

## Series AM6T-Z

### 6 Watt | DC-DC Converter



#### FEATURES:

- RoHS compliant
- 24 Pin DIP Package
- Wide 2:1 input range
- High efficiency up to 83%
- Operating temperature -40°C to + 85°C
- Input / Output Isolation 1500 and 3500VDC
- Pin compatible with multiple manufacturers
- Continuous short circuit protection



#### Models

##### Single output

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Efficiency (%) | Capacitive load, max (μF) | Isolation (VDC) |
|----------------|-------------------|--------------------|-------------------------|----------------|---------------------------|-----------------|
| AM6T-0503SZ    | 4.5-9             | 3.3                | 1400                    | 73             | 1000                      | 1500            |
| AM6T-0505SZ    | 4.5-9             | 5                  | 1200                    | 76             | 1000                      | 1500            |
| AM6T-0512SZ    | 4.5-9             | 12                 | 500                     | 82             | 330                       | 1500            |
| AM6T-0515SZ    | 4.5-9             | 15                 | 400                     | 82             | 220                       | 1500            |
| AM6T-1203SZ    | 9-18              | 3.3                | 1400                    | 73             | 1000                      | 1500            |
| AM6T-1205SZ    | 9-18              | 5                  | 1200                    | 77             | 1000                      | 1500            |
| AM6T-1207SZ    | 9-18              | 7.2                | 833                     | 78             | 680                       | 1500            |
| AM6T-1209SZ    | 9-18              | 9                  | 666                     | 78             | 680                       | 1500            |
| AM6T-1212SZ    | 9-18              | 12                 | 500                     | 81             | 330                       | 1500            |
| AM6T-1215SZ    | 9-18              | 15                 | 400                     | 80             | 220                       | 1500            |
| AM6T-1218SZ    | 9-18              | 18                 | 333                     | 80             | 68                        | 1500            |
| AM6T-1224SZ    | 9-18              | 24                 | 250                     | 80             | 68                        | 1500            |
| AM6T-2403SZ    | 18-36             | 3.3                | 1400                    | 75             | 3300                      | 1500            |
| AM6T-2405SZ    | 18-36             | 5                  | 1200                    | 80             | 1000                      | 1500            |
| AM6T-2407SZ    | 18-36             | 7.2                | 833                     | 82             | 680                       | 1500            |
| AM6T-2409SZ    | 18-36             | 9                  | 666                     | 82             | 680                       | 1500            |
| AM6T-2412SZ    | 18-36             | 12                 | 500                     | 80             | 330                       | 1500            |
| AM6T-2415SZ    | 18-36             | 15                 | 400                     | 82             | 220                       | 1500            |
| AM6T-2418SZ    | 18-36             | 18                 | 333                     | 82             | 220                       | 1500            |
| AM6T-2424SZ    | 18-36             | 24                 | 250                     | 82             | 220                       | 1500            |
| AM6T-4803SZ    | 36-72             | 3.3                | 1400                    | 75             | 3300                      | 1500            |
| AM6T-4805SZ    | 36-72             | 5                  | 1200                    | 80             | 2200                      | 1500            |
| AM6T-4807SZ    | 36-72             | 7.2                | 833                     | 82             | 470                       | 1500            |
| AM6T-4809SZ    | 36-72             | 9                  | 666                     | 82             | 470                       | 1500            |
| AM6T-4812SZ    | 36-72             | 12                 | 500                     | 80             | 330                       | 1500            |
| AM6T-4815SZ    | 36-72             | 15                 | 400                     | 83             | 220                       | 1500            |
| AM6T-4818SZ    | 36-72             | 18                 | 333                     | 83             | 100                       | 1500            |
| AM6T-4824SZ    | 36-72             | 24                 | 250                     | 83             | 100                       | 1500            |
| AM6T-0503SH35Z | 4.5-9             | 3.3                | 1400                    | 73             | 1000                      | 3500            |
| AM6T-0505SH35Z | 4.5-9             | 5                  | 1200                    | 76             | 1000                      | 3500            |
| AM6T-0512SH35Z | 4.5-9             | 12                 | 500                     | 82             | 330                       | 3500            |
| AM6T-0515SH35Z | 4.5-9             | 15                 | 400                     | 82             | 220                       | 3500            |
| AM6T-1203SH35Z | 9-18              | 3.3                | 1400                    | 73             | 1000                      | 3500            |
| AM6T-1205SH35Z | 9-18              | 5                  | 1200                    | 77             | 1000                      | 3500            |
| AM6T-1207SH35Z | 9-18              | 7.2                | 833                     | 78             | 680                       | 3500            |
| AM6T-1209SH35Z | 9-18              | 9                  | 666                     | 78             | 680                       | 3500            |
| AM6T-1212SH35Z | 9-18              | 12                 | 500                     | 81             | 330                       | 3500            |
| AM6T-1215SH35Z | 9-18              | 15                 | 400                     | 80             | 220                       | 3500            |
| AM6T-1218SH35Z | 9-18              | 18                 | 333                     | 80             | 68                        | 3500            |
| AM6T-1224SH35Z | 9-18              | 24                 | 250                     | 80             | 68                        | 3500            |
| AM6T-2403SH35Z | 18-36             | 3.3                | 1400                    | 75             | 3300                      | 3500            |
| AM6T-2405SH35Z | 18-36             | 5                  | 1200                    | 80             | 1000                      | 3500            |
| AM6T-2407SH35Z | 18-36             | 7.2                | 833                     | 82             | 680                       | 3500            |
| AM6T-2409SH35Z | 18-36             | 9                  | 666                     | 82             | 680                       | 3500            |
| AM6T-2412SH35Z | 18-36             | 12                 | 500                     | 80             | 330                       | 3500            |
| AM6T-2415SH35Z | 18-36             | 15                 | 400                     | 82             | 220                       | 3500            |

