

## 0.5W CONVECTION COOLED

The Q Series is a broad line of ultra-miniature, high reliability DC to HV DC converters supplying up to 5,000 volts in only 0.125 cubic inches and up to 10,000 volts in only 0.614 cubic inches. Input voltage can be 5V, 12V, 15V, or 24V. The output is directly proportional to the input voltage and is linear from <0.7V input to maximum input voltage, allowing for an adjustable output voltage. Output is load dependent. Isolation permits  $\pm 500V$  bias on output return and output power is 0.5 watt.

No external components or minimum load are required. Variations include dual output (center-tap), a separate control pin, and an external shield. These component-sized converters operate over a wide temperature range making them ideal for portable, battery-powered equipment requiring minimal size and weight.

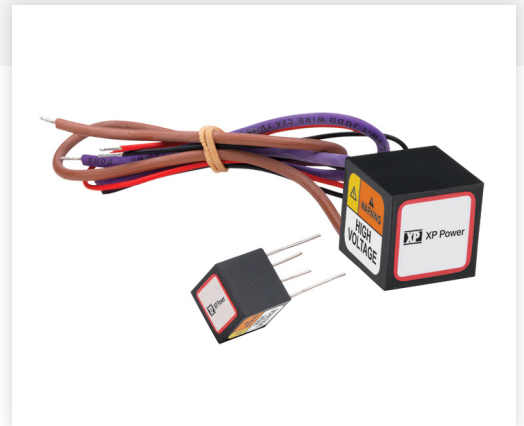
### Features

- Output voltages from 100VDC to 10,000VDC
- Output proportional to input
- 0.7VDC turn-on voltage
- Wide operating temperature range
- Short circuit protection
- Low ripple <1%
- 500VDC input to output isolation
- No minimum load
- 3 year warranty

### Input

| Characteristic                   | Minimum                                                                                                  | Typical | Maximum       | Units | Notes & Conditions           |
|----------------------------------|----------------------------------------------------------------------------------------------------------|---------|---------------|-------|------------------------------|
| Input Voltage                    | 0.7                                                                                                      |         | 5, 12, 15, 24 | VDC   | See Models and Ratings table |
| Input Current                    |                                                                                                          |         | 400           | mA    | See Models and Ratings table |
| Control Voltage Input (optional) | Analog Control Voltage adjusts output from 0 to 100%, not to exceed Input Voltage, see Application Notes |         |               |       |                              |

### DC-HVDC CONVERTER



### Typical Applications



- Avalanche Photo Diodes
- Photo Multiplier Tubes
- Piezo Devices
- Sustaining Ion Pumps
- Electrophoresis
- Igniters
- Capacitor Charging

### Dimensions

#### Q01 - Q50:

0.50" x 0.50" x 0.50" (12.7 x 12.7 x 12.7mm)

#### Q60 - Q80:

0.85" x 0.85" x 0.85" (21.6 x 21.6 x 21.6mm)

## Output

| Characteristic           | Minimum                                                             | Typical | Maximum | Units  | Notes & Conditions                                   |
|--------------------------|---------------------------------------------------------------------|---------|---------|--------|------------------------------------------------------|
| Output Voltage           |                                                                     |         | 10,000  | VDC    | See Models and Ratings table                         |
| Output Current           |                                                                     |         | 5       | mA     | See Models and Ratings table                         |
| Output Voltage Tolerance |                                                                     | ±10     |         | %      | At Max Vout, Full Load, measured from Pin 3 to Pin 4 |
| Minimum Load             | No minimum load required                                            |         |         |        |                                                      |
| Regulation               | Unregulated, output is proportional to input. See Application Notes |         |         |        |                                                      |
| Short Circuit Protection | 1                                                                   |         |         | minute |                                                      |
| Ripple and Noise         | 0.1                                                                 |         | 1       | %      | See Models and Ratings table                         |

## General

| Characteristic             | Minimum                                      | Typical | Maximum | Units | Notes & Conditions              |
|----------------------------|----------------------------------------------|---------|---------|-------|---------------------------------|
| Isolation: Input to Output |                                              |         | 500     | V     | < ±500VDC Bias on Output Return |
| Leakage Current            |                                              |         | 250     | nA    |                                 |
| Switching Frequency        | 75                                           |         | 500     | kHz   |                                 |
| Construction               | Solid vacuum encapsulation, UL 94 V-0 rated. |         |         |       |                                 |
| Mean Time Between Failure  | 3                                            |         |         | Mhrs  | Per Bellcore TR 332             |

