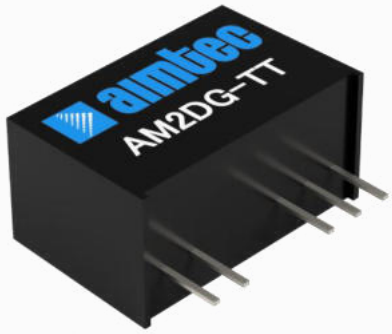
# AM2DG-TT

Click to ORDER samples




SIP7

The new AM2DG-TT is an ultra-wide input DC/DC converter that has a dual isolated output channel, which leads to improved reliability and performance. This series will offer many benefits to your design if it requires several voltage supply rails being supplied by one component.

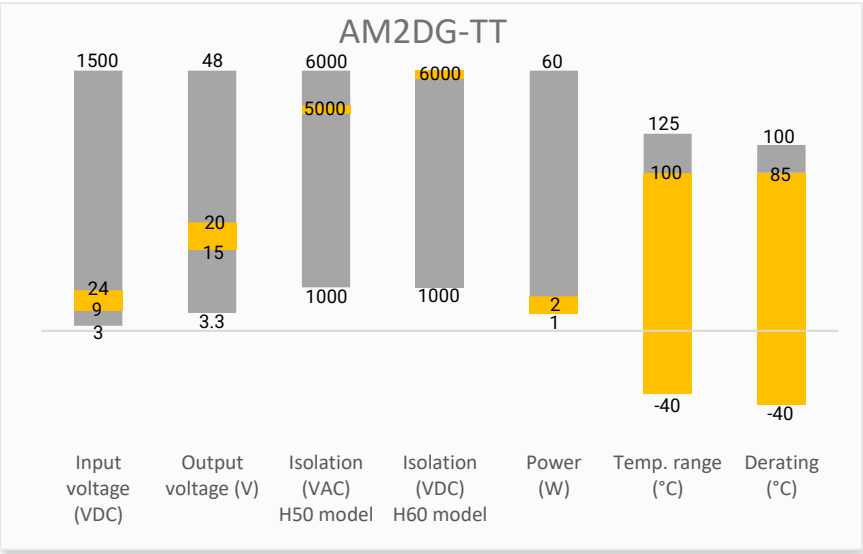
This series offers great operating temperatures, from -40℃ to +100℃ with full power up to 85℃. It also features a reinforced isolation of 5000VAC / 6000VDC for improved reliability and system safety. Furthermore, a high MTBF of 10 000 000h to 13 980 000h, output short circuit protection (OSCP) come standard.

The AM2DG-TT is suitable for distributed power supply systems, industrial controls, power grid, instruments and communications applications.

## Features

- Operating Temp: -40 °C to +100 °C
- High isolation voltage: 5000VAC / 6000VDC
- Low ripple & noise, 100mV (p-p), max.
- SIP7 package
- Output short circuit protection

