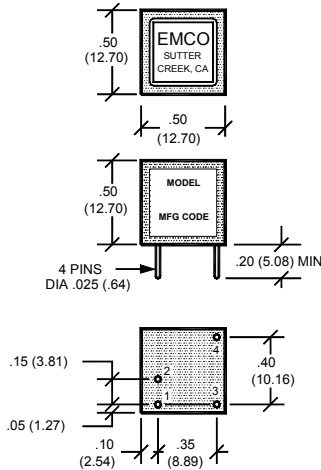
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CASE A Q01 to Q20



BOTTOM VIEW

Pin Diameter .025

PHYSICAL CHARACTERISTICS

SIZE: 0.5 x 0.5 x 0.5 (12.7 x 12.7 x 12.7)
WEIGHT: 0.15 Ounces Approx. (4.25 Grams)
PACKAGING: Fully Encapsulated
CASE MATERIAL: Glass-filled Epoxy
PINS: See Table

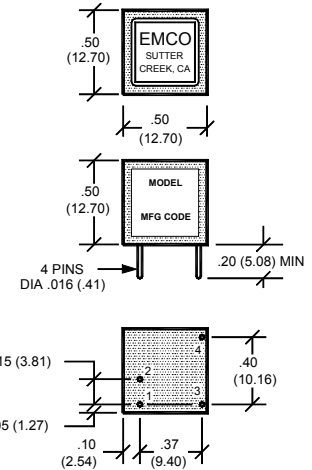
ELECTRICAL SPECIFICATIONS

INPUT VOLTAGE: 0 to 5, 12 or 24 VDC
TYPICAL TURN-ON VOLTAGE: 0.7 Volts
OUTPUT VOLTAGE TOLERANCE @ FULL LOAD: +5%, -10% typical
ISOLATION: 500 Volts +V out
OPERATING TEMP: -25° to +70° C (Q30 - Q50: -10° to +60° C)
STORAGE TEMP: -55° to +125° C

Pin #	Function	Qxx	QxxN
1	Input	(-)	(-)
2	Input	(+)	(+)
3	Output	(+)	(-)
4	Output	(-)	(+)

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

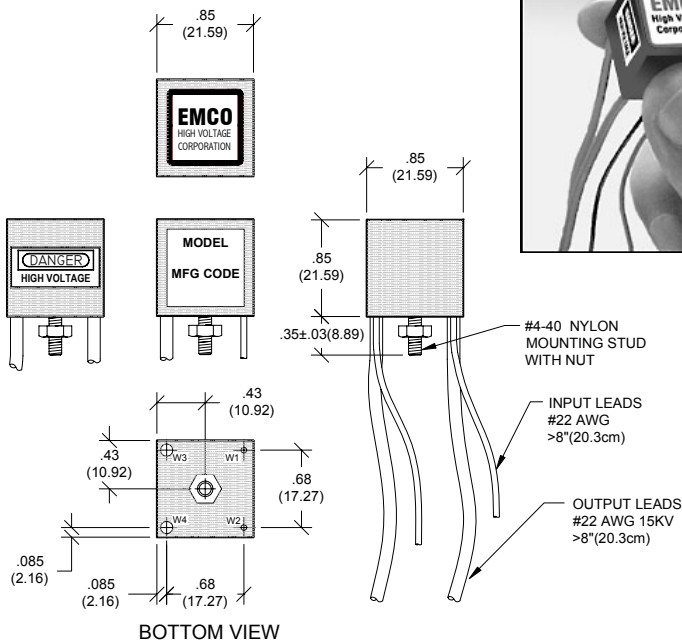
CASE B Q30 to Q50



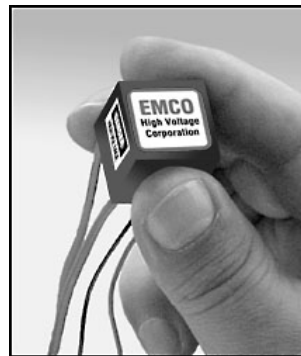
BOTTOM VIEW

Pin Diameter .016

CASE C Q60, Q80 & Q101



BOTTOM VIEW



PHYSICAL CHARACTERISTICS

SIZE: 0.85 x 0.85 x 0.85 (21.59 x 21.59 x 21.59)
WEIGHT: 1 Ounce (28.3 Grams)
PACKAGING: Fully Encapsulated
CASE MATERIAL: Glass-filled Epoxy

ELECTRICAL SPECIFICATIONS

INPUT VOLTAGE: 0 to 5, 12 or 24 VDC
TYPICAL TURN-ON VOLTAGE: 0.7 Volts
OUTPUT VOLTAGE TOLERANCE @ FULL LOAD: +5%, -10% typical
ISOLATION: 500 Volts +V out
OPERATING TEMP: -10° to +60° C
STORAGE TEMP: -55° to +125° C

NOTE: Do not allow output voltage to exceed 10,000 Volts.

Wire #	Color	Function	Qxx	QxxN
W1	Red	Input	(+)	(+)
W2	Black	Input	(-)	(-)
W3	Brm	Output	(+)	(-)
W4	Vio	Output	(-)	(+)

Dimensions are in inches
Dimensional Tolerances: ± .03 (.76mm)
(Metric Equivalents in Parenthesis)