## Environmental

| Characteristic               | Minimum            | Typical | Maximum | Units | Notes & Conditions                          |
|------------------------------|--------------------|---------|---------|-------|---------------------------------------------|
| Operating Temperature (case) | -25                |         | +70     | °C    | Q01 to Q20, standard operating temperature  |
| Operating Temperature (case) | -55                |         | +75     | °C    | Q01 to Q20, extended operating temperature  |
| Operating Temperature (case) | -25                |         | +60     | °C    | Q25 to Q50, standard operating temperature  |
| Operating Temperature (case) | -55                |         | +70     | °C    | Q25 to Q50, extended operating temperature  |
| Operating Temperature (case) | -10                |         | +60     | °C    | Q60 to Q101, standard operating temperature |
| Storage Temperature          | -55                |         | +105    | °C    | Q01 to Q50                                  |
| Storage Temperature          | -20                |         | +105    | °C    | Q60 to Q101                                 |
| Cooling                      | Natural convection |         |         |       |                                             |
| Humidity                     |                    |         | 95      | %RH   | Non-condensing                              |

### Notes:

- Maximum output current is available at maximum rated output voltage, and derates linearly as input voltage is decreased.
- Output Voltage is load dependent. Under light or no-load conditions, reduce the Input Voltage so maximum rated Output Voltage is not exceeded.
- Specifications are after 30 minute warm-up, full-load at 25°C, unless otherwise noted.
- Proper thermal management techniques are required to maintain safe case temperature at maximum power output.
- See page 9 for connection diagrams.
- All orderable part numbers are listed on the data sheet.

### Safety Approvals

| Safety Agency | Standard                            | Notes & Conditions |
|---------------|-------------------------------------|--------------------|
| UL            | IEC/UL/CSA/EN 62368                 |                    |
| CE            | CE Directive, RoHs and LVD          | Where applicable   |
| RoHS          | RoHS 2 and 3 Directive (2011/65/EU) | Where applicable   |

### Models & Ratings

| Model Number | Output                        |                               |        |                         | Input         |                        |                          |
|--------------|-------------------------------|-------------------------------|--------|-------------------------|---------------|------------------------|--------------------------|
|              | Output Voltage <sup>(2)</sup> | Output Current <sup>(1)</sup> | Ripple | Polarity <sup>(5)</sup> | Input Voltage | Input Current, No Load | Input Current, Full Load |
| Q01-5        | 0 to 100V                     | 5.00mA                        | <1.0%  | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q01-5C       | 0 to 100V                     | 5.00mA                        | <1.0%  | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q01CT-5      | 0 to $\pm$ 50V                | 5.00mA                        | <1.0%  | Dual                    | 5V            | <100mA                 | <250mA                   |
| Q01-12       | 0 to 100V                     | 5.00mA                        | <1.0%  | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q01-12CT     | 0 to 100V                     | 5.00mA                        | <1.0%  | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q01-12S      | 0 to 100V                     | 5.00mA                        | <1.0%  | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q01CT-12TS   | 0 to $\pm$ 50V                | 5.00mA                        | <1.0%  | Dual                    | 12V           | <40mA                  | <100mA                   |
| Q01-24       | 0 to 100V                     | 5.00mA                        | <1.0%  | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q015-5       | 0 to 150V                     | 3.33mA                        | <0.50% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q015-5TS     | 0 to 150V                     | 3.33mA                        | <0.50% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q015-12CTRS  | 0 to 150V                     | 3.33mA                        | <0.50% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q015-12C     | 0 to 150V                     | 3.33mA                        | <0.50% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q02-5        | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q02-5CS      | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q02-5CTS     | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q02-5TR      | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q02-12       | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q02-12CTS    | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q02-24       | 0 to 200V                     | 2.50mA                        | <0.25% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q02CT-24R    | 0 to $\pm$ 100V               | 2.50mA                        | <0.25% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q025-5       | 0 to 250V                     | 2.00mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q025-5C      | 0 to 250V                     | 2.00mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q025-5RS     | 0 to 250V                     | 2.00mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q025-12      | 0 to 250V                     | 2.00mA                        | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q03-5        | 0 to 300V                     | 1.67mA                        | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q03-12       | 0 to 300V                     | 1.67mA                        | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q04-5        | 0 to 400V                     | 1.25mA                        | <0.10% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q04-5RS      | 0 to 400V                     | 1.25mA                        | <0.10% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q04CT-S      | 0 to $\pm$ 200V               | 1.25mA                        | <0.10% | Dual                    | 5V            | <100mA                 | <250mA                   |
| Q04-12       | 0 to 400V                     | 1.25mA                        | <0.10% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q04CT-12     | 0 to $\pm$ 200V               | 1.25mA                        | <0.10% | Dual                    | 12V           | <40mA                  | <100mA                   |
| Q04-24       | 0 to 400V                     | 1.25mA                        | <0.10% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q04-24TR     | 0 to 400V                     | 1.25mA                        | <0.10% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q045-12      | 0 to 450V                     | 1.11mA                        | <0.15% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q05-5        | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 5V            | <100mA                 | <250mA                   |

