

3 & 5 WATT REGULATED DC/DC CONVERTERS A & D SERIES



FEATURES

- Input/Output isolated
- Continuous short circuit protected, self recovering
- Line regulation 0.02%
- Load regulation 0.02%
- Pi input filter
- No derating to 71°C
- Single and dual outputs
- PC mountable
- Designed to meet FCC Sect 15 Sub Part J, A & B
- 100% burned-in and triple tested
- 2 year warranty

GENERAL DESCRIPTION

The A and D Series of DC/DC converters provide tight regulation and accuracy in a compact, cost effective package. The series operates from nominal inputs of 5, 12 or 24VDC with single and dual output voltages. Outputs feature extremely low noise due to the use of high quality, reliable components. The series provides 3 to 6 watts of output power with high efficiency for a converter of this type. The A and D Series are designed for board level DC power applications such as A/D and D/A converters, operational and instrument amplifiers, and portable data acquisition equipment.

GENERAL ELECTRICAL SPECIFICATIONS

(Specifications at Nominal Input and 25° C)

| PARAMETER | LIMIT | CONDITIONS |
|-----------------------------|--------------------------|--------------------------------------|
| Input Filter | Pi Filter | All Units |
| Input/Output Isolation | | |
| Voltage | 500VDC (Min.) | All Units |
| Leakage Current | <0.5 ua | |
| Resistance | >10 ³ megohms | |
| Output Voltage Accuracy | +/- 1% | Factory Set |
| Load Regulation | 0.02% (Max.) | NL to FL ±12V and ±15V output models |
| | 0.1% (Max.) | 5V output models |
| Line Regulation | 0.02% (Max.) | LL to HL at Full Load |
| Output Voltage Stability | 0.02%/°C | Typical |
| Output Noise/Ripple | 40mV, P-P (Max.) | 20 Hz-20MHz Bandwidth |
| Short Circuit Protection | Current Limited | All Units |
| Duration | Continuous | |
| Thermal Overload Protection | Dual Output Units | |
| Foldback Current Limiting | Single Output Units | |
| Switching Frequency | 25 KHz | |
| Operating Temperature | -25° to +71°C | |
| Derating | None | To 71°C |
| Storage Temperature | -35°C to +125°C | |

**SELECTION GUIDE
STANDARD PRODUCTS**

| DEVICE TYPE | INPUT VOLTAGE RANGE (VDC) | INPUT CURRENT A (MAX.) | OUTPUT VOLTAGE VDC | OUTPUT CURRENT mA (MAX.) | PACKAGE |
|-------------|---------------------------|------------------------|--------------------|--------------------------|---------|
| 3A5R5 | 4.5 - 5.5 | 1.20 | + or - 5 | 600 | A |
| 3D5R5 | 4.5 - 5.5 | 1.20 | + or - 5 | 600 | D |
| 3A5R12-12 | 4.5 - 5.5 | 1.60 | ± 12 | ± 150 | A |
| 3D5R12-12 | 4.5 - 5.5 | 1.60 | ± 12 | ± 150 | D |
| 3A5R15-15 | 4.5 - 5.5 | 1.90 | ± 15 | ± 150 | A |
| 3D5R15-15 | 4.5 - 5.5 | 1.90 | ± 15 | ± 150 | D |
| 5A5R5 | 4.5 - 5.5 | 1.82 | + or - 5 | 1000 | A |
| 5D5R5 | 4.5 - 5.5 | 1.82 | + or - 5 | 1000 | D |
| 5A5R12-12 | 4.5 - 5.5 | 2.40 | ± 12 | ± 250 | A |
| 5D5R12-12 | 4.5 - 5.5 | 2.40 | ± 12 | ± 250 | D |
| 5A5R15-15 | 4.5 - 5.5 | 2.40 | ± 15 | ± 200 | A |
| 5D5R15-15 | 4.5 - 5.5 | 2.40 | ± 15 | ± 200 | D |
| 3A12R5 | 10.8 - 13.2 | .46 | + or - 5 | 600 | A |
| 3D12R5 | 10.8 - 13.2 | .46 | + or - 5 | 600 | D |
| 3A12R12-12 | 10.8 - 13.2 | .55 | ± 12 | ± 150 | A |
| 3D12R12-12 | 10.8 - 13.2 | .55 | ± 12 | ± 150 | D |
| 3A12R15-15 | 10.8 - 13.2 | .65 | ± 15 | ± 150 | A |
| 3D12R15-15 | 10.8 - 13.2 | .65 | ± 15 | ± 150 | D |