## Summary




RoHS

3yr Warranty

CE

## Training


Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

## Applications

Power Grid

Industrial

Telecom

Instrumentation

# Models & Specifications

| Dual Output | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model | Input Voltage (VDC) | Output Voltage (VDC) | | Output Current Max (mA) | | Maximum Capacitive Load (µF) | Efficiency (%) Full Load Typ. |
| | | Vo1 | Vo2 | Io1 | Io2 | | |
| AM2DG-241504DH50TT | 24 (21.6-26.4) | 15 | -4 | 132 | -132 | 100 / 680 | 85 |
| AM2DG-241604DH50TT | 24 (21.6-26.4) | 16.5 | -4 | 122 | -122 | 100 / 680 | 85 |
| AM2DG-241804DH50TT | 24 (21.6-26.4) | 18 | -4 | 114 | -114 | 100 / 680 | 85 |
| AM2DG-121503DH60TT | 12 (10.8-13.2) | 15 | -3 | 110 | -100 | 100 /100 | 79 |
| AM2DG-121505DH60TT | 12 (10.8-13.2) | 15 | -5 | 100 | -100 | 100 / 100 | 78 |
| AM2DG-121805DH60TT | 12 (10.8-13.2) | 18 | -5 | 90 | -90 | 100 / 100 | 78 |
| AM2DG-122003DH60TT | 12 (10.8-13.2) | 20 | -3.5 | 90 | -80 | 100 / 100 | 79 |
| AM2DG-122005DH60TT | 12 (10.8-13.2) | 20 | -5 | 80 | -80 | 100 / 100 | 80 |
| AM2DG-121509DH60TT | 12 (10.8-13.2) | 15 | -9 | 100 | -60 | 100 / 100 | 81 |
| AM2DG-121709DH60TT | 12 (10.8-13.2) | 17 | -9 | 90 | -50 | 100 / 100 | 78 |
| AM2DG-121809DH60TT | 12 (10.8-13.2) | 18 | -9 | 90 | -50 | 100 / 100 | 79 |
| AM2DG-1215DH60TT | 12 (10.8-13.2) | 15 | -15 | 67 | -67 | 100 / 100 | 80 |
| AM2DG-151503DH60TT | 15 (13.5-16.5) | 15 | -3 | 110 | -100 | 100 / 100 | 77 |
| AM2DG-151505DH60TT | 15 (13.5-16.5) | 15 | -5 | 100 | -100 | 100 / 100 | 79 |
| AM2DG-151805DH60TT | 15 (13.5-16.5) | 18 | -5 | 90 | -90 | 100 / 100 | 81 |
| AM2DG-152003DH60TT | 15 (13.5-16.5) | 20 | -3.5 | 90 | -80 | 100 / 100 | 78 |
| AM2DG-152005DH60TT | 15 (13.5-16.5) | 20 | -5 | 80 | -80 | 100 / 100 | 80 |
| AM2DG-151509DH60TT | 15 (13.5-16.5) | 15 | -9 | 100 | -60 | 100 / 100 | 79 |
| AM2DG-151709DH60TT | 15 (13.5-16.5) | 17 | -9 | 90 | -50 | 100 / 100 | 81 |
| AM2DG-151809DH60TT | 15 (13.5-16.5) | 18 | -9 | 90 | -50 | 100 / 100 | 78 |
| AM2DG-1515DH60TT | 15 (13.5-16.5) | 15 | -15 | 67 | -67 | 100 / 100 | 77 |
| AM2DG-241503DH60TT | 24 (21.6-26.4) | 15 | -3 | 110 | -100 | 100 / 100 | 80 |
| AM2DG-241505DH60TT | 24 (21.6-26.4) | 15 | -5 | 100 | -100 | 100 / 100 | 78 |
| AM2DG-241805DH60TT | 24 (21.6-26.4) | 18 | -5 | 90 | -90 | 100 / 100 | 79 |
| AM2DG-242003DH60TT | 24 (21.6-26.4) | 20 | -3.5 | 90 | -80 | 100 / 100 | 78 |
| AM2DG-242005DH60TT | 24 (21.6-26.4) | 20 | -5 | 80 | -80 | 100 / 100 | 80 |
| AM2DG-241509DH60TT | 24 (21.6-26.4) | 15 | -9 | 100 | -60 | 100 / 100 | 79 |
| AM2DG-241709DH60TT | 24 (21.6-26.4) | 17 | -9 | 90 | -50 | 100 / 100 | 80 |
| AM2DG-241809DH60TT | 24 (21.6-26.4) | 18 | -9 | 90 | -50 | 100 / 100 | 78 |
| AM2DG-2412DH60TT | 24 (21.6-26.4) | 12 | -12 | 83 | -83 | 100 / 100 | 78 |
| AM2DG-2415DH60TT | 24 (21.6-26.4) | 15 | -15 | 67 | -67 | 100 / 100 | 78 |