## Models & Ratings

| Model Number | Output                        |                               |        |                         | Input         |                        |                          |
|--------------|-------------------------------|-------------------------------|--------|-------------------------|---------------|------------------------|--------------------------|
|              | Output Voltage <sup>(2)</sup> | Output Current <sup>(1)</sup> | Ripple | Polarity <sup>(5)</sup> | Input Voltage | Input Current, No Load | Input Current, Full Load |
| Q05-5C       | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q05-5CTRS    | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q05-5RS      | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q05-12       | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q05-12T      | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q05-15       | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 15V           | <32mA                  | <80mA                    |
| Q05-24       | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q05-24CRS    | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q05-24CTS    | 0 to 500V                     | 1.00mA                        | <0.15% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q06-5        | 0 to 600V                     | 833μA                         | <0.10% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q06-12       | 0 to 600V                     | 833μA                         | <0.15% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q06-15       | 0 to 600V                     | 833μA                         | <0.15% | Reversible              | 15V           | <32mA                  | <80mA                    |
| Q06-24       | 0 to 600V                     | 833μA                         | <0.15% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q07-5        | 0 to 700V                     | 714μA                         | <0.25% | Reversible              | 5V            | <100mA                 | <250mA                   |
| Q07-12       | 0 to 700V                     | 714μA                         | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q07-15       | 0 to 700V                     | 714μA                         | <0.25% | Reversible              | 15V           | <32mA                  | <80mA                    |
| Q08-24       | 0 to 800V                     | 625μA                         | <0.30% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q09-12       | 0 to 900V                     | 556μA                         | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q09-12C      | 0 to 900V                     | 556μA                         | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q09-12T      | 0 to 900V                     | 556μA                         | <0.25% | Reversible              | 12V           | <40mA                  | <100mA                   |
| Q09CT-12     | 0 to ±450V                    | 556μA                         | <0.25% | Dual                    | 12V           | <40mA                  | <100mA                   |
| Q09-24R      | 0 to 900V                     | 556μA                         | <0.25% | Reversible              | 24V           | <20mA                  | <50mA                    |
| Q10-5        | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q10-5RS      | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q10-5CTS     | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q10-5TS      | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q10N-5       | 0 to -1000V                   | 500μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q10N-5C      | 0 to -1000V                   | 500μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q10N-5CS     | 0 to -1000V                   | 500μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q10N-5S      | 0 to -1000V                   | 500μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q10-12       | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q10-12CTS    | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q10N-12      | 0 to -1000V                   | 500μA                         | <0.25% | Negative                | 12V           | <40mA                  | <100mA                   |
| Q10-24R      | 0 to +1000V                   | 500μA                         | <0.25% | Positive                | 24V           | <20mA                  | <50mA                    |
| Q12-5        | 0 to +1200V                   | 417μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q12-5R       | 0 to +1200V                   | 417μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q12-5RS      | 0 to +1200V                   | 417μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q12-5TS      | 0 to +1200V                   | 417μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q12N-5       | 0 to -1200V                   | 417μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q12N-5RS     | 0 to -1200V                   | 417μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q12N-5TS     | 0 to -1200V                   | 417μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q12-12       | 0 to +1200V                   | 417μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q12N-12      | 0 to -1200V                   | 417μA                         | <0.25% | Negative                | 12V           | <40mA                  | <100mA                   |
| Q12N-15      | 0 to -1200V                   | 417μA                         | <0.25% | Negative                | 15V           | <32mA                  | <80mA                    |

