

## Series AM1P-Z

### 1 Watt | DC-DC Converter



#### FEATURES:

- RoHS compliant
- 8 Pin DIP Package
- Low ripple and noise
- High efficiency up to 85%
- Operating temperature -40°C to + 85°C
- Input / Output Isolation 1000 & 3000VDC
- Pin compatible with multiple manufacturers



#### Models

#### Single output

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current Max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|----------------|-------------------|--------------------|-------------------------|-----------------|--------------------------|----------------------------------------|----|----------------|
| AM1P-0303SZ    | 2.97-3.63         | 3.3                | 303                     | 1000            | 220                      | 410                                    | 25 | 74             |
| AM1P-0305SZ    | 2.97-3.63         | 5                  | 200                     | 1000            | 220                      | 394                                    | 25 | 77             |
| AM1P-0307SZ    | 2.97-3.63         | 7.2                | 138.9                   | 1000            | 220                      | 404                                    | 30 | 75             |
| AM1P-0309SZ    | 2.97-3.63         | 9                  | 111.1                   | 1000            | 220                      | 399                                    | 30 | 76             |
| AM1P-0312SZ    | 2.97-3.63         | 12                 | 100                     | 1000            | 220                      | 485                                    | 45 | 75             |
| AM1P-0315SZ    | 2.97-3.63         | 15                 | 66.6                    | 1000            | 220                      | 384                                    | 25 | 79             |
| AM1P-0318SZ    | 2.97-3.63         | 18                 | 55.5                    | 1000            | 220                      | 399                                    | 35 | 76             |
| AM1P-0324SZ    | 2.97-3.63         | 24                 | 50                      | 1000            | 220                      | 485                                    | 90 | 75             |
| AM1P-0503SZ    | 4.5-5.5           | 3.3                | 303                     | 1000            | 220                      | 256                                    | 16 | 78             |
| AM1P-0505SZ    | 4.5-5.5           | 5                  | 200                     | 1000            | 220                      | 253                                    | 15 | 79             |
| AM1P-0507SZ    | 4.5-5.5           | 7.2                | 138.9                   | 1000            | 220                      | 241                                    | 16 | 83             |
| AM1P-0509SZ    | 4.5-5.5           | 9                  | 111                     | 1000            | 220                      | 253                                    | 25 | 79             |
| AM1P-0512SZ    | 4.5-5.5           | 12                 | 100                     | 1000            | 220                      | 296                                    | 25 | 81             |
| AM1P-0515SZ    | 4.5-5.5           | 15                 | 67                      | 1000            | 220                      | 244                                    | 25 | 82             |
| AM1P-0518SZ    | 4.5-5.5           | 18                 | 56                      | 1000            | 220                      | 241                                    | 25 | 83             |
| AM1P-0524SZ    | 4.5-5.5           | 24                 | 50                      | 1000            | 220                      | 293                                    | 28 | 82             |
| AM1P-1203SZ    | 10.8-13.2         | 3.3                | 303                     | 1000            | 220                      | 108                                    | 15 | 77             |
| AM1P-1205SZ    | 10.8-13.2         | 5                  | 200                     | 1000            | 220                      | 105                                    | 16 | 79             |
| AM1P-1207SZ    | 10.8-13.2         | 7.2                | 138.9                   | 1000            | 220                      | 100                                    | 16 | 83             |
| AM1P-1209SZ    | 10.8-13.2         | 9                  | 111.1                   | 1000            | 220                      | 105                                    | 15 | 79             |
| AM1P-1212SZ    | 10.8-13.2         | 12                 | 100                     | 1000            | 220                      | 125                                    | 20 | 80             |
| AM1P-1215SZ    | 10.8-13.2         | 15                 | 66.6                    | 1000            | 220                      | 105                                    | 17 | 79             |
| AM1P-1218SZ    | 10.8-13.2         | 18                 | 55.5                    | 1000            | 220                      | 103                                    | 15 | 81             |
