



Your Power Partner

Series AM1DS-Z

1 Watt | DC-DC Converter



FEATURES:

- RoHS compliant
- High efficiency up to 76%
- Low profile plastic package
- 7 pin SIP package
- Operating temperature -40°C to +85°C
- Continuous Short circuit protection
- Pin compatible with multiple manufacturers
- Input / Output Isolation 1000 to 6000 VDC



Models

Single output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Isolation (VDC) | Input Current Full Load No Load (mA) | | Max Capacitive Load (uF) | Efficiency % |
|-----------------|-------------------|--------------------|-------------------------|-----------------|--|----|--------------------------|--------------|
| AM1DS-0505SZ | 4.5-5.5 | 5 | 200 | 1000 | 278 | 60 | 220 | 72 |
| AM1DS-0512SZ | 4.5-5.5 | 12 | 83.3 | 1000 | 274 | 53 | 220 | 73 |
| AM1DS-0515SZ | 4.5-5.5 | 15 | 66.7 | 1000 | 270 | 60 | 220 | 74 |
| AM1DS-1205SZ | 10.8-13.2 | 5 | 200 | 1000 | 113 | 20 | 220 | 74 |
| AM1DS-1212SZ | 10.8-13.2 | 12 | 83.3 | 1000 | 110 | 25 | 220 | 76 |
| AM1DS-1215SZ | 10.8-13.2 | 15 | 66.7 | 1000 | 111 | 30 | 220 | 75 |
| AM1DS-2405SZ | 21.6-26.4 | 5 | 200 | 1000 | 57 | 15 | 220 | 73 |
| AM1DS-2412SZ | 21.6-26.4 | 12 | 83.3 | 1000 | 62 | 15 | 220 | 67 |
| AM1DS-2415SZ | 21.6-26.4 | 15 | 66.7 | 1000 | 55 | 10 | 220 | 75 |
| AM1DS-0505SH30Z | 4.5-5.5 | 5 | 200 | 3000 | 278 | 60 | 220 | 72 |
| AM1DS-0512SH30Z | 4.5-5.5 | 12 | 83.3 | 3000 | 274 | 53 | 220 | 73 |
| AM1DS-0515SH30Z | 4.5-5.5 | 15 | 66.7 | 3000 | 270 | 60 | 220 | 74 |
| AM1DS-1205SH30Z | 10.8-13.2 | 5 | 200 | 3000 | 113 | 20 | 220 | 74 |
| AM1DS-1212SH30Z | 10.8-13.2 | 12 | 83.3 | 3000 | 110 | 25 | 220 | 76 |
| AM1DS-1215SH30Z | 10.8-13.2 | 15 | 66.7 | 3000 | 111 | 30 | 220 | 75 |
| AM1DS-2405SH30Z | 21.6-26.4 | 5 | 200 | 3000 | 57 | 15 | 220 | 73 |
| AM1DS-2412SH30Z | 21.6-26.4 | 12 | 83.3 | 3000 | 62 | 15 | 220 | 67 |
| AM1DS-2415SH30Z | 21.6-26.4 | 15 | 66.7 | 3000 | 55 | 10 | 220 | 75 |
