TECHNICAL DATASHEET

AC-DC Adapter

24 V 90 W / ADT-090A24AA F-A



ADT- 090A

Highlights & Features

- Efficiency DoE Level VI
- Compact size design
- No load power consumption < 0.15 W
- Universal AC input / Full range
- Fully enclosed plastic case
- Protection: short circuit / over voltage / overload/ over temperature

Standards

CB Certified for worldwide use

Model Number: ADT-090A24AA F-A
Dimensions (L × W x H): 126.0 x 51.0 x 30.0 mm
Unit Weight: 180±10 grams (6.35±0.35 ounces)

General Description

ADT-090A24AA F-A is an extremely compact 24 Vdc 90 W adapter. With an efficiency up to 91.5%, the product meets Efficiency DoE Level VI and no-load power consumption < 0.15 W @ 115 Vac and 230 Vac input. It conforms to major international safety standards according to IEC/EN/UL 62368-1 and IEC/EN 60950-1 approval for ITE including BSMI, PSE and KC. In addition, it 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-090A24AA F-A	90-264 Vac	Level VI	24 V	3.75 A

Model Numbering

ADT -	090	A	24	A	A	F -	A
Delta AC-DC Adapter	Max wattage	Family Code	Output Voltage (Single Output) 24 for 24 V	Package type: A: Desktop	Input connector type: A: C6 connector	Plug, molding type F: Barrel O.D: 5.5 mm, I.D: 2.5 mm, Length: 11.0 mm	Standard

All parameters are specified at 25°C ambient unless otherwise indicated.

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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	1.3 A
	230 Vac	0.6 A
Efficiency at 100% Load	115 Vac	90% typ.
	230 Vac	91.5% typ.
Average Efficiency (min)		89% @ 115 Vac & 230 Vac
No Load Power Consumption (max)		0.15 W @ 115 Vac & 230 Vac
Power Factor (min)		0.9 @ 230 Vac, Rated output current
Inrush Current		No damage
Leakage Current (max)		0.1mA @ 240Vac/50Hz

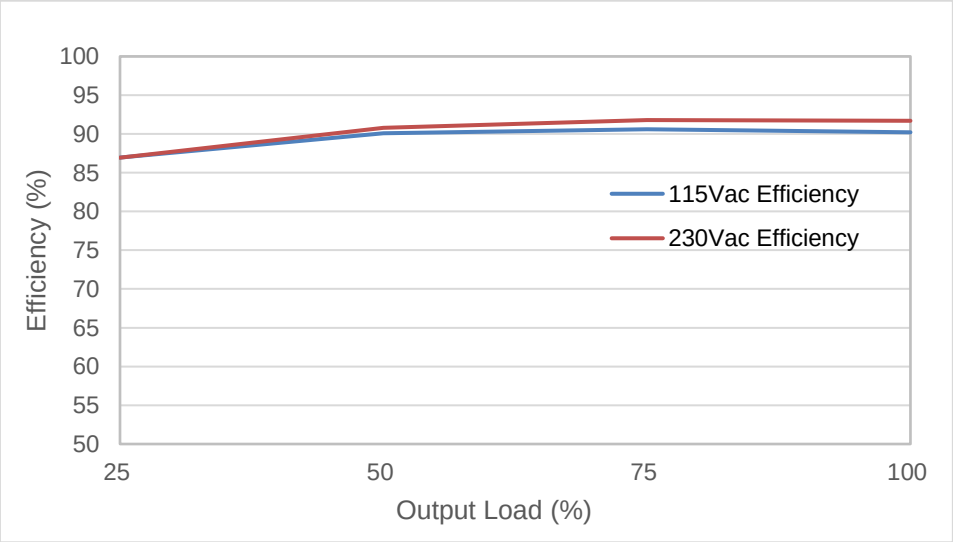


Fig 1. ADT-090A24AA F-A efficiency versus output load.

All parameters are specified at 25°C ambient unless otherwise indicated.