## Models &amp; Ratings

| Model Number | Output                        |                               |        |                         | Input         |                        |                          |
|--------------|-------------------------------|-------------------------------|--------|-------------------------|---------------|------------------------|--------------------------|
|              | Output Voltage <sup>(2)</sup> | Output Current <sup>(1)</sup> | Ripple | Polarity <sup>(5)</sup> | Input Voltage | Input Current, No Load | Input Current, Full Load |
| Q12N-24C     | 0 to -1200V                   | 417μA                         | <0.25% | Negative                | 24V           | <20mA                  | <50mA                    |
| Q15-5        | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q15-5S       | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q15N-5       | 0 to -1500V                   | 333μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q15N-5S      | 0 to -1500V                   | 333μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q15N-5T      | 0 to -1500V                   | 333μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q15-12       | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q15-12C      | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q15-12S      | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q15-12T      | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q15-12TS     | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q15N-12C     | 0 to -1500V                   | 333μA                         | <0.25% | Negative                | 12V           | <40mA                  | <100mA                   |
| Q15-24       | 0 to +1500V                   | 333μA                         | <0.25% | Positive                | 24V           | <20mA                  | <50mA                    |
| Q15N-24      | 0 to -1500V                   | 333μA                         | <0.25% | Negative                | 24V           | <20mA                  | <50mA                    |
| Q20-5        | 0 to +2000V                   | 250μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q20-5RS      | 0 to +2000V                   | 250μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q20-5TR      | 0 to +2000V                   | 250μA                         | <0.25% | Positive                | 5V            | <100mA                 | <250mA                   |
| Q20N-5       | 0 to -2000V                   | 250μA                         | <0.25% | Negative                | 5V            | <100mA                 | <250mA                   |
| Q20-12       | 0 to +2000V                   | 250μA                         | <0.25% | Positive                | 12V           | <40mA                  | <100mA                   |
| Q20N-12      | 0 to -2000V                   | 250μA                         | <0.25% | Negative                | 12V           | <40mA                  | <100mA                   |
| Q20-24       | 0 to +2000V                   | 250μA                         | <0.25% | Positive                | 24V           | <20mA                  | <50mA                    |
| Q25-5        | 0 to +2500V                   | 200μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q25-5T       | 0 to +2500V                   | 200μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q25N-5TR     | 0 to -2500V                   | 200μA                         | <0.50% | Negative                | 5V            | <250mA                 | <400mA                   |
| Q25-12TR     | 0 to +2500V                   | 200μA                         | <0.50% | Positive                | 12V           | <100mA                 | <250mA                   |
| Q25-24       | 0 to +2500V                   | 200μA                         | <0.50% | Positive                | 24V           | <35mA                  | <75mA                    |
| Q30-5        | 0 to +3000V                   | 167μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q30N-5       | 0 to -3000V                   | 167μA                         | <0.50% | Negative                | 5V            | <250mA                 | <400mA                   |
| Q30-12       | 0 to +3000V                   | 167μA                         | <0.50% | Positive                | 12V           | <100mA                 | <250mA                   |
| Q30N-12      | 0 to -3000V                   | 167μA                         | <0.50% | Negative                | 12V           | <100mA                 | <250mA                   |
| Q30-24R      | 0 to +3000V                   | 167μA                         | <0.50% | Positive                | 24V           | <35mA                  | <75mA                    |
| Q30N-24R     | 0 to -3000V                   | 167μA                         | <0.50% | Negative                | 24V           | <35mA                  | <75mA                    |
| Q40-5        | 0 to +4000V                   | 125μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q40N-5       | 0 to -4000V                   | 125μA                         | <0.50% | Negative                | 5V            | <250mA                 | <400mA                   |
| Q40N-5T      | 0 to -4000V                   | 125μA                         | <0.50% | Negative                | 5V            | <250mA                 | <400mA                   |
| Q40-12       | 0 to +4000V                   | 125μA                         | <0.50% | Positive                | 12V           | <100mA                 | <250mA                   |
| Q50-5        | 0 to +5000V                   | 100μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q50-5C       | 0 to +5000V                   | 100μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q50-5CTS     | 0 to +5000V                   | 100μA                         | <0.50% | Positive                | 5V            | <250mA                 | <400mA                   |
| Q50N-5       | 0 to -5000V                   | 100μA                         | <0.50% | Negative                | 5V            | <250mA                 | <400mA                   |
| Q50N-5T      | 0 to -5000V                   | 100μA                         | <0.50% | Negative                | 5V            | <250mA                 | <400mA                   |
| Q60-5        | 0 to +6000V                   | 83.3μA                        | <1.0%  | Positive                | 5V            | <175mA                 | <250mA                   |
| Q60-5S       | 0 to +6000V                   | 83.3μA                        | <1.0%  | Positive                | 5V            | <175mA                 | <250mA                   |
| Q60N-5       | 0 to -6000V                   | 83.3μA                        | <1.0%  | Negative                | 5V            | <175mA                 | <250mA                   |