## Models

### Single output (continued)

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Efficiency (%) | Capacitive load, max (μF) | Isolation (VDC) |
|----------------|-------------------|--------------------|-------------------------|----------------|---------------------------|-----------------|
| AM6T-2418SH35Z | 18-36             | 18                 | 333                     | 73             | 220                       | 3500            |
| AM6T-2424SH35Z | 18-36             | 24                 | 250                     | 77             | 220                       | 3500            |
| AM6T-4803SH35Z | 36-72             | 3.3                | 1400                    | 78             | 3300                      | 3500            |
| AM6T-4805SH35Z | 36-72             | 5                  | 1200                    | 78             | 2200                      | 3500            |
| AM6T-4807SH35Z | 36-72             | 7.2                | 833                     | 81             | 470                       | 3500            |
| AM6T-4809SH35Z | 36-72             | 9                  | 666                     | 80             | 470                       | 3500            |
| AM6T-4812SH35Z | 36-72             | 12                 | 500                     | 80             | 330                       | 3500            |
| AM6T-4815SH35Z | 36-72             | 15                 | 400                     | 80             | 220                       | 3500            |
| AM6T-4818SH35Z | 36-72             | 18                 | 333                     | 75             | 100                       | 3500            |
| AM6T-4824SH35Z | 36-72             | 24                 | 250                     | 80             | 100                       | 3500            |

