

AC-DC Adapter

12 V 150 W / ADT-150B12AA J-A

ADT-150B

Highlights & Features

- Meet efficiency DoE Level VI & CoC Tier 2
- No load power consumption < 0.15 W
- Universal AC input / Full range
- Fully enclosed plastic case
- Protection: short circuit / over voltage / overload/ over temperature



Safety Standards



CB Certified for worldwide use

| | |
|----------------------------|------------------|
| Model Number: | ADT-150B12AA J-A |
| Unit Weight | 0.54 Kg |
| Dimensions (L×W×H): | 155 x 76 x 30 mm |

General Description

The ADT Series of AC-DC desktop adapter in compact size. ADT-150B12AA J-A meet the DoE Level VI and CoC Tier 2 energy efficiency requirements with levels up to 90% and the extremely low no-load power consumption below 0.15 W. The series conform to major international safety standards according to IEC/EN/UL 62368-1 and IEC/EN 60950-1 approval for ITE. In addition, they also meet the EMI approvals to EN/BS EN 55032 class B.

Model Information

| Model Number | Input Voltage Range | Efficiency Level | Rated Output Voltage | Rated Output Current |
|------------------|---------------------|----------------------|----------------------|----------------------|
| ADT-150B12AA J-A | 90-264 Vac | Level VI & CoC Tier2 | 12 V | 12.5 A |

Model Numbering

| ADT - | 150 | B | 12 | A | A | J - | A |
|-------------------------------------|-------------|-------------|------------------------------|-------------|------------------|--|----------|
| Desktop Adapter for ITE application | Max wattage | Family Code | Output Voltage - 12 for 12 V | A : Desktop | A : C6 connector | Plug, molding type J : Barrel type O.D: 7.4 mm, I.D: 5.1 mm, length: 11.0 mm | Standard |

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Specifications

Input Ratings / Characteristics

| | | |
|---------------------------------|----------------------------|----------|
| Nominal Input Voltage | 100-240 Vac | |
| Input Voltage Range | 90-264 Vac | |
| Nominal Input Frequency | 50-60 Hz | |
| Input Frequency Range | 47-63 Hz | |
| Input Current (max) | 115 Vac | 2.0 A |
| | 230 Vac | 1.0 A |
| Efficiency at 100% Load | 115 Vac | 89% typ. |
| | 230 Vac | 90% typ. |
| Average Efficiency (min) | 89% @ 115 Vac & 230 Vac | |
| Efficiency @ 10% load | 79% @ 115 Vac & 230 Vac | |
| No Load Power Consumption (max) | 0.15 W @ 115 Vac & 230 Vac | |
| Power Factor @ 100% load (min) | 0.9 @ 230 Vac | |
| Inrush Current | No damage | |
| Leakage Current (max) | 0.1 mA @ 240 Vac / 50 Hz | |

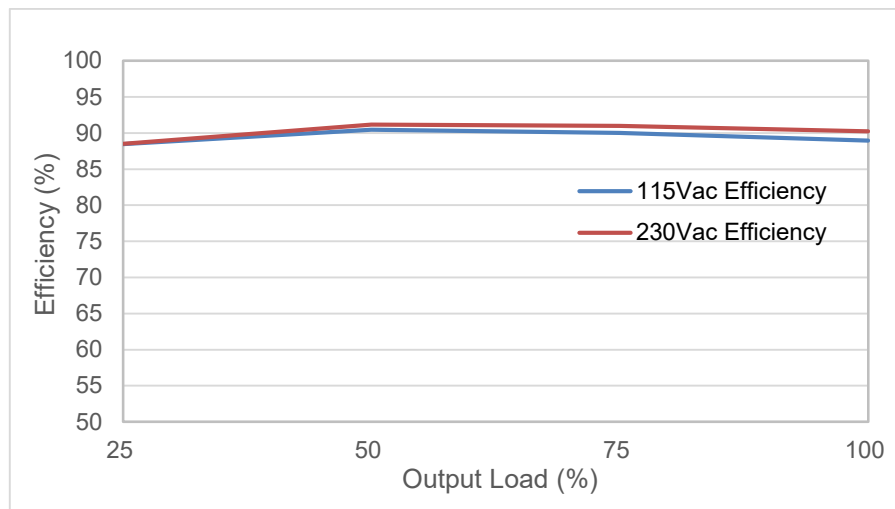


Fig 1. ADT-150B12AA J-A Efficiency versus Output Load

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Output Ratings / Characteristics

