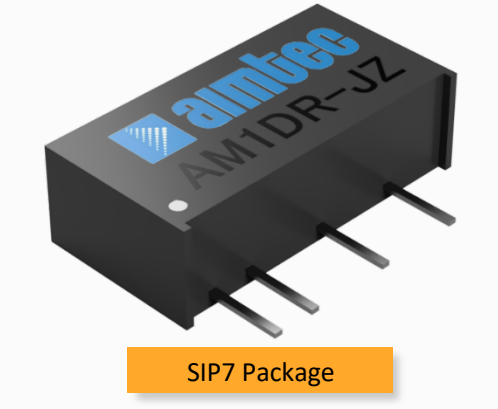


Click to  
**ORDER**  
samples

**AM1DR-JZ**



The AM1DR-JZ is a 1W SIP7 DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 5-24VDC as well as an output voltage of 3.3-24V. This compact SIP7 design will surely benefit your new system design.

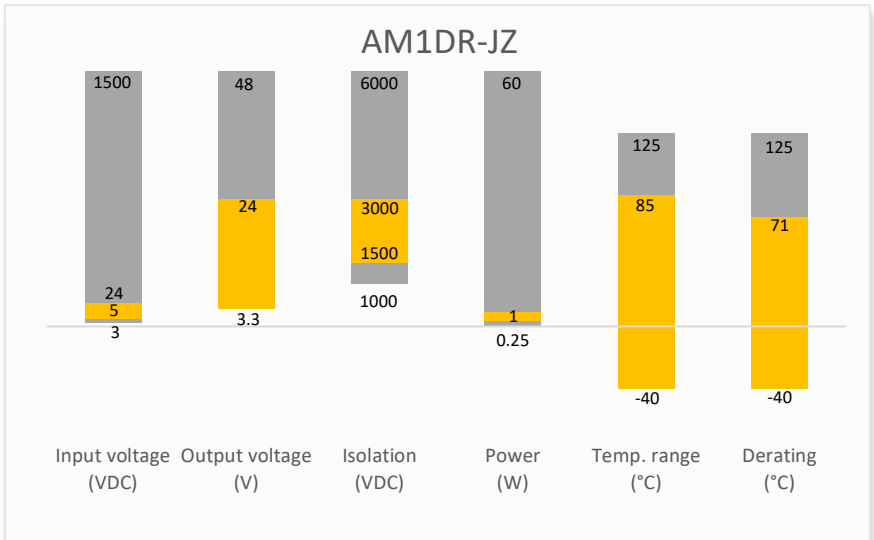
This new series offers great operating temperatures, from -40 to 85°C with full power up to 71°C. Also, an isolation of 1500 or 3000VDC improves reliability and system safety and a 3,500,000h MTBF comes standard.

The AM1DR-JZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.


**Features**

- High I/O Isolation of 1500/3000VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +85 °C
- Industry standard SIP7 pin-out
- Efficiency up to 75%
- Regulated output


**Summary**



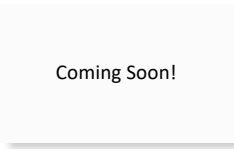
**Training**



Product Training Video  
(click to open)



Press Release



Coming Soon!