## Models

### Dual output

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Efficiency (%) | Capacitive load, max (μF) | Isolation (VDC) |
|----------------|-------------------|--------------------|-------------------------|----------------|---------------------------|-----------------|
| AM6T-0503DZ    | 4.5-9             | ±3.3               | ±700                    | 73             | ±680                      | 1500            |
| AM6T-0505DZ    | 4.5-9             | ±5                 | ±600                    | 76             | ±330                      | 1500            |
| AM6T-0512DZ    | 4.5-9             | ±12                | ±250                    | 82             | ±100                      | 1500            |
| AM6T-0515DZ    | 4.5-9             | ±15                | ±200                    | 82             | ±100                      | 1500            |
| AM6T-1203DZ    | 9-18              | ±3.3               | ±909                    | 73             | ±680                      | 1500            |
| AM6T-1205DZ    | 9-18              | ±5                 | ±600                    | 77             | ±330                      | 1500            |
| AM6T-1207DZ    | 9-18              | ±7.2               | ±416                    | 80             | ±220                      | 1500            |
| AM6T-1209DZ    | 9-18              | ±9                 | ±333                    | 80             | ±220                      | 1500            |
| AM6T-1212DZ    | 9-18              | ±12                | ±250                    | 80             | ±100                      | 1500            |
| AM6T-1215DZ    | 9-18              | ±15                | ±200                    | 79             | ±47                       | 1500            |
| AM6T-1218DZ    | 9-18              | ±18                | ±166                    | 80             | ±33                       | 1500            |
| AM6T-1224DZ    | 9-18              | ±24                | ±125                    | 80             | ±33                       | 1500            |
| AM6T-2403DZ    | 18-36             | ±3.3               | ±909                    | 75             | ±680                      | 1500            |
| AM6T-2405DZ    | 18-36             | ±5                 | ±600                    | 78             | ±330                      | 1500            |
| AM6T-2407DZ    | 18-36             | ±7.2               | ±416                    | 83             | ±220                      | 1500            |
| AM6T-2409DZ    | 18-36             | ±9                 | ±333                    | 83             | ±220                      | 1500            |
| AM6T-2412DZ    | 18-36             | ±12                | ±250                    | 80             | ±100                      | 1500            |
| AM6T-2415DZ    | 18-36             | ±15                | ±200                    | 80             | ±47                       | 1500            |
| AM6T-2418DZ    | 18-36             | ±18                | ±166                    | 80             | ±33                       | 1500            |
| AM6T-2424DZ    | 18-36             | ±24                | ±125                    | 80             | ±33                       | 1500            |
| AM6T-4803DZ    | 36-72             | ±3.3               | ±909                    | 73             | ±680                      | 1500            |
| AM6T-4805DZ    | 36-72             | ±5                 | ±600                    | 79             | ±330                      | 1500            |
| AM6T-4807DZ    | 36-72             | ±7.2               | ±416                    | 79             | ±220                      | 1500            |
| AM6T-4809DZ    | 36-72             | ±9                 | ±333                    | 79             | ±220                      | 1500            |
| AM6T-4812DZ    | 36-72             | ±12                | ±250                    | 80             | ±100                      | 1500            |
| AM6T-4815DZ    | 36-72             | ±15                | ±200                    | 80             | ±47                       | 1500            |
| AM6T-4818DZ    | 36-72             | ±18                | ±166                    | 80             | ±33                       | 1500            |
| AM6T-4824DZ    | 36-72             | ±24                | ±125                    | 80             | ±33                       | 1500            |
| AM6T-0503DH35Z | 4.5-9             | ±3.3               | ±700                    | 73             | ±680                      | 3500            |
| AM6T-0505DH35Z | 4.5-9             | ±5                 | ±600                    | 76             | ±330                      | 3500            |
| AM6T-0512DH35Z | 4.5-9             | ±12                | ±250                    | 82             | ±100                      | 3500            |
| AM6T-0515DH35Z | 4.5-9             | ±15                | ±200                    | 82             | ±100                      | 3500            |
| AM6T-1203DH35Z | 9-18              | ±3.3               | ±909                    | 73             | ±680                      | 3500            |
| AM6T-1205DH35Z | 9-18              | ±5                 | ±600                    | 77             | ±330                      | 3500            |
| AM6T-1207DH35Z | 9-18              | ±7.2               | ±416                    | 80             | ±220                      | 3500            |
| AM6T-1209DH35Z | 9-18              | ±9                 | ±333                    | 80             | ±220                      | 3500            |
| AM6T-1212DH35Z | 9-18              | ±12                | ±250                    | 80             | ±100                      | 3500            |
| AM6T-1215DH35Z | 9-18              | ±15                | ±200                    | 79             | ±47                       | 3500            |
| AM6T-1218DH35Z | 9-18              | ±18                | ±166                    | 80             | ±33                       | 3500            |