| | | |
|------------------------|--|--------------|
| Nominal Output Voltage | 12 V | |
| Output Current | 0-12.5 A | |
| Output Power | 150 W | |
| Line Regulation | ± 0.5% | |
| Load Regulation | ± 4.5% | |
| PARD* (20 MHz) | 0 to 40°C | 240 mV pk-pk |
| | -10 to 0°C | 480 mV pk-pk |
| Start-up Time (max) | 115 Vac | 1000 ms |
| | 230 Vac | 500 ms |
| Rise Time (max) | 40 ms @ nominal input, full load | |
| Hold-up Time (typ.) | 40 ms @ 115 Vac, full load | |
| Transient Responses | ± 5% @ 0.1 A -50% & 50% -100% load change, Slew rate 2.5 A/us , 100 to 10 KHz, 50% Duty Cycle | |
| Capacitive load (max) | 470 uF | |

*PARD is measured with an AC coupling mode, and in parallel with 0.1 uF ceramic capacitor & 47 uF electrolytic capacitor.

Mechanical

| | | |
|----------------------------|---|---|
| Case | PC | |
| Dimensions (L × W × H) | 155 x 76 x 30 mm (6.1 x 3.0 x 1.2 inch) | |
| Unit Weight | 0.54 kg (1.19 lb) | |
| Indicator | N/A | |
| Cooling System | Convection | |
| Output Cable Specification | Connector | Barrel type (O.D: 7.4 mm, I.D: 5.1 mm, length: 11.0 mm) |
| | Length | UL1571 #14AWG, 1200 mm |
| Input Socket | C6 | |

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Environment

| | | |
|----------------------------|-----------|--|
| Surrounding Temperature | Operating | -10°C to +60°C |
| | Storage | -40°C to +85°C |
| Power De-Rating | | >40°C de-rated by 2.5%/°C |
| Operating Humidity | | 5%-95% RH (non-condensing) |
| Operating Altitude | | 5,000 meters (16,400 feet) |
| Ball Impact Test | | Test height 130 cm, 1 sample 1 time, Steel Ball 500 g, Concrete floor |
| Drop Test | | Test height 100 cm, 6 face for each sample, concrete floor Function test pass after drop test |
| Shock Test (Non-Operating) | | 50 G, 11 ms, 1 shock for each direction |
| Vibration (Non-Operating) | | 5-500 Hz, 2.09 Grms, 20 mins, one cycle for each three axis |

Protections

| | |
|--------------------------|------------------|
| Overvoltage (max) | 18 V, Latch mode |
| Overload / Overcurrent | 120-180% , Latch |
| Over Temperature | Latch Mode |
| Short Circuit | Latch Mode |
| Pollution Degree | 2 |
| Protection Against Shock | Class I |

Reliability Data

| | |
|------------------------|---|
| MTBF | > 300,000 hrs. per Telcordia SR-332 @ 100 Vac, 100% load, Ta: 25°C |
| Expected Cap Life Time | 5 years @ 100 Vac, 50% load, 25°C |

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Safety Standards / Directives

| | | |
|--------------------|------------|---|
| Electrical Safety | | IEC/ EN 60950-1 ; IEC/UL/EN 62368-1 |
| | | BSMI CNS 14336-1 |
| | | CCC GB 4943.1-2011 |
| | | PSE J 60950-1 (H29) |
| | | KC K 60950-1 |
| CE | | Comply with EMC Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU |
| UKCA | | In conformance with Electromagnetic Compatibility Regulations 2016 and Electrical Equipment (Safety) Regulations 2016 |
| Galvanic Isolation | I/P to O/P | 3000 Vac |