| AM1P-1224SZ    | 10.8-13.2         | 24                 | 50                      | 1000            | 220                      | 127                                    | 25 | 79             |
| AM1P-2403SZ    | 21.6-26.4         | 3.3                | 303                     | 1000            | 220                      | 89                                     | 15 | 79             |
| AM1P-2405SZ    | 21.6-26.4         | 5                  | 200                     | 1000            | 220                      | 83                                     | 10 | 79             |
| AM1P-2407SZ    | 21.6-26.4         | 7.2                | 138.9                   | 1000            | 220                      | 88                                     | 12 | 74             |
| AM1P-2409SZ    | 21.6-26.4         | 9                  | 111.1                   | 1000            | 220                      | 85                                     | 10 | 79             |
| AM1P-2412SZ    | 21.6-26.4         | 12                 | 100                     | 1000            | 220                      | 98                                     | 13 | 80             |
| AM1P-2415SZ    | 21.6-26.4         | 15                 | 66.6                    | 1000            | 220                      | 83                                     | 15 | 80             |
| AM1P-2418SZ    | 21.6-26.4         | 18                 | 55.5                    | 1000            | 220                      | 85                                     | 12 | 82             |
| AM1P-2424SZ    | 21.6-26.4         | 24                 | 50                      | 1000            | 220                      | 99                                     | 10 | 82             |
| AM1P-4803SZ    | 43.2-52.8         | 3.3                | 303                     | 1000            | 220                      | 53                                     | 8  | 79             |
| AM1P-4805SZ    | 43.2-52.8         | 5                  | 200                     | 1000            | 220                      | 53                                     | 8  | 79             |
| AM1P-4807SZ    | 43.2-52.8         | 7.2                | 139                     | 1000            | 220                      | 56                                     | 10 | 74             |
| AM1P-4809SZ    | 43.2-52.8         | 9                  | 111                     | 1000            | 220                      | 53                                     | 7  | 79             |
| AM1P-4812SZ    | 43.2-52.8         | 12                 | 100                     | 1000            | 220                      | 63                                     | 8  | 80             |
| AM1P-4815SZ    | 43.2-52.8         | 15                 | 67                      | 1000            | 220                      | 52                                     | 8  | 80             |
| AM1P-4818SZ    | 43.2-52.8         | 18                 | 56                      | 1000            | 220                      | 51                                     | 8  | 82             |
| AM1P-4824SZ    | 43.2-52.8         | 24                 | 50                      | 1000            | 220                      | 61                                     | 9  | 82             |
| AM1P-0303SH30Z | 2.97-3.63         | 3.3                | 303                     | 3000            | 220                      | 410                                    | 25 | 74             |
| AM1P-0305SH30Z | 2.97-3.63         | 5                  | 200                     | 3000            | 220                      | 394                                    | 25 | 77             |
| AM1P-0307SH30Z | 2.97-3.63         | 7.2                | 138.9                   | 3000            | 220                      | 404                                    | 30 | 75             |
| AM1P-0309SH30Z | 2.97-3.63         | 9                  | 111.1                   | 3000            | 220                      | 399                                    | 30 | 76             |
| AM1P-0312SH30Z | 2.97-3.63         | 12                 | 100                     | 3000            | 220                      | 485                                    | 45 | 75             |
| AM1P-0315SH30Z | 2.97-3.63         | 15                 | 66.6                    | 3000            | 220                      | 384                                    | 25 | 79             |
| AM1P-0318SH30Z | 2.97-3.63         | 18                 | 55.5                    | 3000            | 220                      | 399                                    | 35 | 76             |
| AM1P-0324SH30Z | 2.97-3.63         | 24                 | 50                      | 3000            | 220                      | 485                                    | 90 | 75             |
| AM1P-0503SH30Z | 4.5-5.5           | 3.3                | 303                     | 3000            | 220                      | 256                                    | 16 | 78             |