## Models

### Dual output (continued)

| Model          | Input Voltage (V) | Output Voltage (V) | Output Current max (mA) | Efficiency (%) | Capacitive load, max (μF) | Isolation (VDC) |
|----------------|-------------------|--------------------|-------------------------|----------------|---------------------------|-----------------|
| AM6T-1224DH35Z | 9-18              | ±24                | ±125                    | 80             | ±33                       | 3500            |
| AM6T-2403DH35Z | 18-36             | ±3.3               | ±909                    | 75             | ±680                      | 3500            |
| AM6T-2405DH35Z | 18-36             | ±5                 | ±600                    | 78             | ±330                      | 3500            |
| AM6T-2407DH35Z | 18-36             | ±7.2               | ±416                    | 83             | ±220                      | 3500            |
| AM6T-2409DH35Z | 18-36             | ±9                 | ±333                    | 83             | ±220                      | 3500            |
| AM6T-2412DH35Z | 18-36             | ±12                | ±250                    | 80             | ±100                      | 3500            |
| AM6T-2415DH35Z | 18-36             | ±15                | ±200                    | 80             | ±47                       | 3500            |
| AM6T-2418DH35Z | 18-36             | ±18                | ±166                    | 80             | ±33                       | 3500            |
| AM6T-2424DH35Z | 18-36             | ±24                | ±125                    | 80             | ±33                       | 3500            |
| AM6T-4803DH35Z | 36-72             | ±3.3               | ±909                    | 73             | ±680                      | 3500            |
| AM6T-4805DH35Z | 36-72             | ±5                 | ±600                    | 79             | ±330                      | 3500            |
| AM6T-4807DH35Z | 36-72             | ±7.2               | ±416                    | 79             | ±220                      | 3500            |
| AM6T-4809DH35Z | 36-72             | ±9                 | ±333                    | 79             | ±220                      | 3500            |
| AM6T-4812DH35Z | 36-72             | ±12                | ±250                    | 80             | ±100                      | 3500            |
| AM6T-4815DH35Z | 36-72             | ±15                | ±200                    | 80             | ±47                       | 3500            |
| AM6T-4818DH35Z | 36-72             | ±18                | ±166                    | 80             | ±33                       | 3500            |
| AM6T-4824DH35Z | 36-72             | ±24                | ±909                    | 80             | ±33                       | 3500            |

## Input Specifications

| Parameters                       | Nominal            | Typical | Maximum | Units  |
|----------------------------------|--------------------|---------|---------|--------|
| Voltage range                    | 5                  | 4.5-9   |         | VDC    |
|                                  | 12                 | 9-18    |         |        |
|                                  | 24                 | 18-36   |         |        |
|                                  | 48                 | 36-72   |         |        |
| Filter                           | $\pi$ (Pi) Network |         |         |        |
| Absolute Maximum Rating          | 5 Vin              | -0.7-15 |         | VDC    |
|                                  | 12 Vin             | -0.7-24 |         |        |
|                                  | 24 Vin             | -0.7-40 |         |        |
|                                  | 48 Vin             | -0.7-80 |         |        |
| Peak Input Voltage time          |                    | 100     |         | ms     |
| Input Reflected ripple current * |                    | 35      |         | mA p-p |

\* The input reflected ripple current should be measured with connected 12μH inductor.

## Isolation Specifications

| Parameters                | Conditions | Typical | Rated        | Units |
|---------------------------|------------|---------|--------------|-------|
| Tested I/O voltage        | 60 sec     |         | 1500 or 3500 | VDC   |
| Metal case/Input & Output | 60 sec     |         | 1000         | VDC   |
| Resistance                |            | > 1000  |              | MOhm  |
| Capacitance               |            | 500     |              | pF    |

## Output Specifications

| Parameters               | Conditions                       | Typical | Maximum | Units  |
|--------------------------|----------------------------------|---------|---------|--------|
| Voltage accuracy         |                                  | ±1      |         | %      |
| Short Circuit protection | Continuous, auto recovery        |         |         |        |
| Line voltage regulation  |                                  | ±0.5    |         | %      |
| Load voltage regulation  | 0 – 100% load, 3.3V/±3.3V Models | ±1.5    |         | %      |
|                          | 0 – 100% load, others            | ±0.5    |         | %      |
| Temperature coefficient  |                                  | ±0.02   |         | %/°C   |
| Ripple & Noise *         | At 20MHz Bandwidth               | 60      |         | mV p-p |

\* Measured with 1μF CC.

## General Specifications

| Parameters             | Conditions                                                               | Typical                   | Maximum                  | Units |
|------------------------|--------------------------------------------------------------------------|---------------------------|--------------------------|-------|
| Switching frequency    | 100% load                                                                | 266                       |                          | KHz   |
| Operating temperature  | Full Load without Derating<br>(except 5V input models see chart)         | -40 to +85                |                          | °C    |
| Storage temperature    |                                                                          | -40 to +125               |                          | °C    |
| Max Case temperature   |                                                                          |                           | +100                     | °C    |
| Cooling                | Free air convection                                                      |                           |                          |       |
| Humidity               |                                                                          |                           | 95                       | %     |
| Case material          | Nickel coated copper                                                     |                           |                          |       |
| Weight                 |                                                                          | 17                        |                          | g     |
| Dimensions (L x W x H) | Tolerance $\pm 0.5$ mm or $\pm 0.02$ inches                              | 1.25 x 0.80 x 0.40 inches | 31.75 x 20.32 x 10.16 mm |       |
| MTBF                   | >1 121 000 hrs (MIL-HDBK -217F, Ground Benign, $t=+25^{\circ}\text{C}$ ) |                           |                          |       |

NOTE: All specifications noted 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.