Application Notes

**Applications**



## Models & Specifications



| Single Output      |                     |                      |  |                                |                 |                              |                     |
|--------------------|---------------------|----------------------|--|--------------------------------|-----------------|------------------------------|---------------------|
| Model              | Input Voltage (VDC) | Output Voltage (VDC) | Input Current Full   No load typ. (mA) | Output Current max   min (mA)* | Isolation (VDC) | Maximum capacitive Load (μF) | Efficiency Typ. (%) |
| AM1DR-0503SJZ      | 5 (4.75-5.25)       | 3.3                  | 286 / 5                                | 250 / 25                       | 1500            | 2400                         | 67                  |
| AM1DR-0505SJZ #    | 5 (4.75-5.25)       | 5                    | 286 / 5                                | 200 / 20                       | 1500            | 2400                         | 70                  |
| AM1DR-0509SJZ #    | 5 (4.75-5.25)       | 9                    | 282 / 12                               | 111 / 12                       | 1500            | 1000                         | 71                  |
| AM1DR-0512SJZ #    | 5 (4.75-5.25)       | 12                   | 282 / 12                               | 84 / 9                         | 1500            | 560                          | 72                  |
| AM1DR-0515SJZ #    | 5 (4.75-5.25)       | 15                   | 274 / 18                               | 67 / 7                         | 1500            | 560                          | 73                  |
| AM1DR-0524SJZ      | 5 (4.75-5.25)       | 24                   | 274 / 18                               | 41 / 4                         | 1500            | 100                          | 73                  |
| AM1DR-1205SJZ #    | 12 (11.4-12.6)      | 5                    | 115 / 8                                | 200 / 20                       | 1500            | 2400                         | 73                  |
| AM1DR-1209SJZ      | 12 (11.4-12.6)      | 9                    | 115 / 8                                | 111 / 12                       | 1500            | 1000                         | 73                  |
| AM1DR-1212SJZ #    | 12 (11.4-12.6)      | 12                   | 115 / 8                                | 83 / 9                         | 1500            | 560                          | 73                  |
| AM1DR-1215SJZ #    | 12 (11.4-12.6)      | 15                   | 112 / 8                                | 67 / 7                         | 1500            | 560                          | 75                  |
| AM1DR-1505SJZ      | 15 (14.25-15.75)    | 5                    | 92 / 8                                 | 200 / 20                       | 1500            | 2400                         | 73                  |
| AM1DR-1515SJZ      | 15 (14.25-15.75)    | 15                   | 89 / 8                                 | 67 / 7                         | 1500            | 560                          | 75                  |
| AM1DR-2403SJZ      | 24 (22.8-25.2)      | 3.3                  | 59 / 8                                 | 250 / 25                       | 1500            | 2400                         | 71                  |
| AM1DR-2405SJZ      | 24 (22.8-25.2)      | 5                    | 58 / 8                                 | 200 / 20                       | 1500            | 2400                         | 73                  |
| AM1DR-2409SJZ      | 24 (22.8-25.2)      | 9                    | 58 / 8                                 | 111 / 12                       | 1500            | 1000                         | 73                  |
| AM1DR-2412SJZ      | 24 (22.8-25.2)      | 12                   | 58 / 8                                 | 83 / 9                         | 1500            | 560                          | 73                  |
| AM1DR-2415SJZ      | 24 (22.8-25.2)      | 15                   | 58 / 8                                 | 67 / 7                         | 1500            | 560                          | 73                  |
| AM1DR-0503SH30JZ   | 5 (4.75-5.25)       | 3.3                  | 286 / 5                                | 250 / 25                       | 3000            | 2400                         | 67                  |
| AM1DR-0505SH30JZ # | 5 (4.75-5.25)       | 5                    | 286 / 5                                | 200 / 20                       | 3000            | 2400                         | 70                  |
| AM1DR-0509SH30JZ # | 5 (4.75-5.25)       | 9                    | 282 / 12                               | 111 / 12                       | 3000            | 1000                         | 71                  |
| AM1DR-0512SH30JZ # | 5 (4.75-5.25)       | 12                   | 282 / 12                               | 84 / 9                         | 3000            | 560                          | 72                  |
| AM1DR-0515SH30JZ # | 5 (4.75-5.25)       | 15                   | 274 / 18                               | 67 / 7                         | 3000            | 560                          | 73                  |
| AM1DR-0524SH30JZ   | 5 (4.75-5.25)       | 24                   | 274 / 18                               | 41 / 4                         | 3000            | 100                          | 73                  |
| AM1DR-1205SH30JZ # | 12 (11.4-12.6)      | 5                    | 115 / 8                                | 200 / 20                       | 3000            | 2400                         | 73                  |
| AM1DR-1209SH30JZ   | 12 (11.4-12.6)      | 9                    | 115 / 8                                | 111 / 12                       | 3000            | 1000                         | 73                  |
| AM1DR-1212SH30JZ # | 12 (11.4-12.6)      | 12                   | 115 / 8                                | 83 / 9                         | 3000            | 560                          | 73                  |
| AM1DR-1215SH30JZ # | 12 (11.4-12.6)      | 15                   | 112 / 8                                | 67 / 7                         | 3000            | 560                          | 75                  |
| AM1DR-1505SH30JZ   | 15 (14.25-15.75)    | 5                    | 92 / 8                                 | 200 / 20                       | 3000            | 2400                         | 73                  |
| AM1DR-1515SH30JZ   | 15 (14.25-15.75)    | 15                   | 89 / 8                                 | 67 / 7                         | 3000            | 560                          | 75                  |
| AM1DR-2403SH30JZ   | 24 (22.8-25.2)      | 3.3                  | 59 / 8                                 | 250 / 25                       | 3000            | 2400                         | 71                  |
| AM1DR-2405SH30JZ   | 24 (22.8-25.2)      | 5                    | 58 / 8                                 | 200 / 20                       | 3000            | 2400                         | 73                  |
| AM1DR-2409SH30JZ   | 24 (22.8-25.2)      | 9                    | 58 / 8                                 | 111 / 12                       | 3000            | 1000                         | 73                  |
| AM1DR-2412SH30JZ   | 24 (22.8-25.2)      | 12                   | 58 / 8                                 | 83 / 9                         | 3000            | 560                          | 73                  |
| AM1DR-2415SH30JZ   | 24 (22.8-25.2)      | 15                   | 58 / 8                                 | 67 / 7                         | 3000            | 560                          | 73                  |