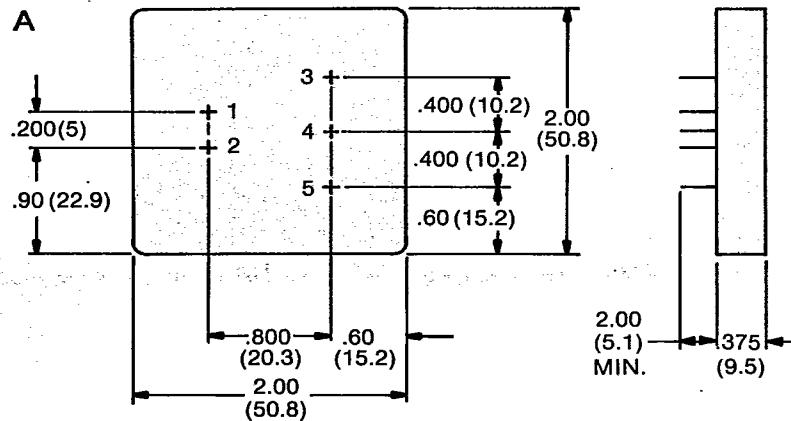
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Reliability®

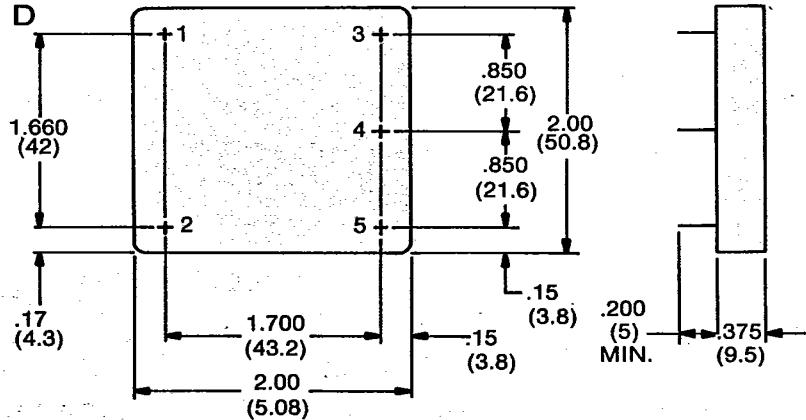
**SELECTION GUIDE
STANDARD PRODUCTS**

| DEVICE TYPE | INPUT VOLTAGE RANGE (VDC) | INPUT CURRENT A (MAX.) | OUTPUT VOLTAGE VDC | OUTPUT CURRENT mA(MAX.) | PACKAGE |
|-------------|---------------------------|------------------------|--------------------|-------------------------|---------|
| 5A12R5 | 10.8 - 13.2 | .72 | + or - 5 | 1000 | A |
| 5D12R5 | 10.8 - 13.2 | .72 | + or - 5 | 1000 | D |
| 5A12R12-12 | 10.8 - 13.2 | .85 | \pm 12 | \pm 250 | A |
| 5D12R12-12 | 10.8 - 13.2 | .85 | \pm 12 | \pm 250 | D |
| 5A12R15-15 | 10.8 - 13.2 | .85 | \pm 15 | \pm 200 | A |
| 5D12R15-15 | 10.8 - 13.2 | .85 | \pm 15 | \pm 200 | D |
| 3A24R5 | 21.6 - 26.4 | .25 | + or - 5 | 600 | A |
| 3D24R5 | 21.6 - 26.4 | .25 | + or - 5 | 600 | D |
| 3A24R12-12 | 21.6 - 26.4 | .28 | \pm 12 | \pm 150 | A |
| 3D24R12-12 | 21.6 - 26.4 | .28 | \pm 12 | \pm 150 | D |
| 3A24R15-15 | 21.6 - 26.4 | .34 | \pm 15 | \pm 150 | A |
| 3D24R15-15 | 21.6 - 26.4 | .34 | \pm 15 | \pm 150 | D |
| 5A24R5 | 21.6 - 26.4 | .35 | + or - 5 | 1000 | A |
| 5D24R5 | 21.6 - 26.4 | .35 | + or - 5 | 1000 | D |
| 5A24R12-12 | 21.6 - 26.4 | .45 | \pm 12 | \pm 250 | A |
| 5D24R12-12 | 21.6 - 26.4 | .45 | \pm 12 | \pm 250 | D |
| 5A24R15-15 | 21.6 - 26.4 | .45 | \pm 15 | \pm 200 | A |
| 5D24R15-15 | 21.6 - 26.4 | .45 | \pm 15 | \pm 200 | D |