EMC

| | | |
|-----------------------------------|----------------|--|
| EMC / Emissions | | CISPR/EN/BS EN 55032 Class B BSMI CNS13438 GB/T 9254-2008 KN 32 |
| Harmonic Current Emissions | IEC 61000-3-2 | Class D ; GB17625.1-2003 |
| Immunity to | | EN/BS EN 55024; KN 35 |
| Radiated and Conducted Emissions | | Conducted Emissions: EN/BS EN 55032 Class B Radiated Emissions: EN/BS EN 55032 Class B |
| Voltage Flicker | IEC 61000-3-3 | |
| Electrostatic Discharge | IEC 61000-4-2 | Level 4 Criteria A ¹⁾ Air Discharge: 15 kV Contact Discharge: 8 kV |
| Radiated Field | IEC 61000-4-3 | Level 2 Criteria A ¹⁾ 80 MHz - 1 GHz, 3 V/m , 80% AM (1 KHz) |
| Electrical Fast Transient / Burst | IEC 61000-4-4 | Level 3 Criteria A ¹⁾ : 2 kV |
| Surge | IEC 61000-4-5 | Level 3 Criteria A ¹⁾ Common Mode ⁴⁾ : 2 kV Differential Mode ⁵⁾ : 1 kV |
| Conducted | IEC 61000-4-6 | Level 2 Criteria A ¹⁾ 150 kHz – 80 MHz, 3 Vrms, Sine Wave, 80%, AM modulation |
| Power Frequency Magnetic Fields | IEC 61000-4-8 | Level 1 Criteria A ¹⁾ Magnetic field strength 1 A/m |
| Voltage Dips | IEC 61000-4-11 | Voltage dips 70% reduction/0.5 periods (Criterion A ¹⁾) 40% reduction/5 periods (Criterion B ²⁾) Voltage short interruptions 5% reduction/250 periods (Criterion C ³⁾) |

1) Criteria A: Normal performance within the specification limits

2) Criteria B: Output out of regulation, or shuts down during test. Automatically restore to normal operation after test.

3) Criteria C: PSU shuts down during test, but need operator to reset.

4) Asymmetrical: Common mode (Line to earth)

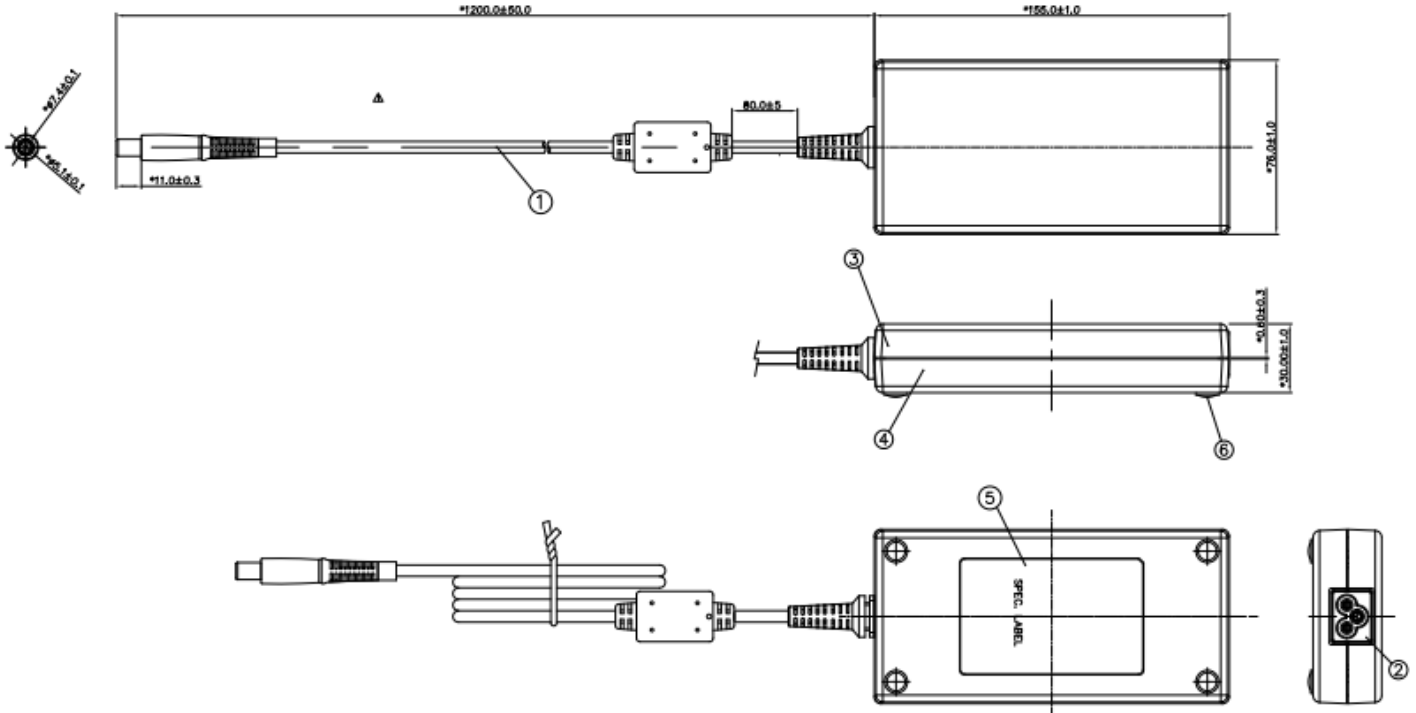
5) Symmetrical: Differential mode (Line to line)