| AM1DS-0505SH40Z | 4.5-5.5 | 5 | 200 | 4000 | 278 | 60 | 220 | 72 |
| AM1DS-0512SH40Z | 4.5-5.5 | 12 | 83.3 | 4000 | 274 | 53 | 220 | 73 |
| AM1DS-0515SH40Z | 4.5-5.5 | 15 | 66.7 | 4000 | 270 | 60 | 220 | 74 |
| AM1DS-1205SH40Z | 10.8-13.2 | 5 | 200 | 4000 | 113 | 20 | 220 | 74 |
| AM1DS-1212SH40Z | 10.8-13.2 | 12 | 83.3 | 4000 | 110 | 25 | 220 | 76 |
| AM1DS-1215SH40Z | 10.8-13.2 | 15 | 66.7 | 4000 | 111 | 30 | 220 | 75 |
| AM1DS-2405SH40Z | 21.6-26.4 | 5 | 200 | 4000 | 57 | 15 | 220 | 73 |
| AM1DS-2412SH40Z | 21.6-26.4 | 12 | 83.3 | 4000 | 62 | 15 | 220 | 67 |
| AM1DS-2415SH40Z | 21.6-26.4 | 15 | 66.7 | 4000 | 55 | 10 | 220 | 75 |
| AM1DS-0505SH52Z | 4.5-5.5 | 5 | 200 | 5200 | 278 | 60 | 220 | 72 |
| AM1DS-0512SH52Z | 4.5-5.5 | 12 | 83.3 | 5200 | 274 | 53 | 220 | 73 |
| AM1DS-0515SH52Z | 4.5-5.5 | 15 | 66.7 | 5200 | 270 | 60 | 220 | 74 |
| AM1DS-1205SH52Z | 10.8-13.2 | 5 | 200 | 5200 | 113 | 20 | 220 | 74 |
| AM1DS-1212SH52Z | 10.8-13.2 | 12 | 83.3 | 5200 | 110 | 25 | 220 | 76 |
| AM1DS-1215SH52Z | 10.8-13.2 | 15 | 66.7 | 5200 | 111 | 30 | 220 | 75 |
| AM1DS-2405SH52Z | 21.6-26.4 | 5 | 200 | 5200 | 57 | 15 | 220 | 73 |
| AM1DS-2412SH52Z | 21.6-26.4 | 12 | 83.3 | 5200 | 62 | 15 | 220 | 67 |
| AM1DS-2415SH52Z | 21.6-26.4 | 15 | 66.7 | 5200 | 55 | 10 | 220 | 75 |
| AM1DS-0505SH60Z | 4.5-5.5 | 5 | 200 | 6000 | 278 | 60 | 220 | 72 |
| AM1DS-0512SH60Z | 4.5-5.5 | 12 | 83.3 | 6000 | 274 | 53 | 220 | 73 |
| AM1DS-0515SH60Z | 4.5-5.5 | 15 | 66.7 | 6000 | 270 | 60 | 220 | 74 |
| AM1DS-1205SH60Z | 10.8-13.2 | 5 | 200 | 6000 | 113 | 20 | 220 | 74 |
| AM1DS-1212SH60Z | 10.8-13.2 | 12 | 83.3 | 6000 | 110 | 25 | 220 | 76 |
| AM1DS-1215SH60Z | 10.8-13.2 | 15 | 66.7 | 6000 | 111 | 30 | 220 | 75 |
| AM1DS-2405SH60Z | 21.6-26.4 | 5 | 200 | 6000 | 57 | 15 | 220 | 73 |
| AM1DS-2412SH60Z | 21.6-26.4 | 12 | 83.3 | 6000 | 62 | 15 | 220 | 67 |
| AM1DS-2415SH60Z | 21.6-26.4 | 15 | 66.7 | 6000 | 55 | 10 | 220 | 75 |