\* Converters must be operated within the required output range.

| Input Specification            |            |         |         |       |
|--------------------------------|------------|---------|---------|-------|
| Parameters                     | Conditions | Typical | Maximum | Units |
| Filter                         | Capacitor  |         |         |       |
| Input reflected ripple current |            | 15      |         | mA    |

| Isolation Specification |   |         |         |            |
|-------------------------|---|---------|---------|------------|
| Parameters              | Conditions                                | Typical | Maximum | Units      |
| Tested I/O voltage      | 60 sec, leakage $\leq$ 1mA                | >1500   |         | VDC        |
|                         | 60 sec, leakage $\leq$ 1mA for H30 models | >3000   |         | VDC        |
| Resistance              | 500VDC                                    | >1000   |         | M $\Omega$ |
| Capacitance             | 100kHz/0.1V                               | 20      |         | pF         |

| Output Specification    |                            |            |            |          |
|-------------------------|----------------------------|------------|------------|----------|
| Parameters              | Conditions                 | Typical    | Maximum    | Units    |
| Voltage accuracy        |                            |            | $\pm$ 3    | %        |
| Line regulation         | Per 1% Vin change          |            | $\pm$ 0.25 | %        |
| Load regulation         | 10-100% load, 3.3Vout      |            | $\pm$ 3    | %        |
|                         | 10-100% load, others       |            | $\pm$ 2    | %        |
| Ripple & Noise*         | 5Vin, 24Vout models        | 50         | 100        | mV pk-pk |
|                         | 5Vin, other models         | 30         | 75         | mV pk-pk |
|                         | 12/15/24Vin, 15Vout models | 80         | 150        | mV pk-pk |
|                         | 12/15/24Vin, other models  | 30         | 100        | mV pk-pk |
| Temperature coefficient |                            | $\pm$ 0.02 |            | %/°C     |

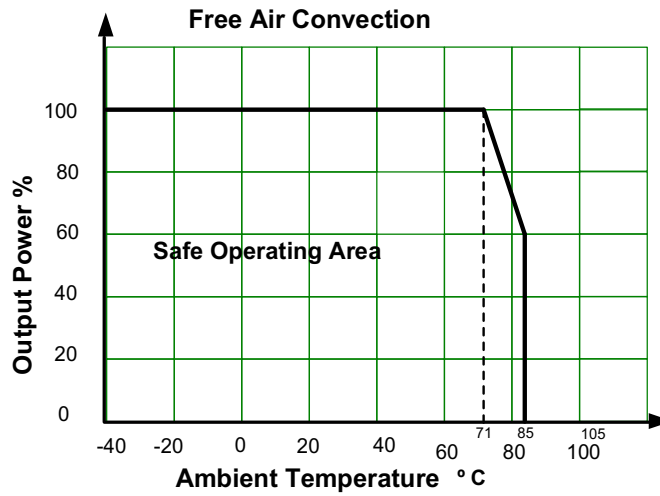
\* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific details.