| Input Specification | | | | |
|---|---|---|---|---|
| Parameters | Conditions | Typical | Maximum | Units |
| No load input current | 24Vin,H50 model | 11 | -- | mA |
| | 12Vin,H60 model | 43 | -- | mA |
| | 15Vin,H60 model | 35 | -- | mA |
| | 24Vin,H60 model | 19 | -- | mA |
| Full load input current | 12Vin,H60 model | 217 | -- | mA |
| | 15Vin,H60 model | 172 | -- | mA |
| | 24Vin,H60 model | 108 | -- | mA |

| Filter | Capacitor |
|---|---|

## Isolation Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Tested isolation voltage | Input / output, 60 sec, H50 model | ≥ 5000 | -- | VAC |
| | Input / output, 2 sec, H50 model | ≥ 6000 | -- | VAC |
| | Input / output, 60 sec, H60 model | ≥ 6200 | -- | VDC |
| | Input / output, 2 sec, H60 model | ≥ 7400 | -- | VDC |
| Resistance | H50 model | ≥ 1000 | -- | MΩ |
| | H60 model | ≥ 10000 | -- | MΩ |
| Capacitance | H50 model | -- | 5 | pF |
| | H60 model | 5 | 8 | pF |

## Output Specification

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Voltage accuracy | Others | -- | ±5 | % |
| | Vo1=20V models | > -8 | 2 | % |
| Line regulation | For Vin change of ±1%, H50 model | 1.2 | 1.5 | % |
| | For Vin change of ±10%, H60 model | 1.2 | -- | % |
| Load regulation | 10% - 100% load, , H50 model | -- | 15 | % |
| | 10% - 100% load, , H60 model | 5 | -- | % |
| Start-up time | Full load, Nominal input, H50 model | -- | 250 | mS |
| | Full load, No cap, H60 model | -- | 100 | mS |
| Short circuit protection | Shut-down, Auto recovery, H50 model | | | |
| | Continuous, Auto recovery, H60 model | | | |
| Ripple & Noise * | 20MHz bandwidth, H50 model | -- | 100 | mV pk-pk |
| | 20MHz bandwidth, H60 model | 30 | 50 | mV pk-pk |

* Ripple and noise on the H60 model were measured at the output using a 10µF capacitor in parallel with a 0.1µF capacitor at 20MHz bandwidth.

## General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|---|---|---|---|---|
| Switching frequency | 100% Load, H50 model | > 200 | -- | KHz |
| | 100% Load, H60 model | 70 | 130 | KHz |
| Operating temperature | With derating at 90°C, H50 model | -40 to +105 | -- | °C |
| | With derating at 85°C, H60 model | -40 to +100 | -- | °C |
| Storage temperature | -- | -55 to +125 | -- | °C |
| Maximum case temperature | H50 model | -- | 120 | °C |
| | H60 model | -- | 115 | °C |
| Cooling | Free air convection, H50 model | | | |
| | 20LFM, natural convection, H60 model | | | |
| Humidity | Non-condensing | >5 | 95 | % RH |
| Case material | Heat resistant black Plastic (flammability to UL 94V-0) | | | |
| Weight | H50 model | 2.8 | -- | g |
| | H60 model | 4 | -- | g |
| Dimensions (L x W x H) | H50 model | 0.77 x 0.28 x 0.40 inches (19.65 × 7.05 × 10.20 mm) | | |
| | H60 model | 0.77 x 0.39 x 0.49 inches (19.50 × 9.80 × 12.50 mm) | | |
| MTBF | H50 model | > 10 000 000 hrs (MIL-HDBK -217F, t=+25°C) | | |