Models
Dual output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Isolation (VDC) | Input Current Full Load No Load (mA) | | Max Capacitive Load (uF) | Efficiency (%) |
|-----------------|-------------------|--------------------|-------------------------|-----------------|--|----|--------------------------|----------------|
| AM1DS-0505DZ | 4.5-5.5 | ±5 | ±100 | 1000 | 308 | 55 | ±100 | 65 |
| AM1DS-0512DZ | 4.5-5.5 | ±12 | ±41.67 | 1000 | 281 | 60 | ±100 | 71 |
| AM1DS-0515DZ | 4.5-5.5 | ±15 | ±33.33 | 1000 | 281 | 60 | ±100 | 71 |
| AM1DS-1205DZ | 10.8-13.2 | ±5 | ±100 | 1000 | 114 | 30 | ±100 | 73 |
| AM1DS-1212DZ | 10.8-13.2 | ±12 | ±41.67 | 1000 | 109 | 20 | ±100 | 76 |
| AM1DS-1215DZ | 10.8-13.2 | ±15 | ±33.33 | 1000 | 109 | 30 | ±100 | 76 |
| AM1DS-2405DZ | 21.6-26.4 | ±5 | ±100 | 1000 | 59 | 13 | ±100 | 71 |
| AM1DS-2412DZ | 21.6-26.4 | ±12 | ±41.67 | 1000 | 58 | 17 | ±100 | 72 |
| AM1DS-2415DZ | 21.6-26.4 | ±15 | ±33.33 | 1000 | 54 | 10 | ±100 | 76 |
| AM1DS-0505DH30Z | 4.5-5.5 | ±5 | ±100 | 3000 | 308 | 55 | ±100 | 65 |
| AM1DS-0512DH30Z | 4.5-5.5 | ±12 | ±41.67 | 3000 | 281 | 60 | ±100 | 71 |
| AM1DS-0515DH30Z | 4.5-5.5 | ±15 | ±33.33 | 3000 | 281 | 60 | ±100 | 71 |
| AM1DS-1205DH30Z | 10.8-13.2 | ±5 | ±100 | 3000 | 114 | 30 | ±100 | 73 |
| AM1DS-1212DH30Z | 10.8-13.2 | ±12 | ±41.67 | 3000 | 109 | 20 | ±100 | 76 |
| AM1DS-1215DH30Z | 10.8-13.2 | ±15 | ±33.33 | 3000 | 109 | 30 | ±100 | 76 |
| AM1DS-2405DH30Z | 21.6-26.4 | ±5 | ±100 | 3000 | 59 | 13 | ±100 | 71 |
| AM1DS-2412DH30Z | 21.6-26.4 | ±12 | ±41.67 | 3000 | 58 | 17 | ±100 | 72 |
| AM1DS-2415DH30Z | 21.6-26.4 | ±15 | ±33.33 | 3000 | 54 | 10 | ±100 | 76 |
| AM1DS-0505DH40Z | 4.5-5.5 | ±5 | ±100 | 4000 | 308 | 55 | ±100 | 65 |
| AM1DS-0512DH40Z | 4.5-5.5 | ±12 | ±41.67 | 4000 | 281 | 60 | ±100 | 71 |
| AM1DS-0515DH40Z | 4.5-5.5 | ±15 | ±33.33 | 4000 | 281 | 60 | ±100 | 71 |
| AM1DS-1205DH40Z | 10.8-13.2 | ±5 | ±100 | 4000 | 114 | 30 | ±100 | 73 |
| AM1DS-1212DH40Z | 10.8-13.2 | ±12 | ±41.67 | 4000 | 109 | 20 | ±100 | 76 |
| AM1DS-1215DH40Z | 10.8-13.2 | ±15 | ±33.33 | 4000 | 109 | 30 | ±100 | 76 |
| AM1DS-2405DH40Z | 21.6-26.4 | ±5 | ±100 | 4000 | 59 | 13 | ±100 | 71 |
| AM1DS-2412DH40Z | 21.6-26.4 | ±12 | ±41.67 | 4000 | 58 | 17 | ±100 | 72 |
| AM1DS-2415DH40Z | 21.6-26.4 | ±15 | ±33.33 | 4000 | 54 | 10 | ±100 | 76 |
| AM1DS-0505DH52Z | 4.5-5.5 | ±5 | ±100 | 5200 | 308 | 55 | ±100 | 65 |
| AM1DS-0512DH52Z | 4.5-5.5 | ±12 | ±41.67 | 5200 | 281 | 60 | ±100 | 71 |
| AM1DS-0515DH52Z | 4.5-5.5 | ±15 | ±33.33 | 5200 | 281 | 60 | ±100 | 71 |
| AM1DS-1205DH52Z | 10.8-13.2 | ±5 | ±100 | 5200 | 114 | 30 | ±100 | 73 |
| AM1DS-1212DH52Z | 10.8-13.2 | ±12 | ±41.67 | 5200 | 109 | 20 | ±100 | 76 |
| AM1DS-1215DH52Z | 10.8-13.2 | ±15 | ±33.33 | 5200 | 109 | 30 | ±100 | 76 |
| AM1DS-2405DH52Z | 21.6-26.4 | ±5 | ±100 | 5200 | 59 | 13 | ±100 | 71 |
| AM1DS-2412DH52Z | 21.6-26.4 | ±12 | ±41.67 | 5200 | 58 | 17 | ±100 | 72 |
| AM1DS-2415DH52Z | 21.6-26.4 | ±15 | ±33.33 | 5200 | 54 | 10 | ±100 | 76 |
| AM1DS-0505DH60Z | 4.5-5.5 | ±5 | ±100 | 6000 | 308 | 55 | ±100 | 65 |
| AM1DS-0512DH60Z | 4.5-5.5 | ±12 | ±41.67 | 6000 | 281 | 60 | ±100 | 71 |
| AM1DS-0515DH60Z | 4.5-5.5 | ±15 | ±33.33 | 6000 | 281 | 60 | ±100 | 71 |
| AM1DS-1205DH60Z | 10.8-13.2 | ±5 | ±100 | 6000 | 114 | 30 | ±100 | 73 |
| AM1DS-1212DH60Z | 10.8-13.2 | ±12 | ±41.67 | 6000 | 109 | 20 | ±100 | 76 |
| AM1DS-1215DH60Z | 10.8-13.2 | ±15 | ±33.33 | 6000 | 109 | 30 | ±100 | 76 |
| AM1DS-2405DH60Z | 21.6-26.4 | ±5 | ±100 | 6000 | 59 | 13 | ±100 | 71 |
| AM1DS-2412DH60Z | 21.6-26.4 | ±12 | ±41.67 | 6000 | 58 | 17 | ±100 | 72 |
| AM1DS-2415DH60Z | 21.6-26.4 | ±15 | ±33.33 | 6000 | 54 | 10 | ±100 | 76 |