|                |           |     |       |      |     |     |    |    |
|----------------|-----------|-----|-------|------|-----|-----|----|----|
| AM1P-0505SH30Z | 4.5-5.5   | 5   | 200   | 3000 | 220 | 253 | 15 | 79 |
| AM1P-0507SH30Z | 4.5-5.5   | 7.2 | 138.9 | 3000 | 220 | 241 | 16 | 83 |
| AM1P-0509SH30Z | 4.5-5.5   | 9   | 111   | 3000 | 220 | 253 | 25 | 79 |
| AM1P-0512SH30Z | 4.5-5.5   | 12  | 100   | 3000 | 220 | 296 | 25 | 81 |
| AM1P-0515SH30Z | 4.5-5.5   | 15  | 67    | 3000 | 220 | 244 | 25 | 82 |
| AM1P-0518SH30Z | 4.5-5.5   | 18  | 56    | 3000 | 220 | 241 | 25 | 83 |
| AM1P-0524SH30Z | 4.5-5.5   | 24  | 50    | 3000 | 220 | 293 | 28 | 82 |
| AM1P-1203SH30Z | 10.8-13.2 | 3.3 | 303   | 3000 | 220 | 108 | 15 | 77 |
| AM1P-1205SH30Z | 10.8-13.2 | 5   | 200   | 3000 | 220 | 105 | 16 | 79 |
| AM1P-1207SH30Z | 10.8-13.2 | 7.2 | 138.9 | 3000 | 220 | 100 | 16 | 83 |
| AM1P-1209SH30Z | 10.8-13.2 | 9   | 111.1 | 3000 | 220 | 105 | 15 | 79 |
| AM1P-1212SH30Z | 10.8-13.2 | 12  | 100   | 3000 | 220 | 125 | 20 | 80 |
| AM1P-1215SH30Z | 10.8-13.2 | 15  | 66.6  | 3000 | 220 | 105 | 17 | 79 |
| AM1P-1218SH30Z | 10.8-13.2 | 18  | 55.5  | 3000 | 220 | 103 | 15 | 81 |
| AM1P-1224SH30Z | 10.8-13.2 | 24  | 50    | 3000 | 220 | 127 | 25 | 79 |
| AM1P-2403SH30Z | 21.6-26.4 | 3.3 | 303   | 3000 | 220 | 89  | 15 | 79 |
| AM1P-2405SH30Z | 21.6-26.4 | 5   | 200   | 3000 | 220 | 83  | 10 | 79 |
| AM1P-2407SH30Z | 21.6-26.4 | 7.2 | 138.9 | 3000 | 220 | 88  | 12 | 74 |
| AM1P-2409SH30Z | 21.6-26.4 | 9   | 111.1 | 3000 | 220 | 85  | 10 | 79 |
| AM1P-2412SH30Z | 21.6-26.4 | 12  | 100   | 3000 | 220 | 98  | 13 | 80 |
| AM1P-2415SH30Z | 21.6-26.4 | 15  | 66.6  | 3000 | 220 | 83  | 15 | 80 |
| AM1P-2418SH30Z | 21.6-26.4 | 18  | 55.5  | 3000 | 220 | 85  | 12 | 82 |
| AM1P-2424SH30Z | 21.6-26.4 | 24  | 50    | 3000 | 220 | 99  | 10 | 82 |
| AM1P-4803SH30Z | 43.2-52.8 | 3.3 | 303   | 3000 | 220 | 53  | 8  | 79 |
| AM1P-4805SH30Z | 43.2-52.8 | 5   | 200   | 3000 | 220 | 53  | 8  | 79 |
| AM1P-4807SH30Z | 43.2-52.8 | 7.2 | 139   | 3000 | 220 | 56  | 10 | 74 |
| AM1P-4809SH30Z | 43.2-52.8 | 9   | 111   | 3000 | 220 | 53  | 7  | 79 |
| AM1P-4812SH30Z | 43.2-52.8 | 12  | 100   | 3000 | 220 | 63  | 8  | 80 |
| AM1P-4815SH30Z | 43.2-52.8 | 15  | 67    | 3000 | 220 | 52  | 8  | 80 |
| AM1P-4818SH30Z | 43.2-52.8 | 18  | 56    | 3000 | 220 | 51  | 8  | 82 |
| AM1P-4824SH30Z | 43.2-52.8 | 24  | 50    | 3000 | 220 | 61  | 9  | 82 |