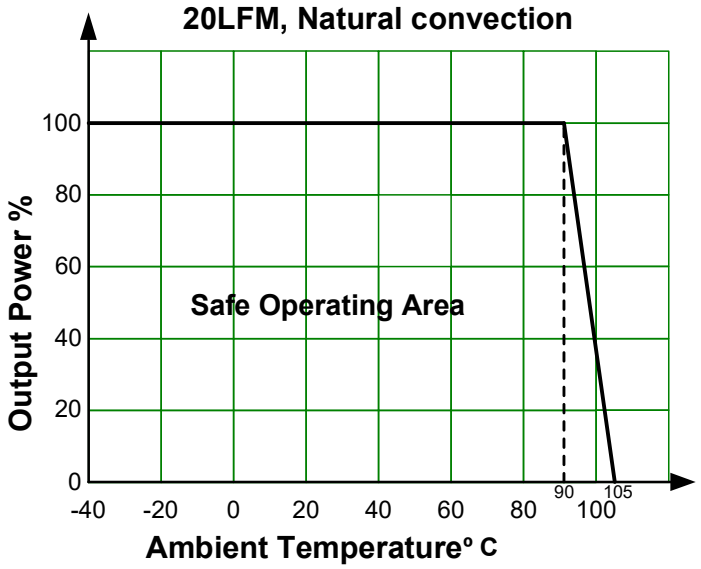
| | | |
|---|---|---|
| | H60 model | > 13 980 000 hrs (MIL-HDBK -217F, t=+25°C, 20LFM) |

**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.**

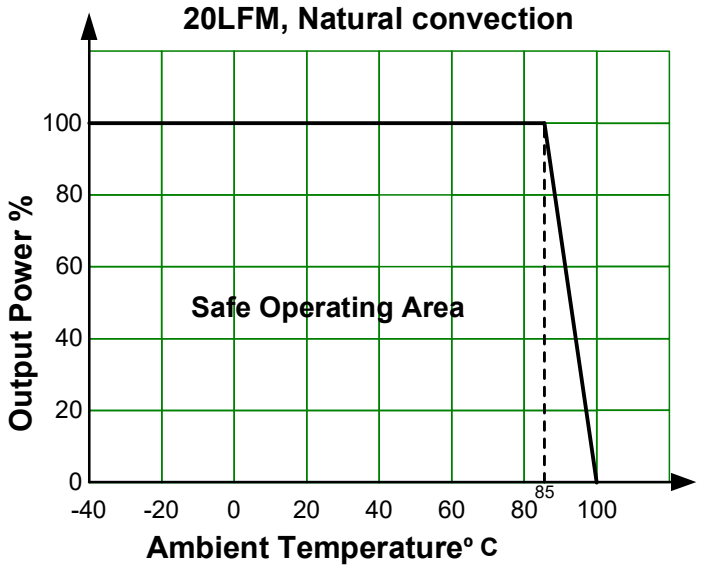
| Safety Specifications | | |
|---|---|---|
| **Parameters** | | |
| **Standards** | Designed to meet UL/EN 62368-1, IEC 62368-1(H60 model only) | |
| | EMI - Conducted and radiated emission | EN55032, Class B with EMI Application Circuit (H50 model only)<br>EN55032/CISPR32, Class B with EMI Application Circuit (H60 model only) |
| | Electrostatic Discharge Immunity | IEC/EN 61000-4-2, Contact ±8KV/Air ±8KV, Criteria B (H50 model only)<br>IEC/EN 61000-4-2, Contact ±8KV/Air ±15KV, Criteria A (H60 model only) |
| | RF, Electromagnetic Field Immunity | IEC/EN 61000-4-3, 10V/m, Criteria A (H60 model only) |
| | Electrical Fast Transient/Burst Immunity | IEC/EN 61000-4-4, ±0.5KV, Criteria B (H50 model only)<br>IEC/EN 61000-4-4, ±2KV, Criteria A with EMI Application Circuit (H60 model only) |
| | Surge Immunity | IEC/EN 61000-4-5, ±0.5KV, Criteria B (H50 model only)<br>IEC/EN 61000-4-5, ±2KV, Criteria A with EMI Application Circuit (H60 model only) |
| | RF, Conducted Disturbance Immunity | IEC/EN 61000-4-6, 10Vrms, Criteria A (H60 model only) |
| | Power-frequency Magnetic Field | IEC/EN 61000-4-8, 100A/m, continuous, Criteria A (H60 model only) |
| | Vibration | MIL-STD-202 |