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.

Input Specifications

| Parameters | Nominal | Typical | Maximum | Units |
|--------------------------------|----------------------|-----------|---------|--------|
| Voltage range | 5 | 4.5-5.5 | | VDC |
| | 12 | 10.8-13.2 | | |
| | 24 | 21.6-26.4 | | |
| Filter | Capacitor | | | |
| Turn on Transient process time | | | 25 | ms |
| Start up time | | 200 | | ms |
| Absolute Maximum Rating | 5 Vin | 0-7 | | VDC |
| | 12 Vin | 0-15 | | |
| | 24 Vin | 0-28 | | |
| Peak Input Voltage time | | 100 | | ms |
| Input reflected Ripple current | With 12μH inductance | 20 | | mA p-p |

Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|--------------------|------------|---------|-------------------------------|-------|
| Tested I/O voltage | 60 sec | | 1000, 3000, 4000, 5200 & 6000 | VDC |
| Resistance | | > 1000 | | MOhm |
| Capacitance | | 10 | | pF |

Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|-------------------------------------|--------------------|---------------|---------|--------|
| Voltage accuracy | | ±3 | | % |
| Voltage balance (Dual Output model) | Balanced Load | ±1 | | % |
| Short Circuit protection | | Continuous | | |
| Short circuit restart | | Auto-Recovery | | |
| Line voltage regulation | For 1.0% of Vin | ±1.2 | | % |
| Load voltage regulation | load 20~100% | ±10 | | % |
| Temperature coefficient | | ±0.02 | | %/°C |
| Ripple & Noise | At 20MHz Bandwidth | 75 | | mV p-p |
| Rising time | | 50 | | ms |

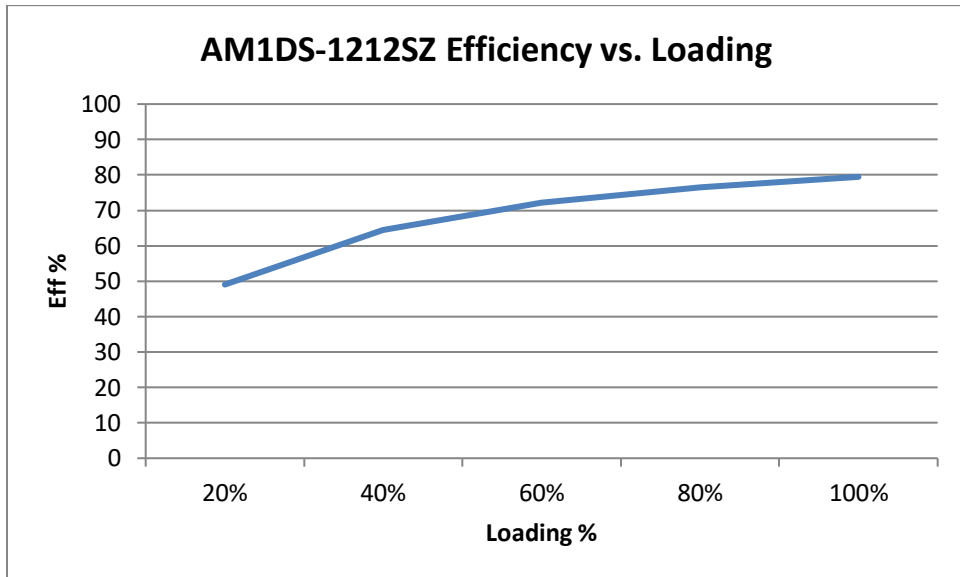
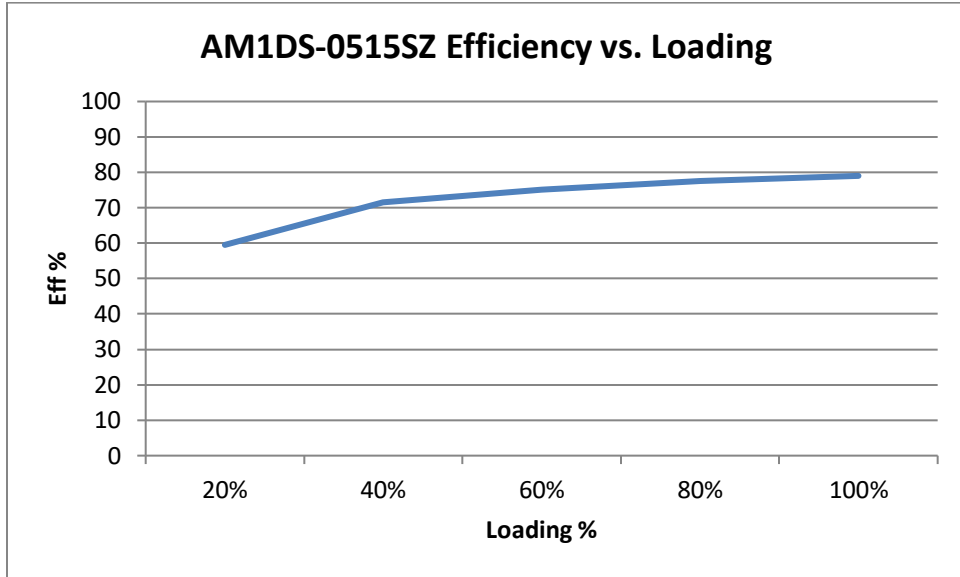
General Specifications