## Models

### Dual output

| Model       | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|-------------|-------------------|--------------------|-------------------------|-----------------|---------------------|----------------------------------------|----|----------------|
| AM1P-0503DZ | 4.5-5.5           | ±3.3               | ±152                    | 1000            | ±100                | 299                                    | 15 | 67             |
| AM1P-0505DZ | 4.5-5.5           | ±5                 | ±100                    | 1000            | ±100                | 270                                    | 20 | 74             |
| AM1P-0507DZ | 4.5-5.5           | ±7.2               | ±69                     | 1000            | ±100                | 260                                    | 15 | 77             |
| AM1P-0509DZ | 4.5-5.5           | ±9                 | ±56                     | 1000            | ±100                | 260                                    | 20 | 77             |
| AM1P-0512DZ | 4.5-5.5           | ±12                | ±50                     | 1000            | ±100                | 300                                    | 22 | 80             |
| AM1P-0515DZ | 4.5-5.5           | ±15                | ±34                     | 1000            | ±100                | 247                                    | 20 | 81             |
| AM1P-0518DZ | 4.5-5.5           | ±18                | ±28                     | 1000            | ±100                | 244                                    | 22 | 82             |
| AM1P-0524DZ | 4.5-5.5           | ±24                | ±25                     | 1000            | ±100                | 300                                    | 20 | 85             |
| AM1P-1203DZ | 10.8-13.2         | ±3.3               | ±152                    | 1000            | ±100                | 121                                    | 10 | 69             |
| AM1P-1205DZ | 10.8-13.2         | ±5                 | ±100                    | 1000            | ±100                | 110                                    | 7  | 76             |
| AM1P-1207DZ | 10.8-13.2         | ±7.2               | ±69                     | 1000            | ±100                | 109                                    | 15 | 76             |
| AM1P-1209DZ | 10.8-13.2         | ±9                 | ±56                     | 1000            | ±100                | 109                                    | 15 | 78             |
| AM1P-1212DZ | 10.8-13.2         | ±12                | ±50                     | 1000            | ±100                | 123                                    | 12 | 81             |
| AM1P-1215DZ | 10.8-13.2         | ±15                | ±33                     | 1000            | ±100                | 102                                    | 10 | 82             |
| AM1P-1218DZ | 10.8-13.2         | ±18                | ±28                     | 1000            | ±100                | 103                                    | 15 | 81             |
| AM1P-1224DZ | 10.8-13.2         | ±24                | ±25                     | 1000            | ±100                | 125                                    | 20 | 80             |
| AM1P-2403DZ | 21.6-26.4         | ±3.3               | ±152                    | 1000            | ±100                | 89                                     | 15 | 70             |
| AM1P-2405DZ | 21.6-26.4         | ±5                 | ±100                    | 1000            | ±100                | 83                                     | 10 | 74             |
| AM1P-2407DZ | 21.6-26.4         | ±7.2               | ±69                     | 1000            | ±100                | 88                                     | 12 | 76             |
| AM1P-2409DZ | 21.6-26.4         | ±9                 | ±56                     | 1000            | ±100                | 85                                     | 10 | 75             |
| AM1P-2412DZ | 21.6-26.4         | ±12                | ±50                     | 1000            | ±100                | 98                                     | 13 | 81             |
| AM1P-2415DZ | 21.6-26.4         | ±15                | ±33                     | 1000            | ±100                | 83                                     | 15 | 81             |
| AM1P-2418DZ | 21.6-26.4         | ±18                | ±28                     | 1000            | ±100                | 85                                     | 12 | 78             |
| AM1P-2424DZ | 21.6-26.4         | ±24                | ±25                     | 1000            | ±100                | 64                                     | 7  | 78             |
| AM1P-4803DZ | 43.2-52.8         | ±3.3               | ±150                    | 1000            | ±100                | 60                                     | 5  | 70             |
| AM1P-4805DZ | 43.2-52.8         | ±5                 | ±100                    | 1000            | ±100                | 56                                     | 6  | 74             |

|             |           |      |     |      |      |    |   |    |
|-------------|-----------|------|-----|------|------|----|---|----|
| AM1P-4807DZ | 43.2-52.8 | ±7.2 | ±70 | 1000 | ±100 | 55 | 6 | 76 |
| AM1P-4809DZ | 43.2-52.8 | ±9   | ±55 | 1000 | ±100 | 56 | 7 | 75 |
| AM1P-4812DZ | 43.2-52.8 | ±12  | ±42 | 1000 | ±100 | 62 | 5 | 81 |
| AM1P-4815DZ | 43.2-52.8 | ±15  | ±34 | 1000 | ±100 | 51 | 5 | 81 |
| AM1P-4818DZ | 43.2-52.8 | ±18  | ±28 | 1000 | ±100 | 53 | 7 | 78 |
| AM1P-4824DZ | 43.2-52.8 | ±24  | ±21 | 1000 | ±100 | 64 | 7 | 78 |