## Derating

### H50 Model

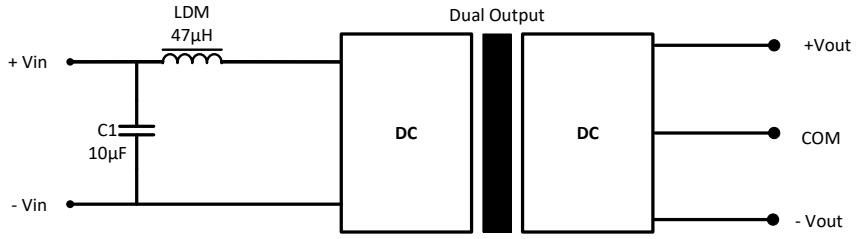



### H60 Model

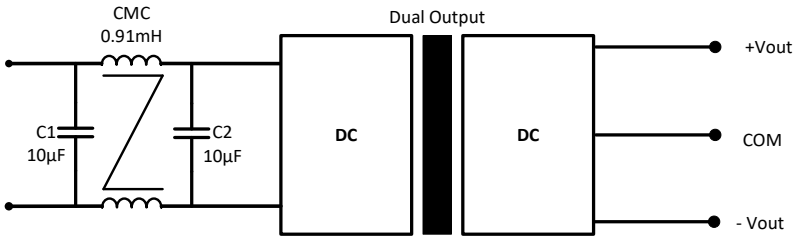


# EMI Application Circuit

## H50 Model



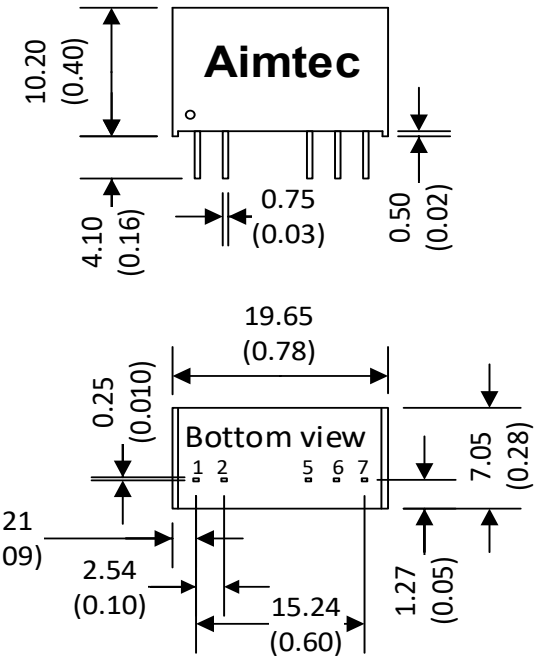

## H60 Model




Note: Input and output capacitors are recommended to use ceramic or electrolytic types. Tantalum capacitors are not recommended.