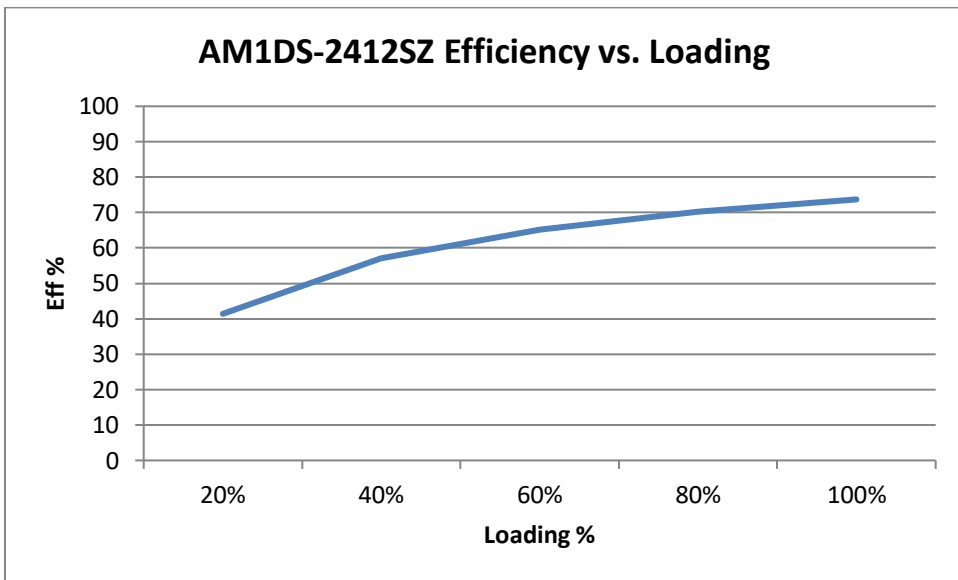
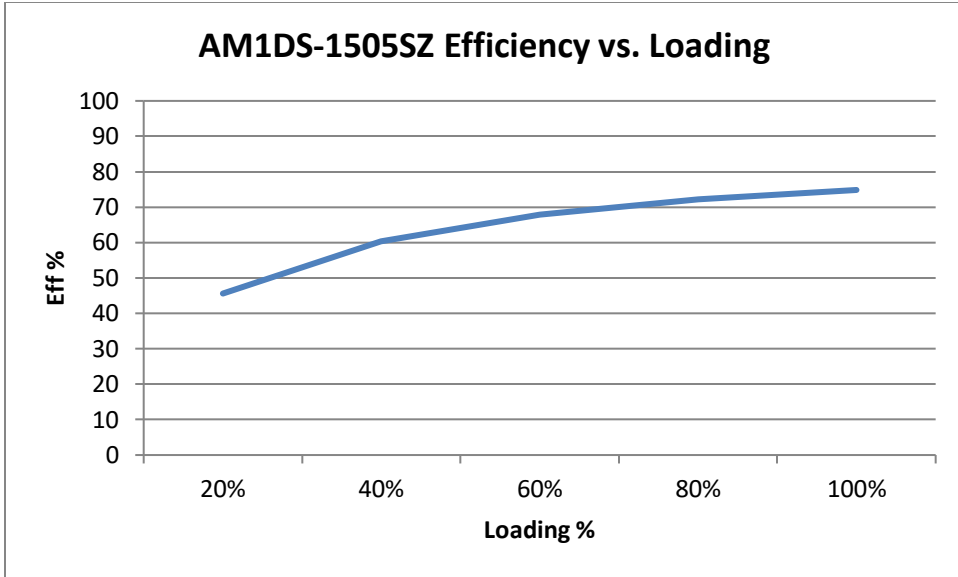
| Parameters | Conditions | Typical | Maximum | Units |
|------------------------|---|-------------------------|-------------------------|-------|
| Switching frequency | 100% load, variable | 80 | | KHz |
| Operating temperature | Full load without derating | -40 to +85 | | °C |
| Storage temperature | | -40 to +125 | | °C |
| Max Case temperature | | | +100 | °C |
| Cooling | Free air convection | | | |
| Humidity | | | 95 | % |
| Case material | Non-conductive black plastic UL 94 V-0 | | | |
| Weight | | 2.3 | | g |
| Dimensions (L x W x H) | | 0.77 x 0.24 x 0.39 inch | 19.50 x 6.00 x 10.00 mm | |
| MTBF | >1 121 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) | | | |