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Dimensions

L x W x H: 155 x 76 x 30 mm (6.1 x 3.0 x 1.2 inch)



Engineering Data

Output Load De-rating V.S. Surrounding Air Temperature

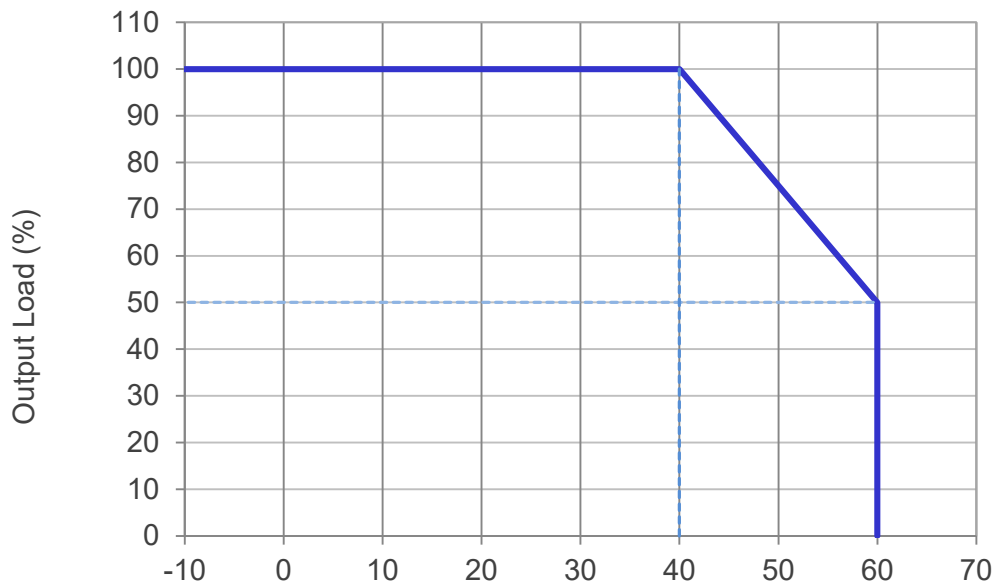


Fig. 2 De-rating for All Mounting Orientation
 > 40°C de-rate power by 2.5% / °C

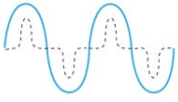
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Others

PFC – Norm EN 61000-3-2

Line Current Harmonic content



Typically, the input current waveform is not sinusoidal due to the periodical peak charging of the input capacitor. In industrial environment, complying with EN 61000-3-2 is only necessary under special conditions. Complying to this standard can have some technical drawbacks, such as lower efficiency as well as some commercial aspects such as higher purchasing costs. Frequently, the user does not profit from fulfilling this standard, therefore, it is important to know whether it is mandatory to meet this standard for a specific application.

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Manufacturer and Authorized Representatives Information

Manufacturer

Thailand

Delta Electronics (Thailand) PCL.
909 Pattana 1 Rd., Muang, Samutprakarn, 10280 Thailand

Taiwan

Delta Electronics, Inc.
3 Tungyuan Road, Chungli Industrial Zone, Taoyuan County
32063, Taiwan

Authorized Representatives

The Netherlands

Delta Greentech (Netherlands) B.V.
Zandsteen 15, 2132 MZ Hoofddorp, The Netherlands

United Kingdom

Delta Electronics Europe Limited
1 Redwood Court, Peel Park Campus,
East Kilbride, Glasgow, G74 5PF, United Kingdom

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