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Output Ratings / Characteristics

Nominal Output Voltage		24 V
Output Current		0-3.75 A
Output Power		90 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 (typ.)		1000 ms @ 115 Vac 500 ms @ 230 Vac
Rise Time (max)		40 ms @ nominal input, full load
Hold-up Time (typ)		30 ms @ nominal input, 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 & 470 uF electrolytic capacitor.

Mechanical

Case		PC
Dimensions (L × W × H)		126 x 51 x 30.0 mm (4.96 x 2.0 x 1.18 inch)
Unit Weight		180±10 grams (6.35±0.35 ounces)
Indicator		N/A
Cooling System		Convection
Terminal	Input	Socket C6 type
	Output	Barrel (O.D: 5.5 mm, I.D: 2.5 mm, length: 11 mm)
	Length	1,800 mm

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 500g, 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)	33 V, Latch
Overload / Overcurrent (max)	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 at Input: 115 Vac, Output: 100% load, Ta: 25°C
Expected Cap Life Time	5 years (50% load @ 25°C)

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Safety Standards / Directives

Electrical Safety		IEC/EN 60950-1 ; IEC/UL/EN 62368-1
		BSMI CNS14336-1
		PSE J60950-1 (H29)
		KC K60950-1
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	3,000Vac

EMC

EMC / Emissions		CISPR/EN/BS EN 55032 Class B BSMI CNS13438 FCC Part 15 KN32
Harmonic Current Emissions	IEC61000-3-2	Class D
Immunity to		EN/BS EN 55024; KN35
Radiated and conducted Emissions		Conducted Emissions: EN/BS EN 55032 Class B Radiated Emissions: EN/BS EN 55032 Class B
Voltage Flicker	IEC61000-3-3	
Electrostatic Discharge	IEC61000-4-2	Level 4 Criteria A[1)] Air Discharge: 15 kV Contact Discharge:8 kV
Radiated Field	IEC61000-4-3	Level 2 Criteria A[1)] 80 MHz-1 GHz, 3 V/m , 80% AM (1 KHz)
Electrical Fast Transient / Burst	IEC61000-4-4	Level 2 Criteria A[1)]: 2 kV
Surge	IEC61000-4-5	Level 3 Criteria A[1)] Common Mode[4)]: 2 kV Differential Mode[5)]: 1 kV
Conducted	IEC61000-4-6	Level 2 Criteria A[1)] 150 kHz-80 MHz, 3 Vrms, Sine Wave, 80%, AM modulation
Power Frequency Magnetic Fields	IEC61000-4-8	Level 2 Criteria A[1)] Magnetic field strength 1 A/m
Voltage Dips	IEC61000-4-11	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 B[2)])

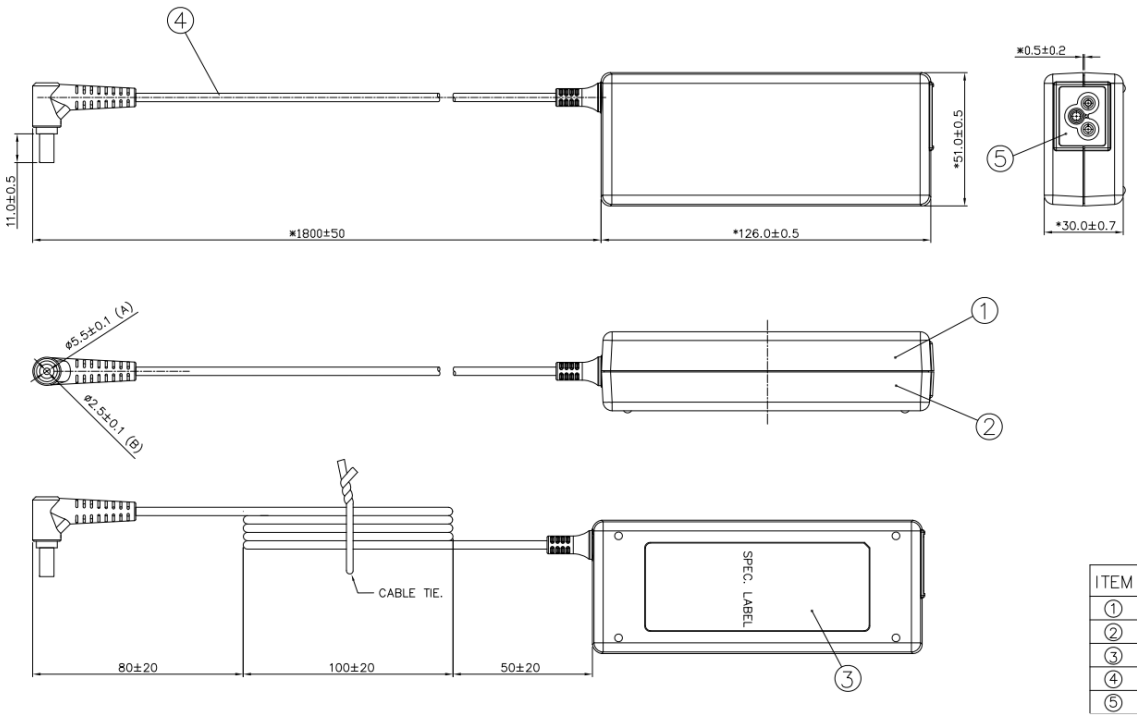
1) Criteria A: Normal performance within the specification limits
2) Criteria B: Output out of regulation, or shuts down during test. Automatically restore to normal operation after test.
3) Criteria C: PSU shuts down during test, but need operator to reset.
4) Asymmetrical: Common mode (Line to earth)
5) Symmetrical: Differential mode (Line to line)

