# Series AM1MR-Z

## 1 Watt | DC-DC Converter




### FEATURES:

- Regulated Single Output
- Continuous Short Circuit Protection
- RoHS Compliant
- MTBF>3,500,000 hours
- 1000VDC Isolation
- Operating temperature: -40°C to +85°C
- Industry Standard Pinout
- 14 Pin DIP Package

## Models
## Single output

| Model | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Input Current FL \| No Load (mA) | | Efficiency (%) |
|---|---|---|---|---|---|---|---|---|
| AM1MR-0503SZ | 4.5-5.5 | 3.3 | 303 | 1000 | 220 | 363 | 30 | 57 |
| AM1MR-0505SZ | 4.5-5.5 | 5 | 200 | 1000 | 220 | 313 | 35 | 65 |
| AM1MR-0507SZ | 4.5-5.5 | 7.2 | 139 | 1000 | 220 | 312 | 30 | 68 |
| AM1MR-0509SZ | 4.5-5.5 | 9 | 111 | 1000 | 220 | 307 | 35 | 67 |
| AM1MR-0512SZ | 4.5-5.5 | 12 | 83 | 1000 | 220 | 303 | 35 | 66 |
| AM1MR-0515SZ | 4.5-5.5 | 15 | 67 | 1000 | 220 | 303 | 35 | 64 |
| AM1MR-1203SZ | 10.8-13.2 | 3.3 | 303 | 1000 | 220 | 148 | 20 | 60 |
| AM1MR-1205SZ | 10.8-13.2 | 5 | 200 | 1000 | 220 | 130 | 20 | 63 |
| AM1MR-1207SZ | 10.8-13.2 | 7.2 | 139 | 1000 | 220 | 128 | 20 | 66 |
| AM1MR-1209SZ | 10.8-13.2 | 9 | 111 | 1000 | 220 | 126 | 20 | 67 |
| AM1MR-1212SZ | 10.8-13.2 | 12 | 83 | 1000 | 220 | 126 | 20 | 66 |
| AM1MR-1215SZ | 10.8-13.2 | 15 | 67 | 1000 | 220 | 122 | 20 | 68 |
| AM1MR-2403SZ | 21.6- 26.4 | 3.3 | 303 | 1000 | 220 | 74 | 10 | 63 |
| AM1MR-2405SZ | 21.6- 26.4 | 5 | 200 | 1000 | 220 | 66 | 10 | 68 |
| AM1MR-2407SZ | 21.6- 26.4 | 7.2 | 139 | 1000 | 220 | 64 | 10 | 68 |
| AM1MR-2409SZ | 21.6- 26.4 | 9 | 111 | 1000 | 220 | 63 | 10 | 69 |
| AM1MR-2412SZ | 21.6- 26.4 | 12 | 83 | 1000 | 220 | 62 | 10 | 68 |
| AM1MR-2415SZ | 21.6- 26.4 | 15 | 67 | 1000 | 220 | 62 | 10 | 66 |

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<br>12<br>24 | 4.5- 5.5<br>10.8-13.2<br>21.6- 26.4 | | VDC |
| Filter | | Capacitor | | |
| Absolute Maximum Rating (100 ms) | 5<br>12<br>24 | | 7<br>15<br>28 | VDC |
| Input reflected current | | 20 | | mA |

## Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|---|---|---|---|---|
| Tested I/O voltage | 60 sec | | 1000 | VDC |
| Resistance | At 500VDC | >1000 | | MOhm |
| Capacitance | | 60 | | pF |

## Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage accuracy | | ±2 | | % |
| Short Circuit protection | | Continuous | | |
| Short circuit restart | | Auto-Recovery | | |
| Line voltage regulation | LL ~ HL | ±0.5 | | % of Vin |

## Output Specifications (continued)

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Load voltage regulation | From 0% to 100% Load | ±0.5 | | % |
| Load voltage regulation (3.3V output) | From 0% to 100% Load | ±1 | | % |
| Temperature coefficient | | ±0.02 | | %/°C |
| Ripple & Noise | 20MHz Bandwidth | 50 | | mVp-p |

## General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Switching frequency | Variable | 50 | | KHz |
| Operating temperature | Full Load | -40 to +85 | | °C |
| Storage temperature | -40 to +125 | | | °C |
| Maximum case temperature | | | 100 | °C |
| Cooling | Free Air Convection | | | |
| Humidity | | | 95 | % RH |
| Case material | Non-Conductive Plastic (UL94V-0) | | | |
| Weight | 2.7 | | | g |
| Dimensions (L x W x H) | 20.32 x 10.16 x 6.88mm (0.80 x 0.40 x 0.27 inches) | | | |
| MTBF | >3,500,000hrs dual (MIL-HDBK -217F, Ground Benign, t=+25°C) | | | |
| Maximum soldering temperature | 1.5mm from case for 10 sec | | 260 | °C |