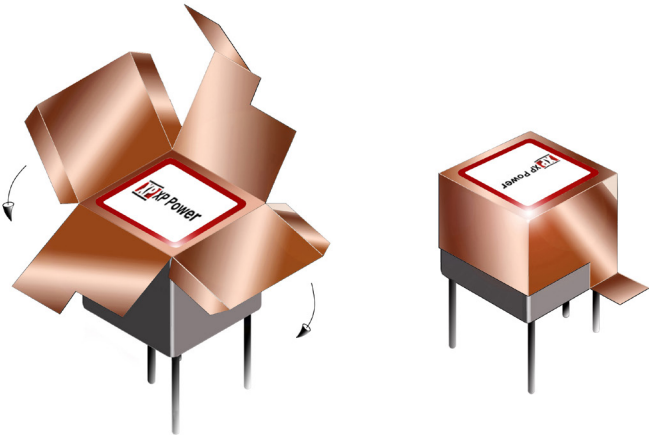
Models & Ratings

| Model Number | Output                        |                               |        |                         | Input         |                        |                          |
|--------------|-------------------------------|-------------------------------|--------|-------------------------|---------------|------------------------|--------------------------|
|              | Output Voltage <sup>(2)</sup> | Output Current <sup>(1)</sup> | Ripple | Polarity <sup>(5)</sup> | Input Voltage | Input Current, No Load | Input Current, Full Load |
| Q80-5        | 0 to +8000V                   | 62.5μA                        | <1.0%  | Positive                | 5V            | <175mA                 | <250mA                   |
| Q101-5       | 0 to +10,000V                 | 50.0μA                        | <1.0%  | Positive                | 5V            | <175mA                 | <250mA                   |
| Q101N-5      | 0 to -10,000V                 | 50.0μA                        | <1.0%  | Negative                | 5V            | <175mA                 | <250mA                   |
| Q101N-5RS    | 0 to -10,000V                 | 50.0μA                        | <1.0%  | Negative                | 5V            | <175mA                 | <250mA                   |

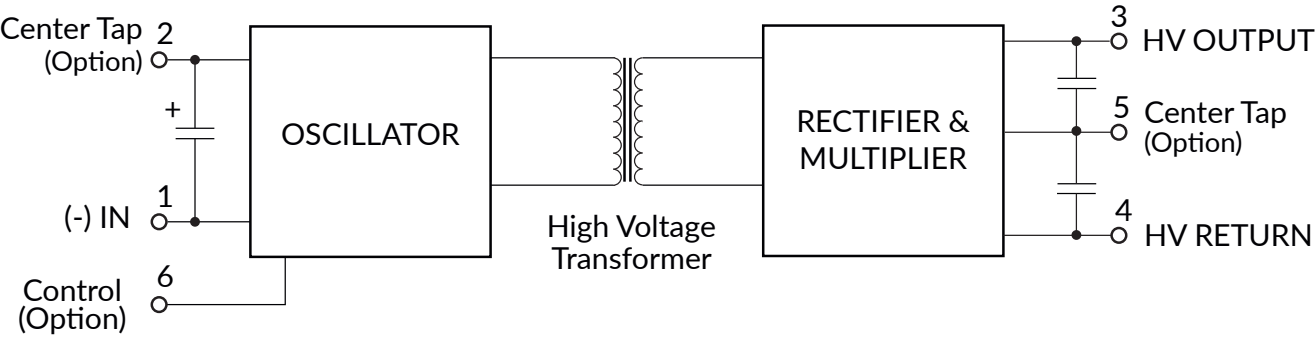
Option Codes

| Code | Meaning                        | Code | Meaning                          |
|------|--------------------------------|------|----------------------------------|
| CT-  | Center Tap, Dual Output        | -S   | External Copper Shield           |
| -C   | Control Pin                    | -R   | RoHS Designator for Legacy Model |
| -T   | Extended Operating Temperature |      |                                  |