MECHANICAL DIMENSIONS AND PIN CONNECTIONS**A**

| A | |
|-----|---------------|
| PIN | SINGLE OUTPUT |
| 1 | + INPUT |
| 2 | - INPUT |
| 3 | + OUTPUT |
| 4 | - OUTPUT |
| 5 | - OUTPUT |

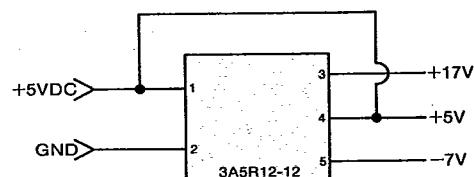
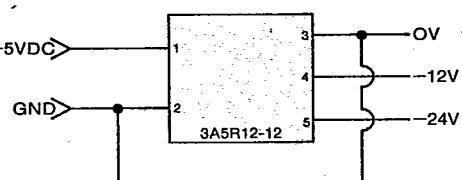
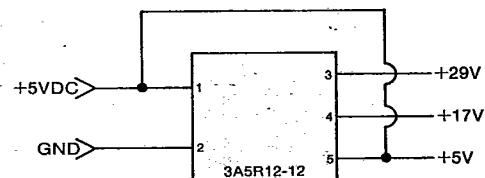
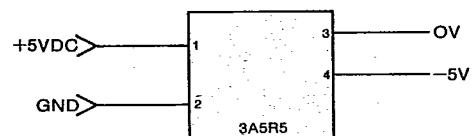
| PIN | | DUAL OUTPUT |
|-----|----------|-------------|
| PIN | | |
| 1 | + INPUT | |
| 2 | - INPUT | |
| 3 | + OUTPUT | |
| 4 | COMMON | |
| 5 | - OUTPUT | |

D

| D | |
|-----|---------------|
| PIN | SINGLE OUTPUT |
| 1 | + INPUT |
| 2 | - INPUT |
| 3 | + OUTPUT |
| 4 | - OUTPUT |
| 5 | - OUTPUT |

| PIN | | DUAL OUTPUT |
|-----|----------|-------------|
| PIN | | |
| 1 | + INPUT | |
| 2 | - INPUT | |
| 3 | + OUTPUT | |
| 4 | COMMON | |
| 5 | - OUTPUT | |

(Note) All dimensions in parentheses are metric.

OUTPUT CONFIGURATION OPTIONS

Standard isolated outputs: $\pm 12, \pm 15$ VDC

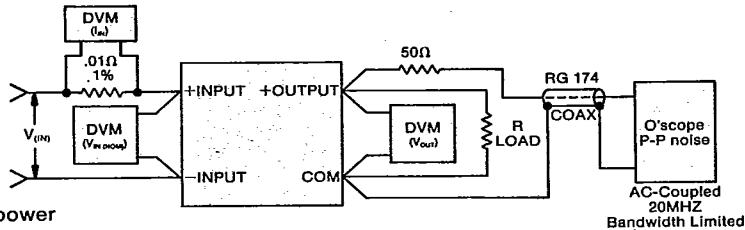
Combined isolated outputs: 24, 30VDC

Combined non-isolated outputs:-3, -5, -6, -7, -10, -12, -15, -19, -24, -25, -30, +5, +10, +12,+15, +17, +20, +24,+27, +29, +30, +35, +36, +39, +42, +48, +54VDC.

- Achieving these voltages is dependent on model-type selected and configuration used. Please contact factory for assistance in selection.

TEST CIRCUIT SCHEMATIC

- When measuring output noise use most direct connections to ensure correct readings. All noise measurements taken within 20HZ to 20 MHZBW.



Caution: (1) Do not insert or remove device with power applied. (2) Care must be taken to observe input polarity.

TYPICAL APPLICATION