## Safety Specifications

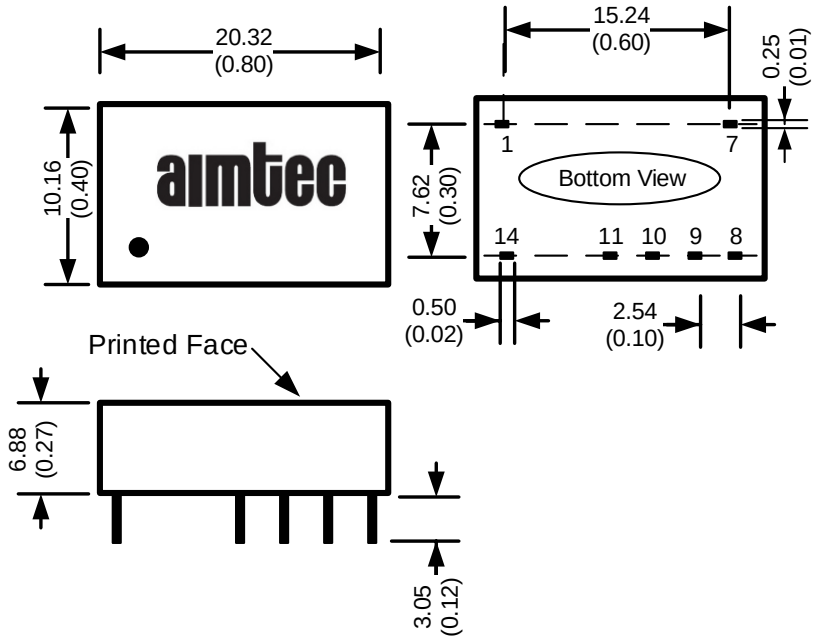
| Parameters | |
|---|---|
| Agency Approvals | CE |
| Safety Standards | EN 55032, Class B<br>IEC61000-4-2<br>IEC61000-4-3<br>IEC61000-4-4<br>IEC61000-4-6<br>IEC61000-4-8<br>Also designed to meet IEC 60950-1 |

## Pin Out Specifications

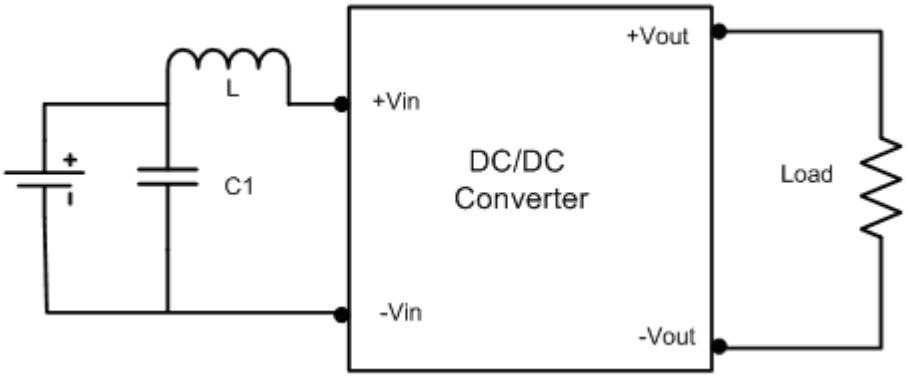
| Pin | Single |
|---|---|
| 1 | - V input |
| 7 | NC |
| 8 | No Pin |
| 9 | + V output |
| 10 | No Pin |
| 11 | - V output |
| 14 | + V input |