Copper Shield Placement

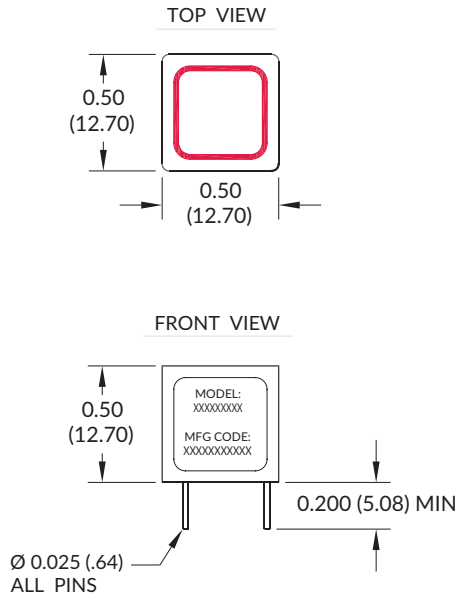


Block Diagram

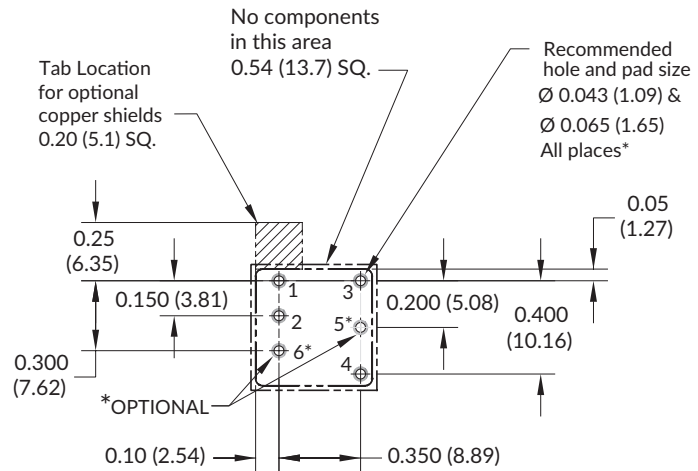


## Mechanical Details

### Q01-Q20



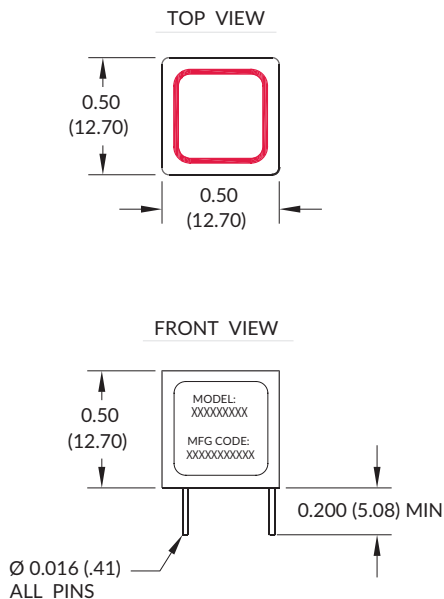
### PCB Layout



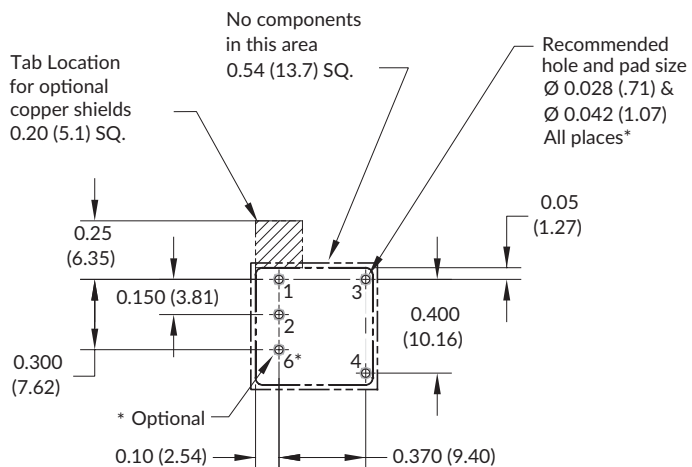
| Pin | Q01-Q09     | Q10-Q20   | Q25-Q50   |
|-----|-------------|-----------|-----------|
| 1   | Input (-)   | Input (-) | Input (-) |
| 2   | Input (+)   | Input (+) | Input (+) |
| 3   | Output (+)  | HV Output | HV Output |
| 4   | Output (-)  | HV Return | HV Return |
| 5*  | Center Tap  |           |           |
| 6*  | Control Pin |           |           |

