

# 30A-40A SERIES

## 30kV to 40kV High Voltage Biasing Supplies

The 30A-40A Series of regulated, high-voltage DC-DC converters are an extension of the A Series, directly addressing the needs of the miniature PCB or chassis-mount  $\geq 30\text{kV}$  application. Designed and built utilizing state-of-the-art power conversion topology, these units feature surface-mount technology and encapsulation techniques providing high reliability and low cost. Typical applications for the 30A-40A Series include the following: electrostatic discharge testers, plasma, electrostatic, x-ray, and wire testers.

- 0 to 30kV, 35kV or 40kV output
- 4, 15 or 30 watts of output power
- Maximum Iout capability down to 0 Volts
- Wide input voltage range
- Indefinite output short-circuit protection
- Output current & voltage monitors
- Fixed-frequency, low-stored-energy design
- >400,000 hour MTBF @65°C
- UL/cUL Recognized Component; CE Mark (LVD & RoHS)



| PARAMETER                     | CONDITIONS                              | MODELS                                                                                 |       |       |             |       |                                    |             |       |       | UNITS      |
|-------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------|-------|-------|-------------|-------|------------------------------------|-------------|-------|-------|------------|
| INPUT                         |                                         | 12V                                                                                    |       |       |             |       | 24V                                |             |       |       |            |
| Voltage Range                 | Full Power                              | + 11 to 16                                                                             |       |       |             |       | + 23 to 30                         |             |       |       | VDC        |
| Voltage Range                 | Derated Power Range                     | + 9 to 32                                                                              |       |       |             |       | + 9 to 32                          |             |       |       | VDC        |
| Current                       | Standby / Disable                       | < 30                                                                                   |       |       |             |       | < 30                               |             |       |       | mA         |
| Current                       | No Load, Max Eout                       | 30A < 0.25, 35A < 0.35, 40A < 0.38                                                     |       |       |             |       | 30A < 0.30, 35A < 0.20, 40A < 0.38 |             |       |       | A          |
| Current                       | Max Load, Max Eout                      | ~ 800                                                                                  |       |       |             |       | ~1800                              |             |       |       | mA         |
| AC Ripple Current             | Nominal Input, Full Load                | < 80                                                                                   |       |       |             |       | < 80                               |             |       |       | mA p-p     |
| OUTPUT                        |                                         | 30A                                                                                    |       |       | 35A         |       |                                    | 40A         |       |       |            |
| Voltage Range                 | Nominal Input                           | 0 to 30,000                                                                            |       |       | 0 to 35,000 |       |                                    | 0 to 40,000 |       |       | VDC        |
| Nominal Input Voltage / Model |                                         | 12                                                                                     | 24    | 24    | 12          | 24    | 24                                 | 12          | 24    | 24    | VDC        |
| Power                         | Nominal Input, Max Eout                 | 4                                                                                      | 15    | 30    | 4           | 15    | 30                                 | 4           | 15    | 30    | Watts      |
| Current                       | Iout Entire Output Voltage Range        | 0.13                                                                                   | 0.50  | 1.0   | 0.11        | 0.42  | 0.86                               | 0.10        | 0.37  | 0.75  | mA         |
| Current Scale Factor          | Full Load                               | .140                                                                                   | .173  | .181  | .158        | .179  | .184                               | .077        | .089  | .092  | mA/V       |
| Voltage Monitor Scaling       |                                         | 1000:1 $\pm 2\%$ into 10M $\Omega$                                                     |       |       |             |       |                                    |             |       |       | -          |
| Ripple                        | Full Load, Max Eout, 300pF bypass Cap.  | 0.025                                                                                  | 0.039 | 0.058 | 0.025       | 0.040 | 0.075                              | 0.030       | 0.060 | 0.064 | %V p-p     |