## Models

### Dual Separated Output

| Model         | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Isolation (VDC) | Max Capacitive Load (uF) | Input Current Full Load   No Load (mA) |    | Efficiency (%) |
|---------------|-------------------|--------------------|-------------------------|-----------------|--------------------------|----------------------------------------|----|----------------|
| AM1P-050303DZ | 4.5-5.5           | 3.3 / 3.3          | 152 / 152               | 1000            | 100                      | 111                                    | 15 | 67             |
| AM1P-050505DZ | 4.5-5.5           | 5 / 5              | 100 / 100               | 1000            | 100                      | 111                                    | 10 | 81             |
| AM1P-050707DZ | 4.5-5.5           | 7.2 / 7.2          | 69 / 69                 | 1000            | 100                      | 260                                    | 16 | 77             |
| AM1P-050909DZ | 4.5-5.5           | 9 / 9              | 56 / 56                 | 1000            | 100                      | 253                                    | 15 | 79             |
| AM1P-051212DZ | 4.5-5.5           | 12 / 12            | 50 / 50                 | 1000            | 100                      | 300                                    | 20 | 80             |
| AM1P-051515DZ | 4.5-5.5           | 15 / 15            | 34 / 34                 | 1000            | 100                      | 247                                    | 20 | 81             |
| AM1P-051818DZ | 4.5-5.5           | 18 / 18            | 28 / 28                 | 1000            | 100                      | 247                                    | 20 | 81             |
| AM1P-052424DZ | 4.5-5.5           | 24 / 24            | 25 / 25                 | 1000            | 100                      | 320                                    | 25 | 75             |
| AM1P-120303DZ | 10.8-13.2         | 3.3 / 3.3          | 152 / 152               | 1000            | 100                      | 111                                    | 15 | 75             |
| AM1P-120505DZ | 10.8-13.2         | 5 / 5              | 100 / 100               | 1000            | 100                      | 111                                    | 10 | 75             |
| AM1P-120707DZ | 10.8-13.2         | 7.2 / 7.2          | 69 / 69                 | 1000            | 100                      | 107                                    | 10 | 78             |
| AM1P-120909DZ | 10.8-13.2         | 9 / 9              | 56 / 56                 | 1000            | 100                      | 105                                    | 10 | 79             |
| AM1P-121212DZ | 10.8-13.2         | 12 / 12            | 50 / 50                 | 1000            | 100                      | 125                                    | 15 | 80             |
| AM1P-121515DZ | 10.8-13.2         | 15 / 15            | 33 / 33                 | 1000            | 100                      | 104                                    | 13 | 80             |
| AM1P-121818DZ | 10.8-13.2         | 18 / 18            | 28 / 28                 | 1000            | 100                      | 107                                    | 20 | 78             |
| AM1P-122424DZ | 10.8-13.2         | 24 / 24            | 25 / 25                 | 1000            | 100                      | 128                                    | 20 | 78             |
| AM1P-240303DZ | 21.6-26.4         | 3.3 / 3.3          | 152 / 152               | 1000            | 100                      | 53                                     | 5  | 79             |
| AM1P-240505DZ | 21.6-26.4         | 5 / 5              | 100 / 100               | 1000            | 100                      | 50                                     | 8  | 83             |
| AM1P-240707DZ | 21.6-26.4         | 7.2 / 7.2          | 69 / 69                 | 1000            | 100                      | 53                                     | 5  | 78             |
| AM1P-240909DZ | 21.6-26.4         | 9 / 9              | 56 / 56                 | 1000            | 100                      | 54                                     | 8  | 77             |
| AM1P-241212DZ | 21.6-26.4         | 12 / 12            | 50 / 50                 | 1000            | 100                      | 63                                     | 6  | 80             |
| AM1P-241515DZ | 21.6-26.4         | 15 / 15            | 33 / 33                 | 1000            | 100                      | 54                                     | 6  | 77             |
| AM1P-241818DZ | 21.6-26.4         | 18 / 18            | 28 / 28                 | 1000            | 100                      | 56                                     | 13 | 74             |
| AM1P-242424DZ | 21.6-26.4         | 24 / 24            | 25 / 25                 | 1000            | 100                      | 65                                     | 5  | 77             |
| AM1P-480303DZ | 43.2-52.8         | 3.3 / 3.3          | 150 / 150               | 1000            | 100                      | 60                                     | 5  | 70             |
| AM1P-480505DZ | 43.2-52.8         | 5 / 5              | 100 / 100               | 1000            | 100                      | 56                                     | 6  | 74             |
| AM1P-480707DZ | 43.2-52.8         | 7.2 / 7.2          | 70 / 70                 | 1000            | 220                      | 55                                     | 6  | 76             |
| AM1P-480909DZ | 43.2-52.8         | 9 / 9              | 55 / 55                 | 1000            | 100                      | 56                                     | 7  | 75             |
| AM1P-481212DZ | 43.2-52.8         | 12 / 12            | 42 / 42                 | 1000            | 100                      | 62                                     | 5  | 81             |
| AM1P-481515DZ | 43.2-52.8         | 15 / 15            | 34 / 34                 | 1000            | 100                      | 51                                     | 5  | 81             |
| AM1P-481818DZ | 43.2-52.8         | 18 / 18            | 28 / 28                 | 1000            | 100                      | 53                                     | 7  | 78             |
| AM1P-482424DZ | 43.2-52.8         | 24 / 24            | 21 / 21                 | 1000            | 100                      | 64                                     | 7  | 78             |

## Input Specifications

| Parameters                     | Nominal   | Typical   | Maximum | Units |
|--------------------------------|-----------|-----------|---------|-------|
| Voltage range                  | 3.3       | 2.97-3.63 |         | VDC   |
|                                | 5         | 4.5-5.5   |         |       |
|                                | 12        | 10.8-13.2 |         |       |
|                                | 24        | 21.6-26.4 |         |       |
|                                | 48        | 43.2-52.8 |         |       |
| Filter                         | Capacitor |           |         |       |
| Turn on Transient process time |           |           | 25      | ms    |
| Startup time                   |           | 200       |         | ms    |
| Absolute Maximum Rating        | 3.3 Vin   | 0-6       |         | VDC   |
|                                | 5 Vin     | 0-7       |         |       |
|                                | 12 Vin    | 0-15      |         |       |
|                                | 24 Vin    | 0-28      |         |       |
|                                | 48 Vin    | 0-54      |         |       |
| Peak Input Voltage time        |           | 100       |         | ms    |