\*Pins 5 & 6 are optional

### Q25-Q50



### PCB Layout



### Notes:

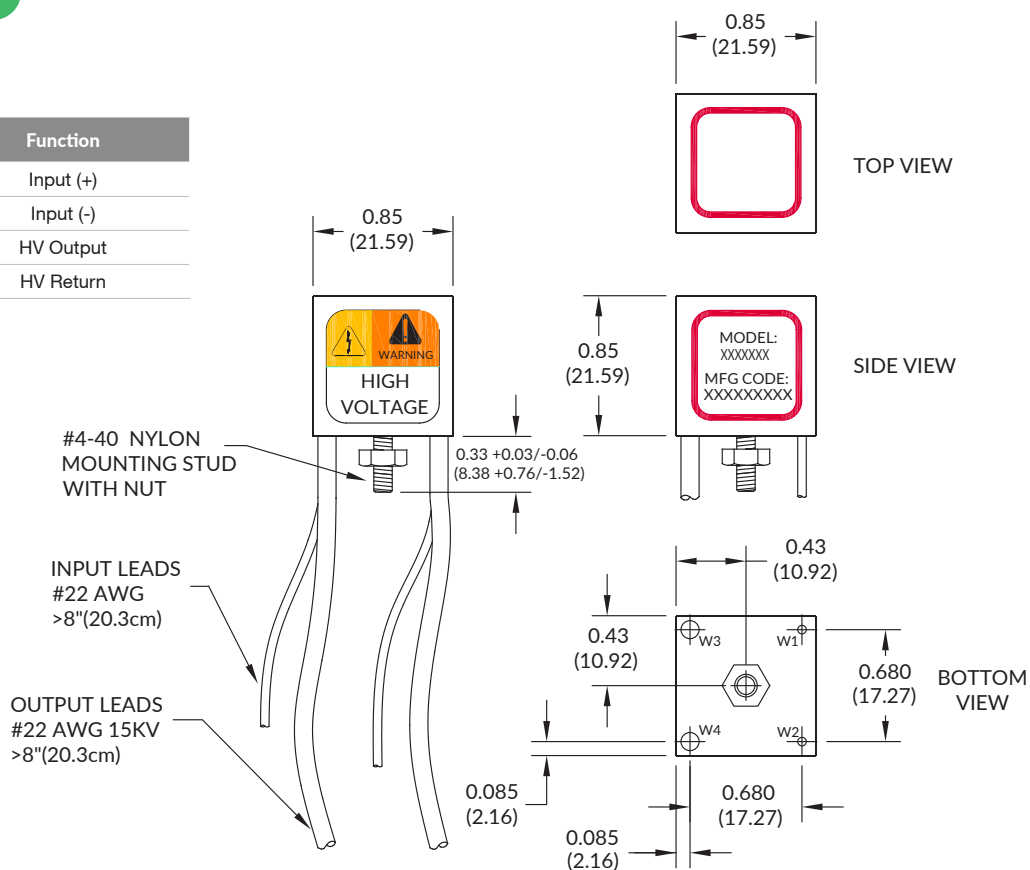
1. All dimensions are in inches (mm)
2. Weight: Q01-Q50: 0.15oz (4.25g).

3. Tolerance: X.XX±0.02 (0.51)
4. Pin Tolerance: ±0.005 (0.127)

## Mechanical Details

### Q60-Q101

| Wire | Color  | Function  |
|------|--------|-----------|
| 1    | Red    | Input (+) |
| 2    | Black  | Input (-) |
| 3    | Brown  | HV Output |
| 4    | Violet | HV Return |



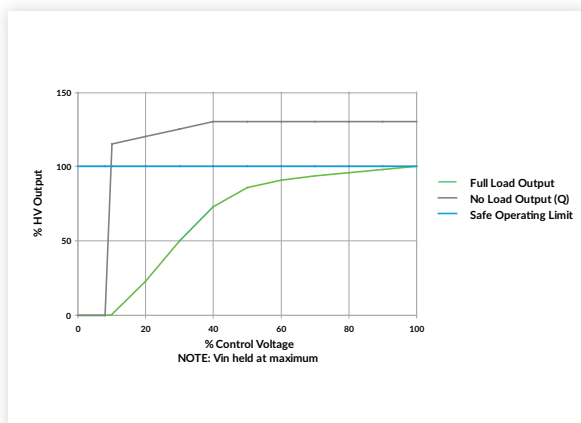
### Notes:

1. All dimensions are in inches (mm)
2. Weight: Q01-Q50: 0.15oz (4.25g).

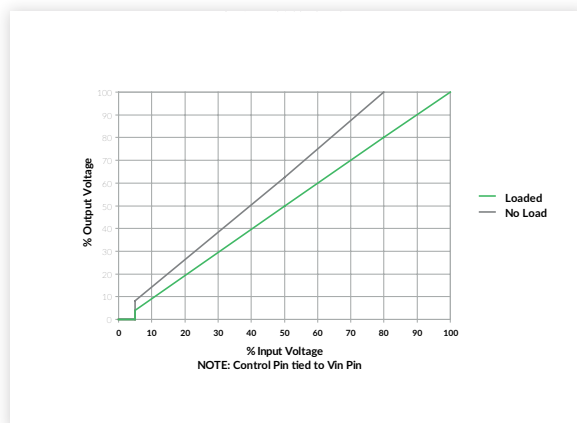
3. Tolerance: X.XX±0.02 (0.51)
4. Pin Tolerance: ±0.005 (0.127)