# Dimensions

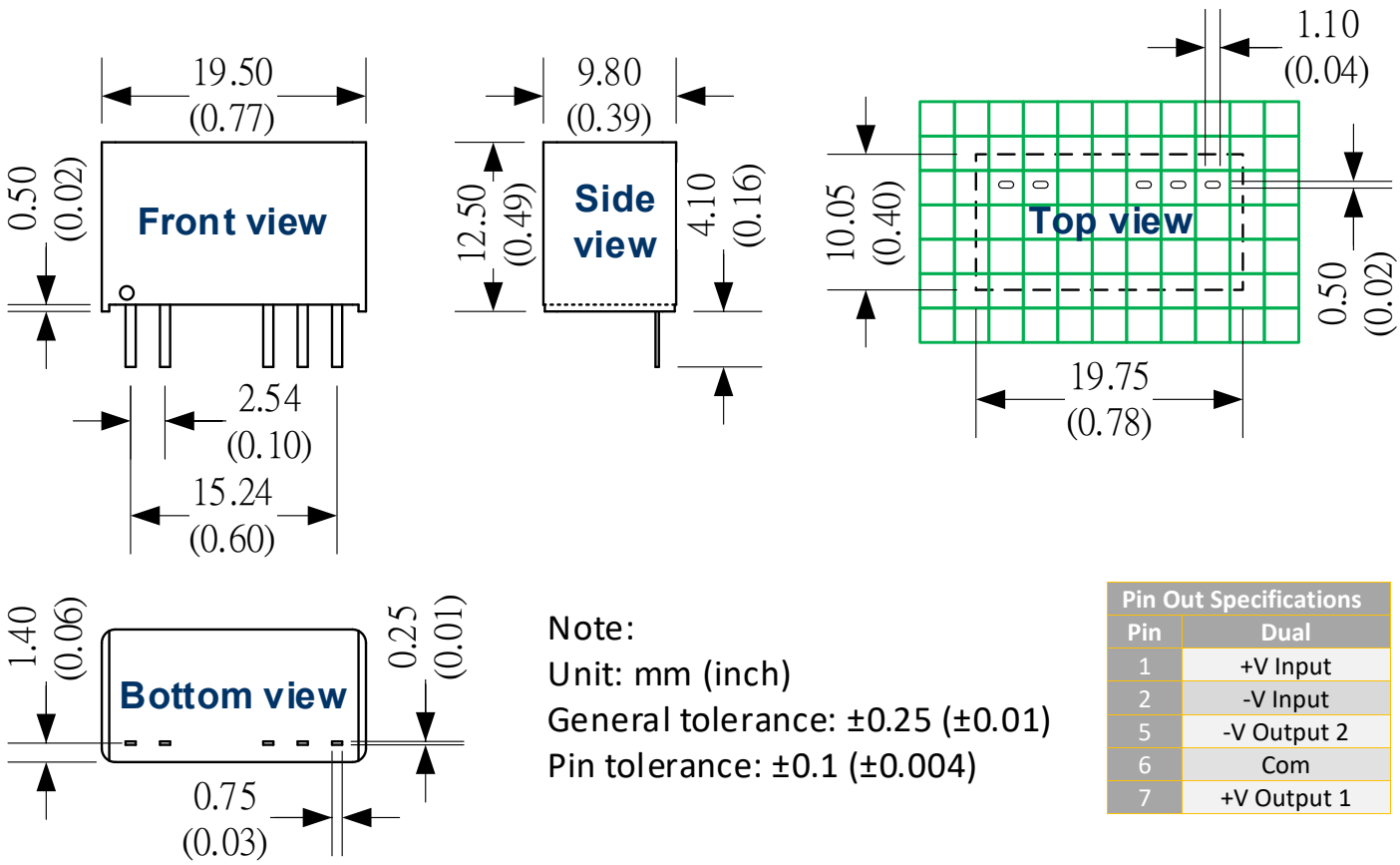
## H50 Model




Note:
Unit: mm (inch)
General tolerance: ±0.5 (±0.02)
Pin tolerance: ±0.1 (±0.004)

| Pin Out Specifications | |
|---|---|
| Pin | Dual |
| 1 | +V Input |
| 2 | -V Input |
| 5 | -V Output 2 |
| 6 | Com |
| 7 | +V Output 1 |

## H60 Model




Note:
Unit: mm (inch)
General tolerance: ±0.25 (±0.01)
Pin tolerance: ±0.1 (±0.004)

| Pin Out Specifications | |
|---|---|
| Pin | Dual |
| 1 | +V Input |
| 2 | -V Input |
| 5 | -V Output 2 |
| 6 | Com |
| 7 | +V Output 1 |