### Isolation Specifications

| Parameters         | Conditions | Typical | Rated                                 | Units |
|--------------------|------------|---------|---------------------------------------|-------|
| Tested I/O voltage | 60 sec     |         | 1000 all models, 3000 (single output) | VDC   |
| Resistance         |            | > 1000  |                                       | MOhm  |
| Capacitance        |            | 60      |                                       | pF    |

### Output Specifications

| Parameters               | Conditions                   | Typical                                                 | Maximum | Units  |
|--------------------------|------------------------------|---------------------------------------------------------|---------|--------|
| Voltage accuracy         |                              | ±3                                                      |         | %      |
| Short Circuit protection | Momentary (1 sec)            |                                                         |         |        |
| Line voltage regulation  | 48V input models             | ±1.2                                                    |         | %      |
|                          | Others, for 1% change of Vin | ±1.2                                                    |         |        |
| Load voltage regulation  | Load 20 – 100%               | Single 3.3V output models                               | ±20     | %      |
|                          |                              | Dual Separated 5V, 12V, 24V input and 3.3V output model | ±15     |        |
|                          |                              | 48V input model                                         | ±1.2    |        |
|                          |                              | Others                                                  | ±10     |        |
| Temperature coefficient  |                              | ±0.02                                                   |         | %/°C   |
| Ripple & Noise           | At 20MHz Bandwidth           | 48V input models                                        | 50      | mV p-p |
|                          |                              | Others                                                  | 100     |        |
| Rising time              |                              | 50                                                      |         | ms     |

### General Specifications

| Parameters              | Conditions                                              | Typical     | Maximum | Units |
|-------------------------|---------------------------------------------------------|-------------|---------|-------|
| Switching frequency     | 100% load                                               | 80          |         | KHz   |
| Operating temperature   | Full Load without Derating                              | -40 to +85  |         | °C    |
| Storage temperature     |                                                         | -55 to +125 |         | °C    |
| Max Case temperature    |                                                         |             | 90      | °C    |
| Cooling                 | Free air convection                                     |             |         |       |
| Humidity                |                                                         |             | 90      | %     |
| Case material           | Non-conductive black plastic                            |             |         |       |
| Weight                  |                                                         | 1.8         |         | g     |
| Dimensions (L x W x H)  | 0.50 x 0.40 x 0.27 inches 12.70 x 10.16 x 6.85 mm       |             |         |       |
| MTBF                    | >1 121 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) |             |         |       |
| MTBF (48V input models) | >1 191 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C) |             |         |       |

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

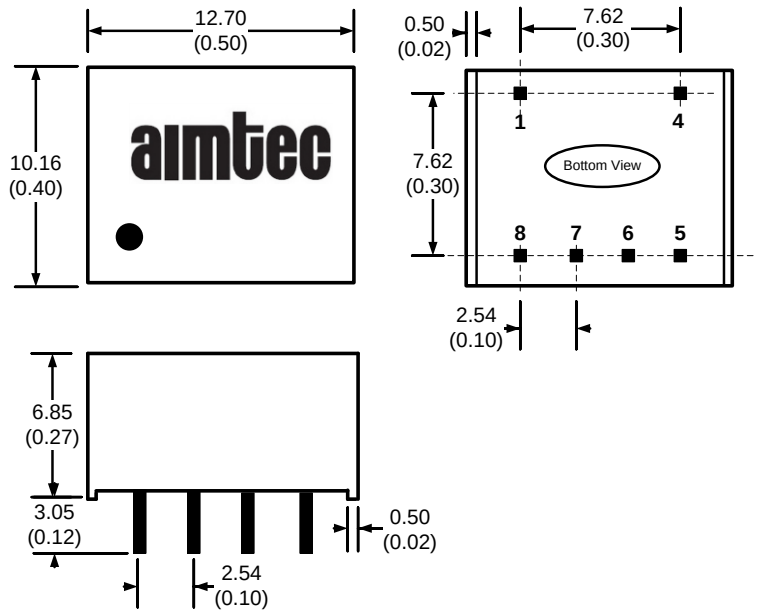
### Safety Specifications

| Parameters       |                                                                       |
|------------------|-----------------------------------------------------------------------|
| Agency approvals | CE , 48V input models are excluded.                                   |
| Standards        | EN55032 (Radiated Emissions) class B , 48V input models are excluded. |
|                  | IEC61000-4-3(Radiated immunity)                                       |