NC: No Connection

## Dimensions

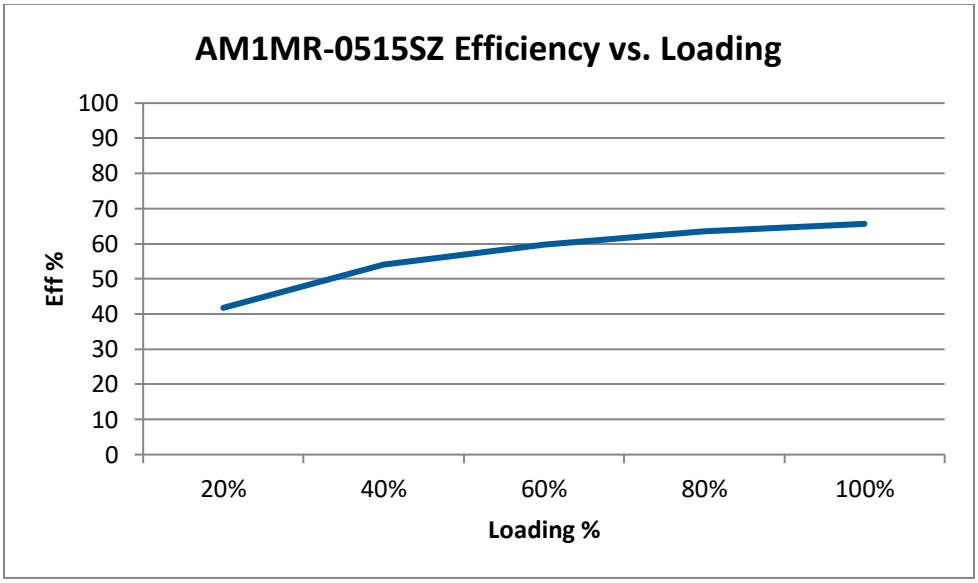


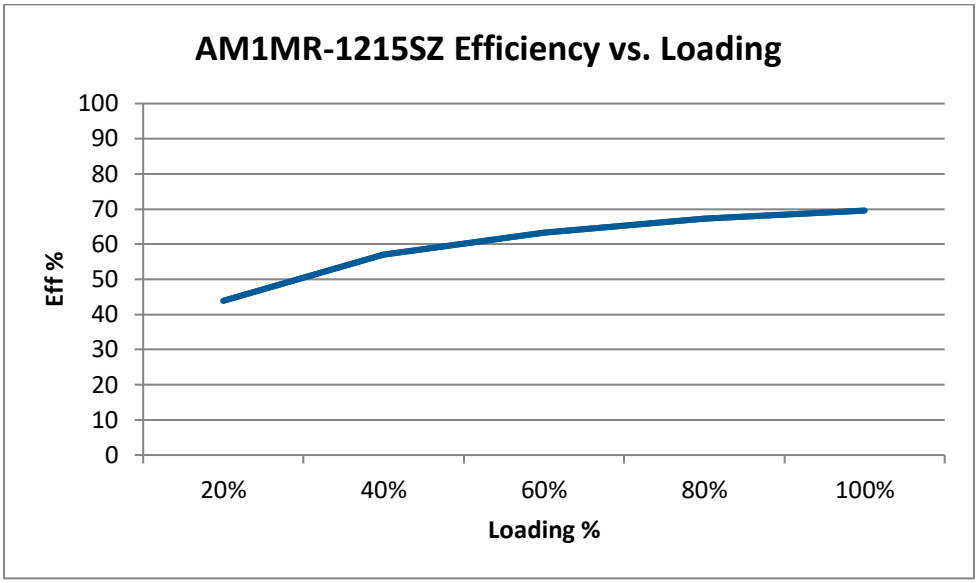
Radiated and Conducted Emissions Application circuit:

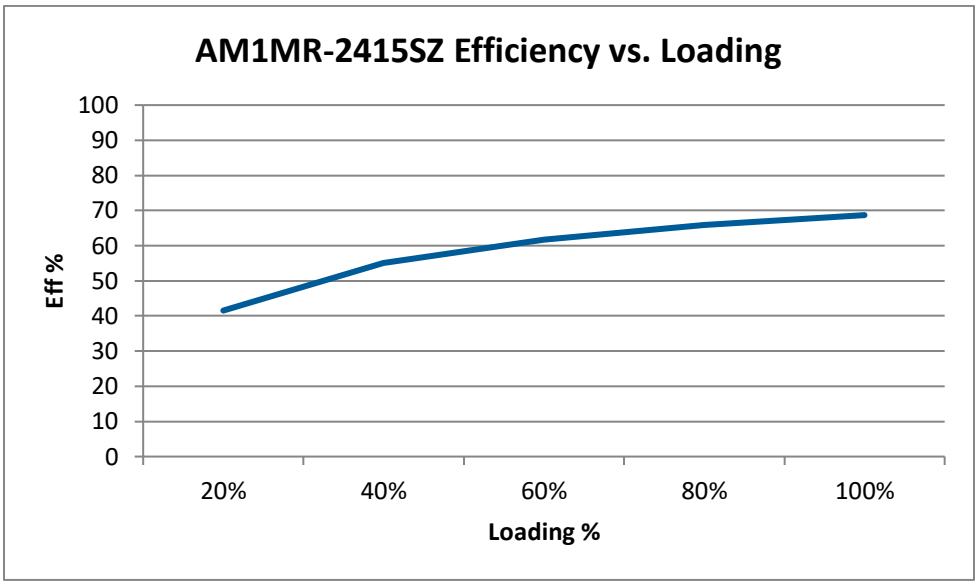



| C1 | L1 |
|---|---|
| 470µF/100V | 12 µH |

## Typical Efficiency Chart Examples






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