| Ripple with -F-M Option       | Full Load, Max Eout, 300pF bypass Cap.  | 0.021                                                                                  | 0.028 | 0.048 | 0.016       | 0.034 | 0.040                              | 0.007       | 0.025 | 0.053 | %V p-p     |
| Dynamic Load Regulation       | ½ to Full Load, Max Eout per 0.1mA      | <10.0                                                                                  | <10.0 | <10.0 | <10.0       | <10.0 | <10.0                              | <10.0       | <10.0 | <10.0 | V pk       |
| Line Regulation               | Nom. Input, Max Eout, Full Power        | < 0.01 %                                                                               |       |       |             |       |                                    |             |       |       | VDC        |
| Static Load Regulation        | No Load to Full Load, Max Eout          | < 0.01%                                                                                |       |       |             |       |                                    |             |       |       | VDC        |
| Stability                     | 30 Min. warmup, per 8 hr/ per day       | < 0.01% / < 0.02%                                                                      |       |       |             |       |                                    |             |       |       | VDC        |
| PROGRAMMING & CONTROLS        |                                         | ALL TYPES                                                                              |       |       |             |       |                                    |             |       |       |            |
| Input Impedance               | Nominal Input                           | + Output Models 1.1M $\Omega$ to GND, - Output Models 1.1M $\Omega$ to +5 Vref         |       |       |             |       |                                    |             |       |       | M $\Omega$ |
| Adjust Resistance             | Typical Potentiometer Values            | 10K to 100K (Pot across Vref. & Signal GND, Wiper to Adjust)                           |       |       |             |       |                                    |             |       |       | $\Omega$   |
| Adjust Logic                  | 0 to +5 for +Out, +5 to 0 for - Out     | +4.64 VDC for +Output or +0.36 for -Output = Nominal Eout                              |       |       |             |       |                                    |             |       |       | -          |
| Output Voltage & Impedance    | T=+25°C                                 | + 5.00VDC $\pm 2\%$ , Zout = 464 $\Omega \pm 1\%$                                      |       |       |             |       |                                    |             |       |       | -          |
| Enable/Disable                |                                         | 0 to +0.5 Disable, +2.4 to 32 Enable (Default = Enable)                                |       |       |             |       |                                    |             |       |       | VDC        |
| ENVIRONMENTAL                 |                                         | STANDARD                                                                               |       |       |             |       | -25PPM                             |             |       |       |            |
| Operating                     | Full Load, Max Eout, Case Temp.         | -40 to +65                                                                             |       |       |             |       | +10 to +45                         |             |       |       | °C         |
| Coefficient                   | Over the Specified Temperature          | $\pm 50$                                                                               |       |       |             |       | $\pm 25$                           |             |       |       | PPM/°C     |
| Thermal Shock                 | Mil-Std 810, Method 503-4, Proc. II     | -40 to +65                                                                             |       |       |             |       |                                    |             |       |       | °C         |
| Storage                       | Non-Operating, Case Temp.               | -55 to +105                                                                            |       |       |             |       |                                    |             |       |       | °C         |
| Humidity                      | All Conditions, Standard Package        | 0 to 95% non-condensing                                                                |       |       |             |       |                                    |             |       |       | -          |
| Altitude                      | Standard Package, All Conditions        | Sea Level through Vacuum (Vacuum may require -P2 option, contact factory for details.) |       |       |             |       |                                    |             |       |       | -          |
| Shock                         | Mil-Std-810, Method 516.5, Proc. IV     | 20 (Standard), 40 (-C Option)                                                          |       |       |             |       |                                    |             |       |       | G's        |
| Vibration                     | Mil-Std-810, Method 514.5, Fig.514.5C-3 | 10 (Standard), 20 (-C Option)                                                          |       |       |             |       |                                    |             |       |       | G's        |

Specifications subject to change without notice.