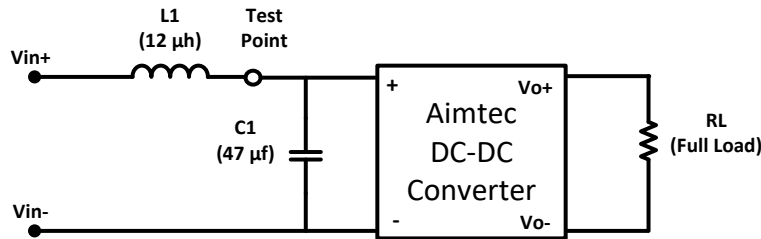
## Pin Out Specifications

| Pin | 1000 and 3000 VDC |            | 1000 VDC       |
|-----|-------------------|------------|----------------|
|     | Single            | Dual       | Dual Separated |
| 1   | - V Input         | - V Input  | - V Input      |
| 4   | + V Input         | + V Input  | + V Input      |
| 5   | + V Output        | + V Output | + V1 Output    |
| 6   | No pin            | No pin     | - V1 Output    |
| 7   | - V Output        | Common     | + V2 Output    |
| 8   | No pin            | - V Output | - V2 Output    |

## Dimensions



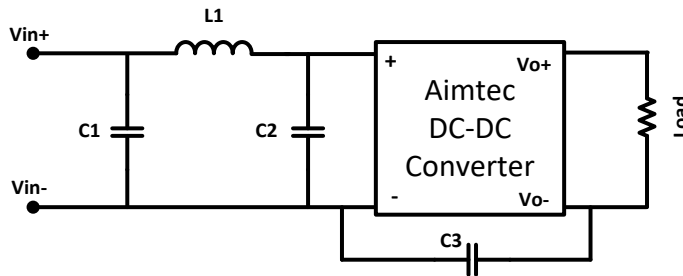
## Input Reflected Ripple Test Circuit



\* Tested at full load, and nominal input

## EMI Filtering

To meet conducted emissions, the following circuit is recommended with the external components as noted in the table below.

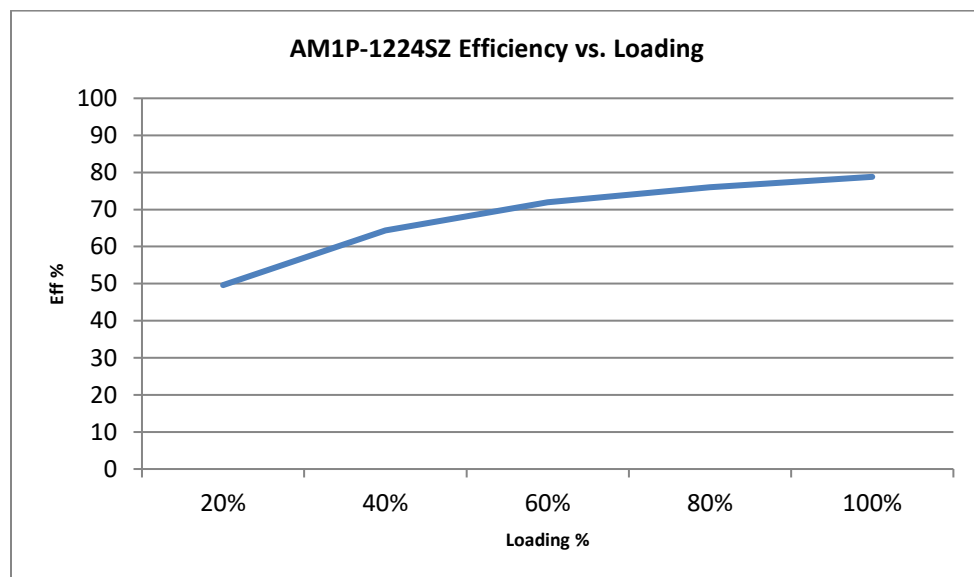
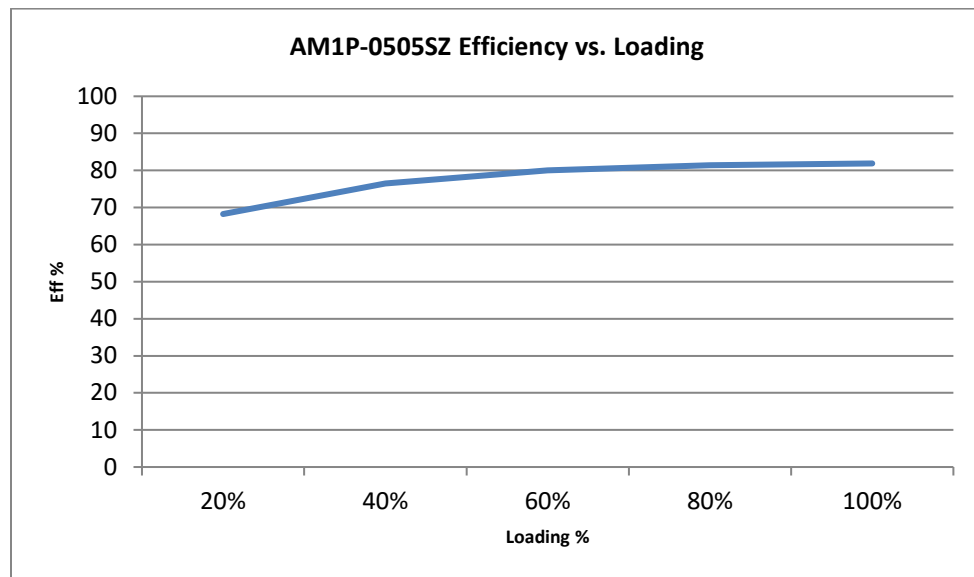