| General Specifications       |   |   |         |       |
|------------------------------|---|---|---------|-------|
| Parameters                   | Conditions  | Typical   | Maximum | Units |
| Switching frequency          | Full load, nominal input, 5Vin models               | 270   |         | KHz   |
|                              | Full load, nominal input, other models              | 260   |         | KHz   |
| Short circuit protection     | Continuous, Auto recovery                           |   |         |       |
| Operating temperature        | With derating at 71°C                               | -40 to +85  |         | °C    |
| Storage temperature          |   | -55 to +125   |         | °C    |
| Case temperature rise        | Ambient temperature at 25°C, 5Vin 3.3Vout model     | 30  |         | °C    |
|                              | Ambient temperature at 25°C, other models           | 25  |         | °C    |
| Manual soldering temperature | 1.5mm away from case, duration $\leq$ 10sec         |   | 300     | °C    |
| Cooling                      | Free air convection                                 |   |         |       |
| Humidity                     | Non-condensing                                      | >5  | 95      | % RH  |
| Vibration                    | 10-150Hz, 5G, 30Min, along all axis                 |   |         |       |
| Case material                | Black plastic (flammability to UL 94V-0)            |   |         |       |
| Weight                       |   | 2.1   |         | g     |
| Dimensions (L x W x H)       |   | 0.77 x 0.24 x 0.40 inches (19.65 x 6.00 x 10.16 mm) |         |       |
| MTBF                         | 3 500 000 hrs (MIL-HDBK -217F, t+=25°C) / Full Load |   |         |       |

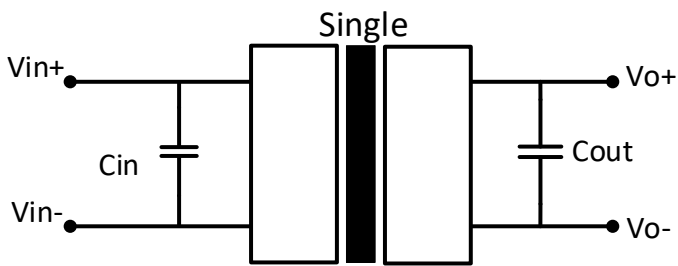
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

| Safety Specifications |   |
|-----------------------|---|
| Parameters            |   |
| Agency approval       | CE/BS EN62368-1 ; cULus UL62368-1 (For models marked with # only)   |
| Standards             | Information technology Equipment<br>Design to meet IEC62368-1   |
|                       | EMC - Conducted and radiated emission<br>CISPR32 / EN55032, class B with the recommended EMI circuit  |
|                       | Electrostatic Discharge Immunity<br>IEC 61000-4-2 Air $\pm$ 8KV, Contact $\pm$ 4KV, Criteria B for 5Vin models<br>IEC 61000-4-2 Air $\pm$ 8KV, Contact $\pm$ 6KV, Criteria B for 12/15/24Vin models |

Derating



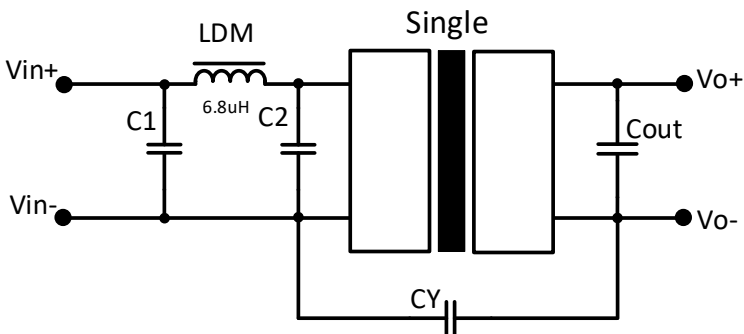
Typical application circuit



| Vin    | Cin       | Single output models |           |
|--------|-----------|----------------------|-----------|
|        |           | Vout                 | Cout      |
| 5V     | 4.7μF     | 3.3/5V               | 10μF/16V  |
| 12/15V | 2.2μF/25V | 9V                   | 2.2μF/16V |
| 24     | 1μF/50V   | 12V                  | 2.2μF/25V |
|        |           | 15V                  | 1μF/25V   |