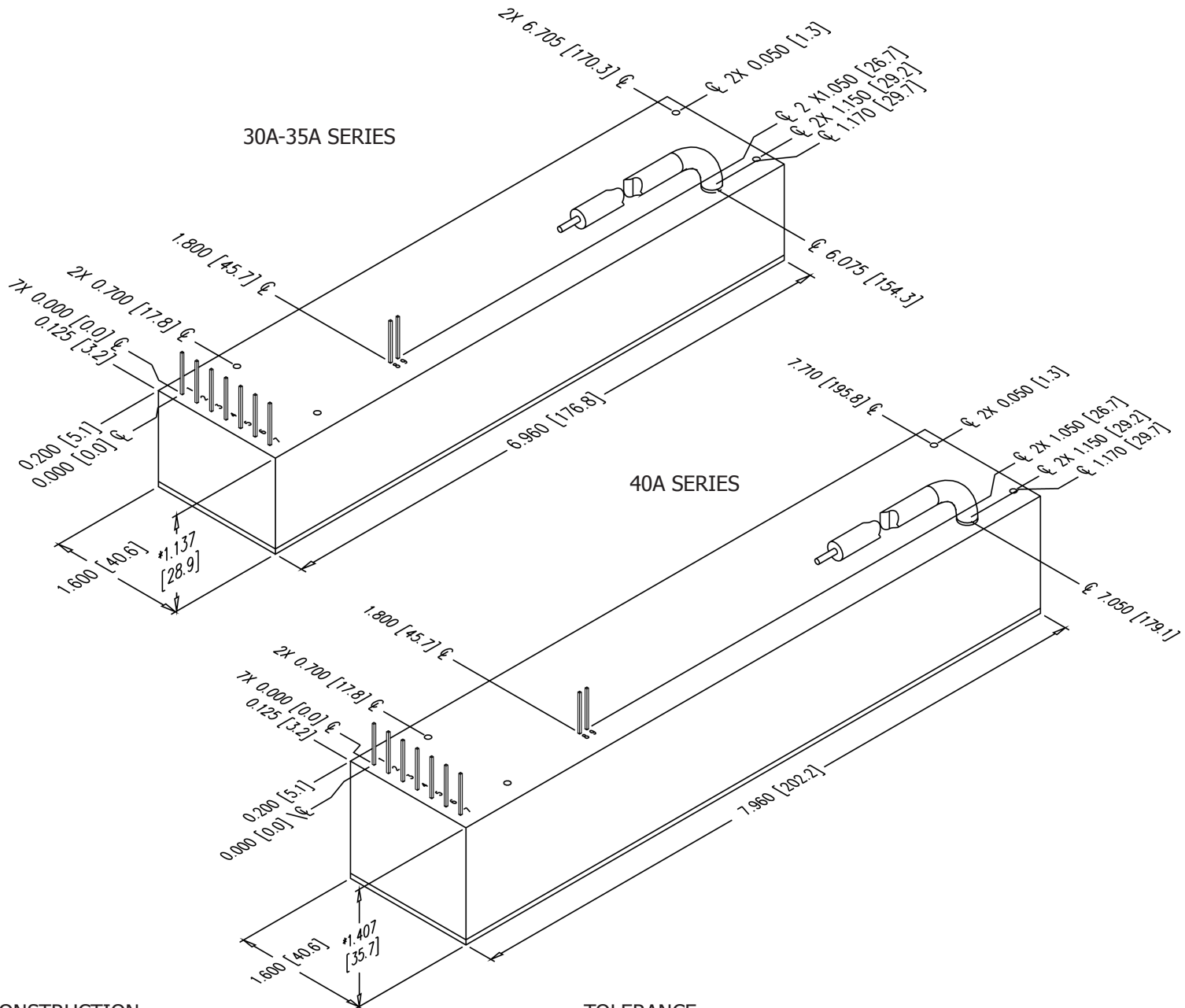
*Making High Voltage Easier!®*

**Higher Service, Higher Performance, Higher Reliability**

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## CONSTRUCTION

Epoxy-filled DAP box certified to ASTM-D-5948 with -C Option:  
Aluminum Alloy 5052-H32, Finish: MIL-A-8625 Type II (Anodizing)