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Dimensions

L x W x H: 126.0 x 51.0 x 30.0 mm (4.96 x 2.0 x 1.18 inch)

NO.	PLUG
A	OUTSIDE −
B	INSIDE +



ITEM	PART NAME	COLOR
①	COVER	BLACK
②	CHASSIS	BLACK
③	SPEC LABEL	BLACK
④	POWER CORD	BLACK
⑤	SOCKET ASS'Y	BLACK

Engineering Data

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

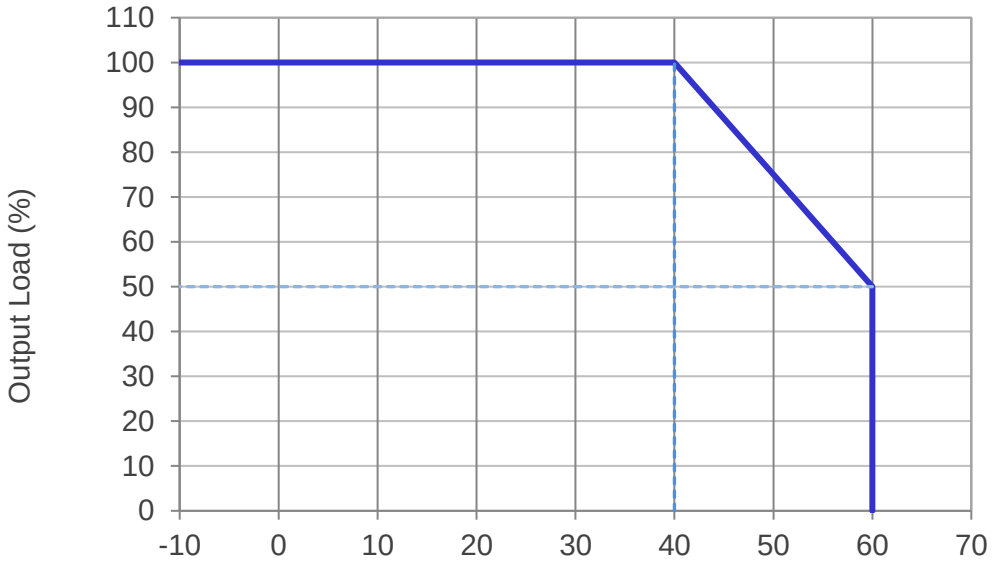


Fig. 2 De-rating for All Mounting Orientation
> 40°C de-rate power by 2.5% / °C

Attention

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Delta reserves the right to make changes to the information described in the datasheets without notice.

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