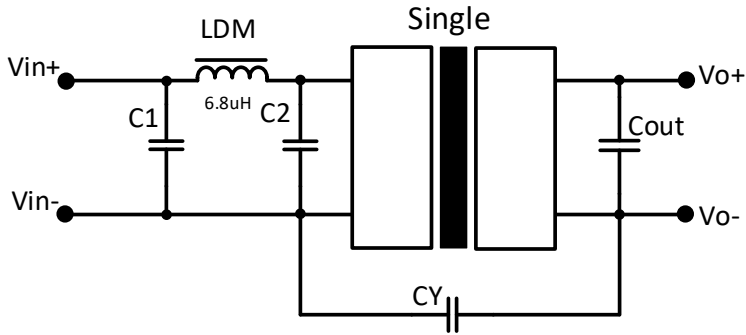
Recommended EMI circuit

5Vin models



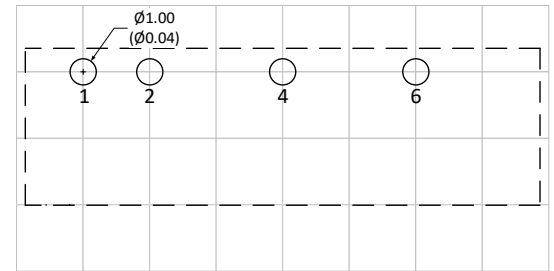
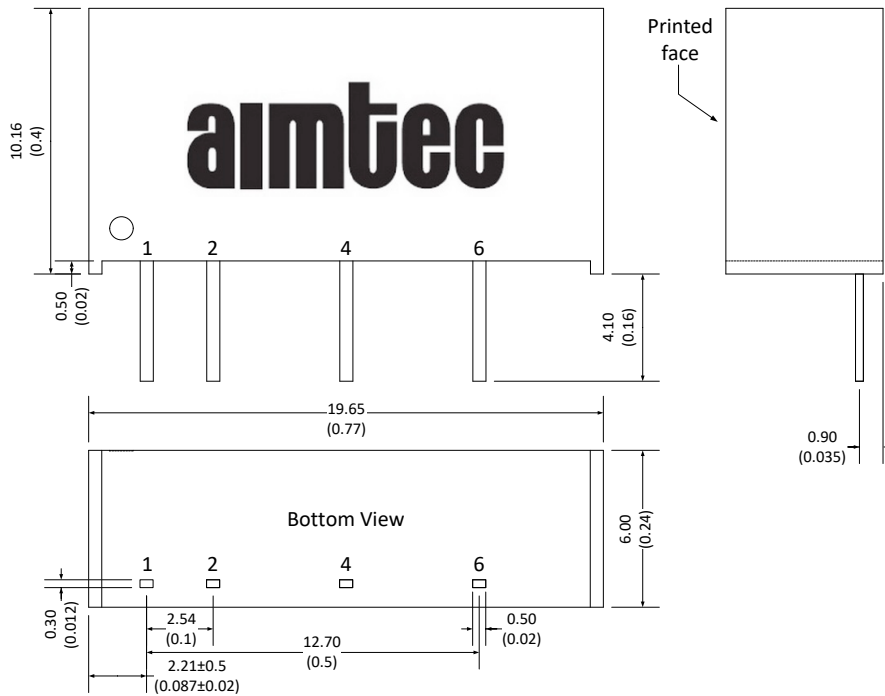
| Vout      | C1/C2     | CY        |
|-----------|-----------|-----------|
| 3.3/5/9V  | 4.7μF/25V | -         |
| 12/15/24V | 4.7μF/25V | 1nF/4kVdc |

## 12/15/24Vin models



| Isolation | C1/C2     | CY          |
|-----------|-----------|-------------|
| 1.5KV     | 4.7μF/50V | 270pF/2kVdc |
| 3KV       | 4.7μF/50V | 270pF/3kVdc |

## Dimensions



Grid size: 2.54\*2.54mm

Note:  
Unit: mm(inch)  
General tolerance:  $\pm 0.25$  (0.01)  
Pin tolerance:  $\pm 0.1$  (0.004)

| Pin Out Specifications |           |
|------------------------|-----------|
| Pin                    | Single    |
| 1                      | +V Input  |
| 2                      | -V Input  |
| 4                      | -V Output |
| 6                      | +V Output |

**NOTE:** 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to [www.aimtec.com](http://www.aimtec.com) for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other than the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at [www.aimtec.com](http://www.aimtec.com).