## SIZE

Volume:  
30A/35A: 12.66 in<sup>3</sup> (207.46cc), w/-C Option 20.00 in<sup>3</sup> (327.80cc)  
40A: 17.92 in<sup>3</sup> (293.66cc), w/-C Option 27.00 in<sup>3</sup> (442.53cc)  
Weight:  
30A/35A: 15.00 oz (425.24g), w/-C Option 22.00 oz (623.69g)  
40A: 21.00 oz (595.34g), w/-C Option 30.00 oz (850.49g)

## TOLERANCE

Overall  $\pm 0.050$ " (1.27)  
Pin to Pin  $\pm 0.015$ " (0.38)  
Mounting hole locations  $\pm 0.025$ " (0.64)

## NOTES

-M equipped units are an additional 0.030" (0.76) for each dimension.  
Contact [UV Customer Service](#) for drawings of models equipped with -E, -C, or -H options.

[Downloadable drawings \(complete with mounting & pin information\) and 3D models are available online.](#)



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# 30A-40A SERIES

## 30kV to 40kV High Voltage Biasing Supplies

| CONNECTIONS |                           |
|-------------|---------------------------|
| PIN         | FUNCTION                  |
| 1           | Input-Power Ground Return |
| 2           | Positive Power Input      |
| 3           | Iout Monitor              |
| 4           | Enable/Disable            |
| 5           | Signal Ground Return      |
| 6           | Remote Adjust Input       |
| 7           | +5VDC Reference Output    |
| 8           | HV Ground Return          |
| 9           | Eout Monitor              |

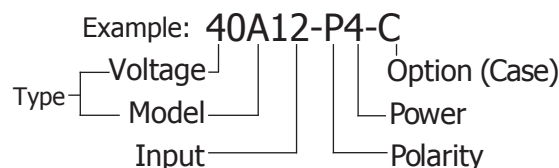
All grounds joined internally. Power-supply mounting points isolated from internal grounds by  $>100k\Omega$ ,  $.01\mu F$  / 50V (Max) on all models except -M (15W and above), -M-E, -M-C, and -M-H configurations which are  $0\Omega$ .

| ORDERING INFORMATION |                                                                |            |
|----------------------|----------------------------------------------------------------|------------|
| Type                 | 0 to 30,000 VDC Output                                         | 30A        |
|                      | 0 to 35,000 VDC Output                                         | 35A        |
|                      | 0 to 40,000 VDC Output                                         | 40A        |
| Input                | 12VDC Nominal (4W only)                                        | 12         |
|                      | 24VDC Nominal (15W and 30W only)                               | 24         |
| Polarity             | Positive Output                                                | -P         |
|                      | Negative Output                                                | -N         |
| Power                | Watts Output (12 V Only)                                       | 4          |
|                      | Watts Output (24 V Only)                                       | 15         |
|                      | Watts Output (24 V Only)                                       | 30         |
| Case                 | Plastic Case - Diallyl Phthalate                               | (Standard) |
|                      | 'Eared' Heatsink Plate (Plastic Case)                          | -E         |
|                      | RF-Tight Aluminum Enclosure                                    | -C         |
| Heatsink             | .400" High (sized to fit case)                                 | -H         |
| Shield               | Six-sided Mu-Metal Shield                                      | -M         |
| Ripple Stripper®     | Integral Output Filter (See -F Option Data Sheet) and Mu-Metal | -F -M      |
| Lead Options         | Shielded Flying Lead                                           | -AS        |
|                      | Protected Flying Lead                                          | -AP        |
|                      | Terminated Flying Lead (Contact Customer Service)              | -ATxx      |
| Temp. Coefficient    | 25PPM Temperature Coefficient                                  | -25PPM     |



Non-RoHS compliant units are available. Please contact the factory for more information.

Manufactured in USA



Popular accessories ordered with this product include CONN-KIT, BR-5 and BR-9 mounting bracket kits, and our full range of high voltage output connectors (see Accessories & Connectors datasheet).