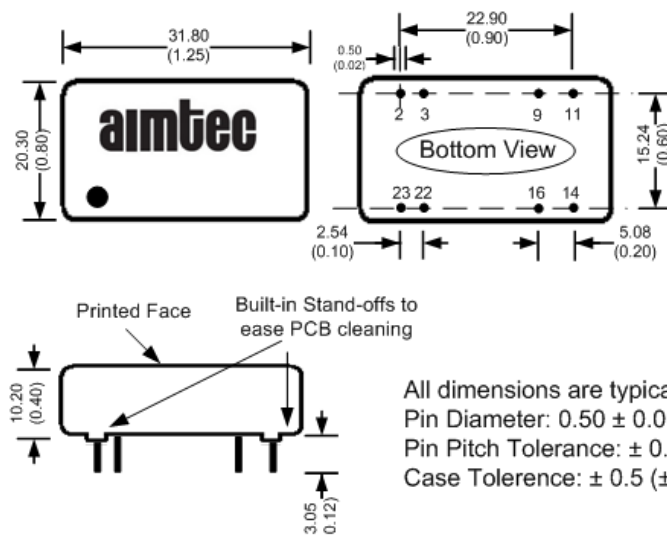
## Safety Specifications

| Parameters                                                 |                                                                   |
|------------------------------------------------------------|-------------------------------------------------------------------|
| Agency Approvals                                           | UL (pending), except 5Vin models, CE                              |
| Standards                                                  | EN55032 Class A, with recommended circuit                         |
|                                                            | IEC61000-4-2, Perf. Criteria A                                    |
|                                                            | IEC61000-4-3, Perf. Criteria A                                    |
|                                                            | IEC61000-4-4, Perf. Criteria A (external 220uF/100V cap required) |
|                                                            | IEC61000-4-5, Perf. Criteria A (external 220uF/100V cap required) |
|                                                            | IEC61000-4-6, Perf. Criteria A                                    |
|                                                            | IEC61000-4-8, Perf. Criteria A                                    |
| NOTE: also designed to meet IEC 60950-1:2001 & IEC 62368-1 |                                                                   |

## Pin Out Specifications

| Pin | 1500 & 3500VDC |           |
|-----|----------------|-----------|
|     | Single         | Dual      |
| 2   | -V Input       | -V Input  |
| 3   | -V Input       | -V Input  |
| 9   | NO PIN         | Common    |
| 11  | N. C.          | -V Output |
| 14  | +V Output      | +V Output |
| 16  | -V Output      | Common    |
| 22  | +V Input       | +V Input  |
| 23  | +V Input       | +V Input  |

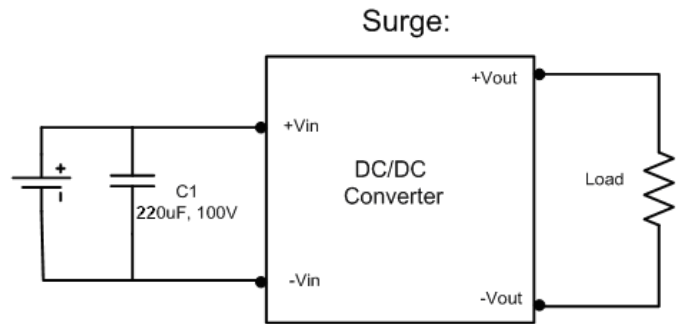
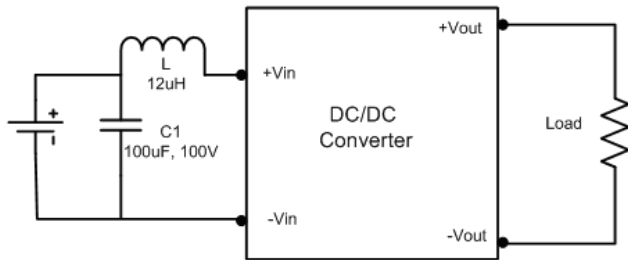
## Dimensions