| Model  | C1            | L1    | C2            | C3          |
|--------|---------------|-------|---------------|-------------|
| 5 Vin  | 2.2 µF / 100V | 18 µH |               |             |
| 12 Vin | 2.2 µF / 100V | 18 µH |               |             |
| 24 Vin | 2.2 µF / 100V | 18 µH | 2.2 µF / 100V | 470pF / 2KV |
| 48 Vin | 10 µF / 100V* | 18 µH | 2.2 µF / 100V | 470pF / 2KV |

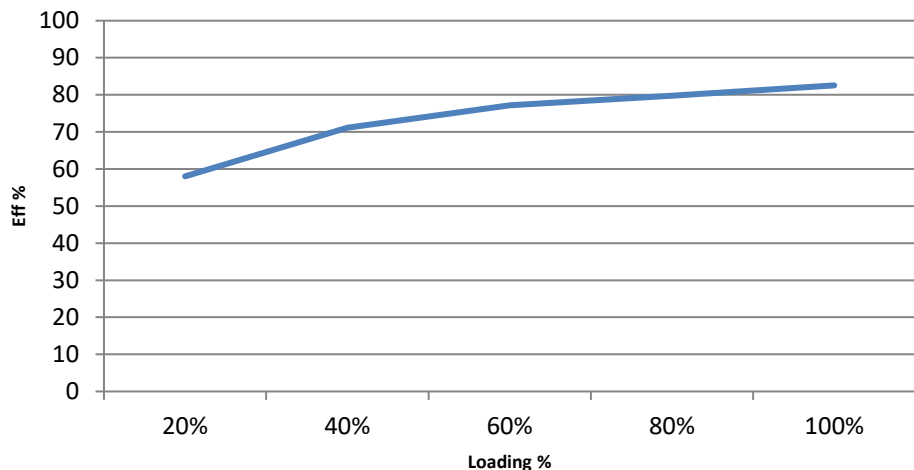
\* - Electrolytic Capacitor Type

Additionally, in order to meet IEC 61000-4-4 and 61000-4-5 and external capacitor is recommended (ex. Nippon KY series of size 470 µF / 100V).

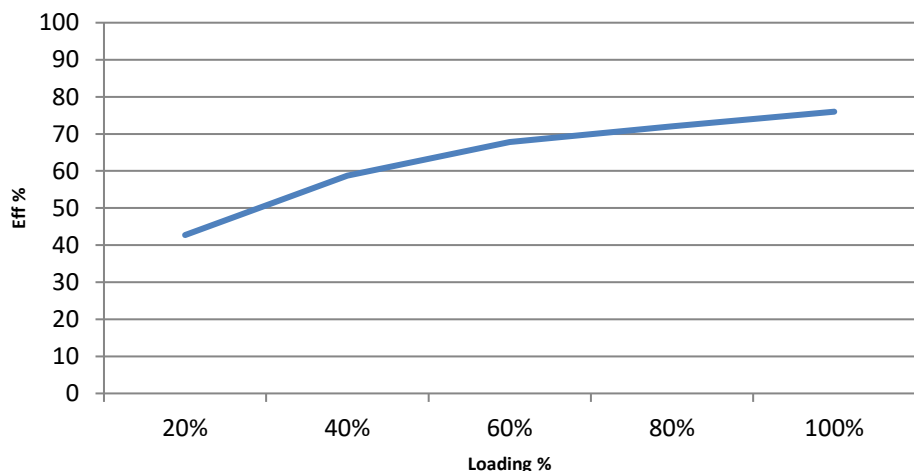
## Typical Efficiency Chart Examples



**AM1P-2424SZ Efficiency vs. Loading**



**AM1P-4824SZ Efficiency vs. Loading**



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