## Application Notes

### Typical HV Output vs. Control Voltage



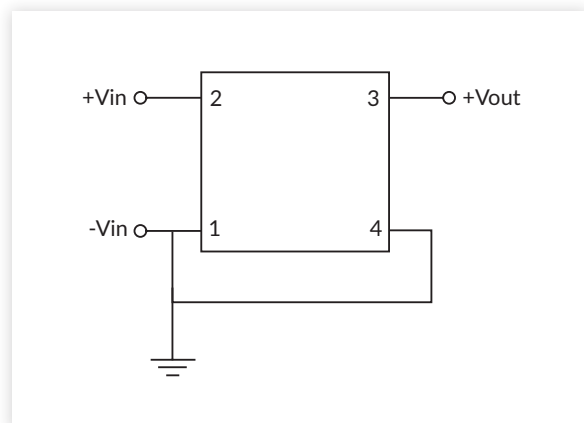
### Typical Output vs. Input Voltage



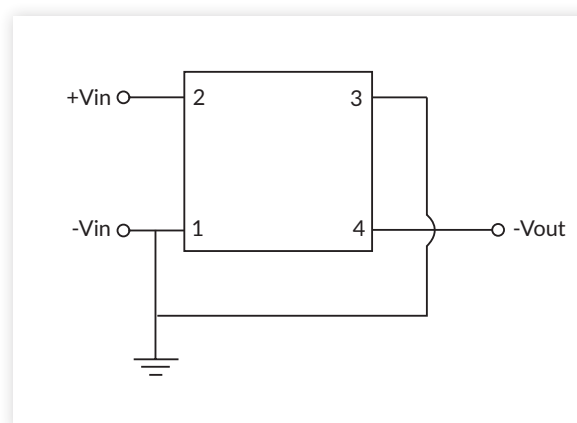


## Connection Diagrams

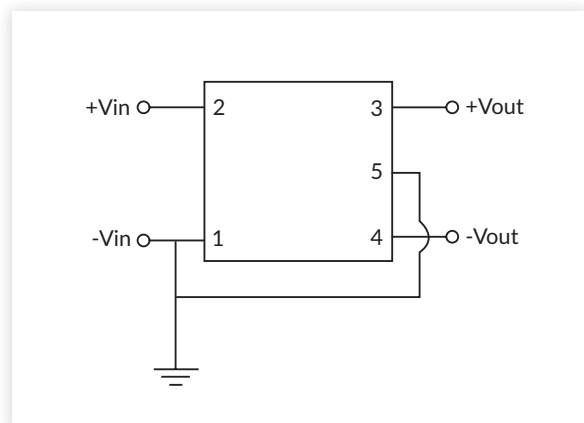
**Q01-Q09 - positive output for reversible models**



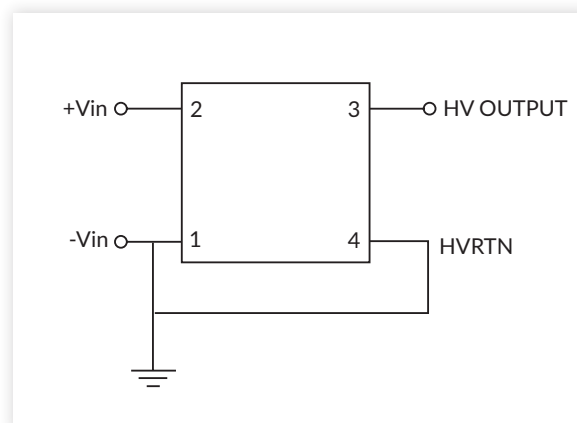
**Q01-Q09 - negative output for reversible models**



**Q01CT-Q09CT - dual output**



**Q10-Q101 - output is positive or negative by model number**



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[Q03-12](#) [Q04CT-12](#) [Q10-5](#) [Q10N-12](#) [Q50-5](#) [Q30N-5](#) [Q07-5](#) [Q02-5](#) [Q04-5](#) [Q025-12](#) [Q01-5](#) [Q30N-12](#) [Q12-5](#) [Q06-](#)  
[5](#) [Q05-5](#) [Q025-5C](#) [Q12N-5](#) [Q02-12](#) [Q30-12](#) [Q05-5C](#) [Q15-5](#) [Q09-12](#) [Q20N-5](#) [Q50N-5](#) [Q10-12](#) [Q15N-12C](#) [Q045-](#)  
[12](#) [Q60-5](#) [Q07-12](#) [Q05-12](#) [Q20-5](#) [Q04-12](#) [Q15N-5](#) [Q04-24](#) [Q02-5TR](#) [Q045-12R](#) [Q04-24TR](#) [Q09CT-12](#) [Q101N-](#)  
[5R](#)