All dimensions are typical: millimeters (inches)  
Pin Diameter:  $0.50 \pm 0.05$  ( $0.02 \pm 0.002$ )  
Pin Pitch Tolerance:  $\pm 0.35$  ( $\pm 0.014$ )  
Case Tolerance:  $\pm 0.5$  ( $\pm 0.02$ )

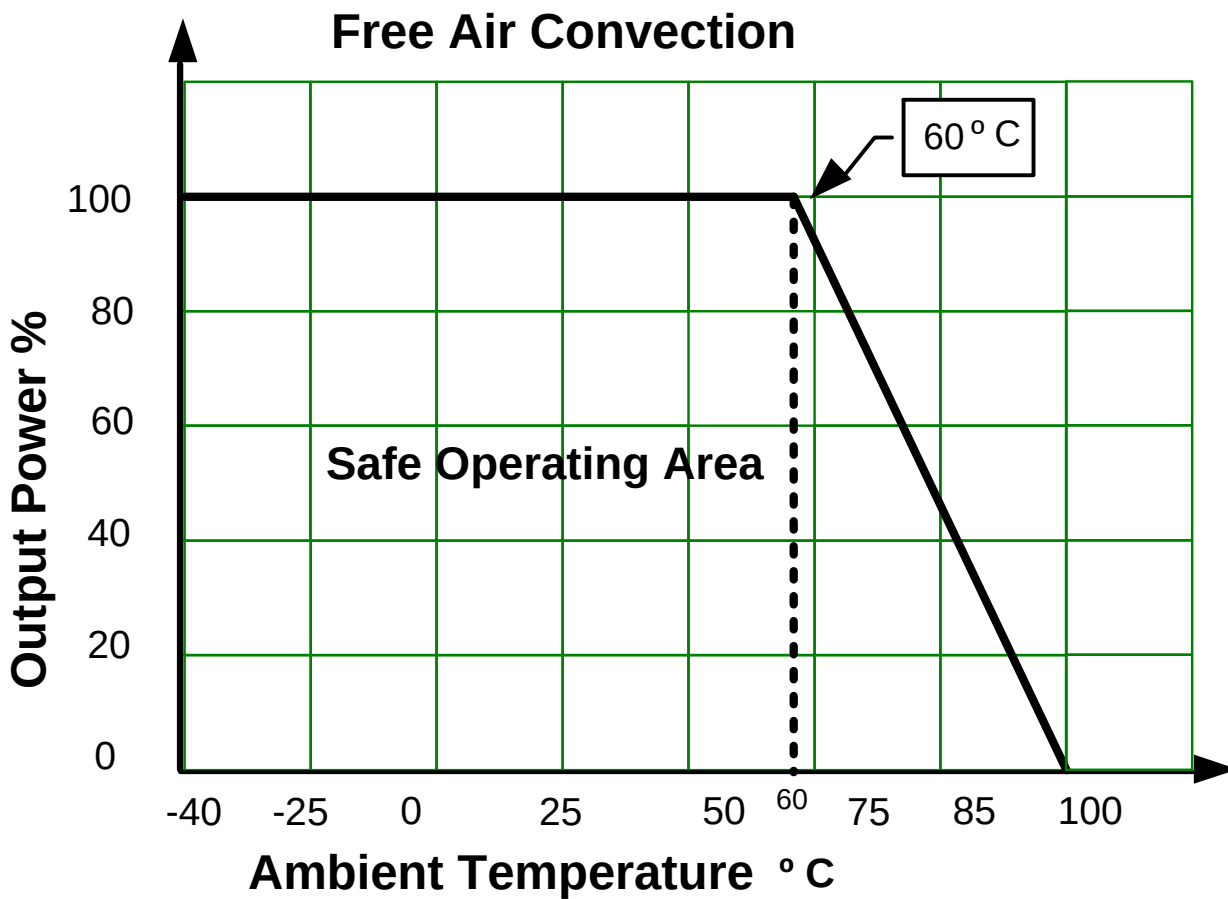
## Test Circuits

### Conducted Emissions



## Derating

(AM6T-05xxxx Devices only)



**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).