Safety Specifications

| Parameters | |
|------------|------------------------------|
| Safety | Designed to meet IEC 60950-1 |

Typical Efficiency Example Charts

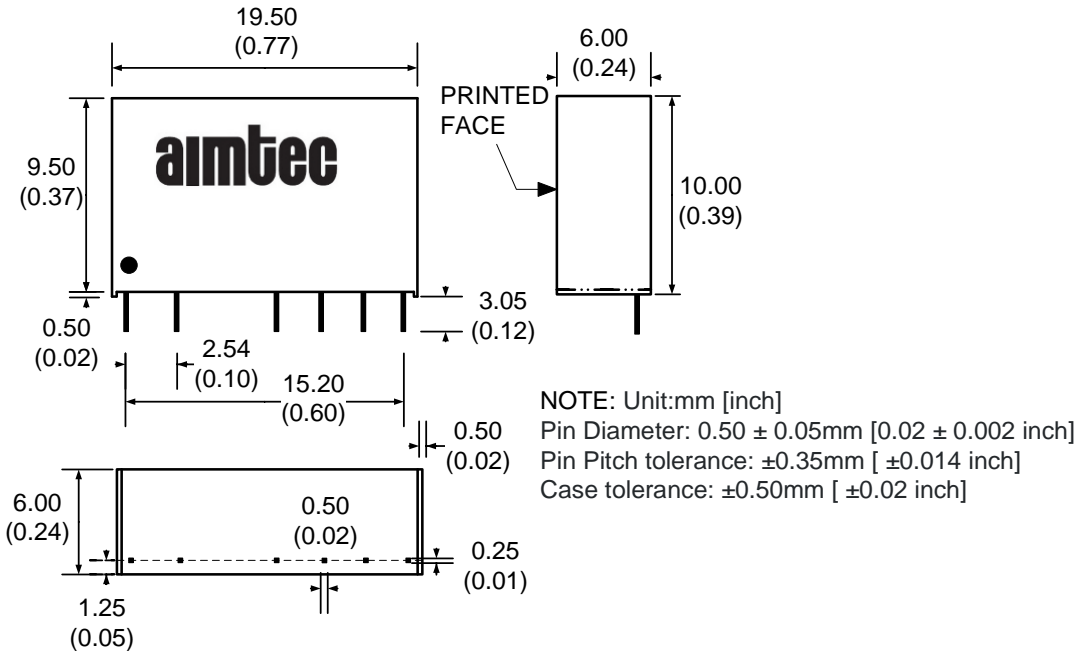




Pin Out Specifications

| Pin | Single 1000 VDC | Dual 1000 VDC | Single 3000, 4000, 5200 & 6000 VDC | Dual 3000, 4000, 5200 & 6000 VDC |
|-----|--------------------|------------------|---------------------------------------|-------------------------------------|
| 1 | + V Input | + V Input | + V Input | + V Input |
| 2 | - V Input | - V Input | - V Input | - V Input |
| 4 | - V Output | - V Output | No pin | No pin |
| 5 | No pin | Common | - V Output | - V Output |
| 6 | + V Output | + V Output | No pin | Common |
| 7 | No pin | No pin | + V Output | + V Output |

Dimensions:



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 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 the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.