TECHNICAL DATASHEET

AC-DC Adapter

24Volt, 90Watt / 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 24Vdc 90W adapter. With an efficiency up to 91.5%, the product meets Efficiency DoE Level VI and no-load power consumption < 0.15W @ 115Vac and 230Vac 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, CCC, PSE and KC. In addition, it also meet the EMI approvals to EN 55032 Class B.

Model Information

Model Number	Input Voltage Range	Efficiency Level	Rated Output Voltage	Rated Output Current
ADT-090A24AA F-A	90-264Vac	Level VI	24V	3.75A

Model Numbering

ADT -	090	A	24	A	A	F -	A
Delta AC-DC Adapter	Max wattage	Family Code	Output Voltage (Single Output) 24 for 24V	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		100-240Vac
Input Voltage Range		90-264Vac
Nominal Input Frequency		50-60Hz
Input Frequency Range		47-63Hz
Input Current (max)	115Vac	1.3 A
	230Vac	0.6 A
Efficiency at 100% Load	115Vac	90% typ.
	230Vac	91.5% typ.
Average Efficiency (min)		89% @ 115Vac & 230Vac
No Load Power Consumption (max)		0.15W @ 115Vac & 230Vac
Power Factor (min)		0.9 @ 230Vac, Rated output current
Inrush Current		No damage
Leakage Current (max)		0.1mA @ 240Vac/50Hz

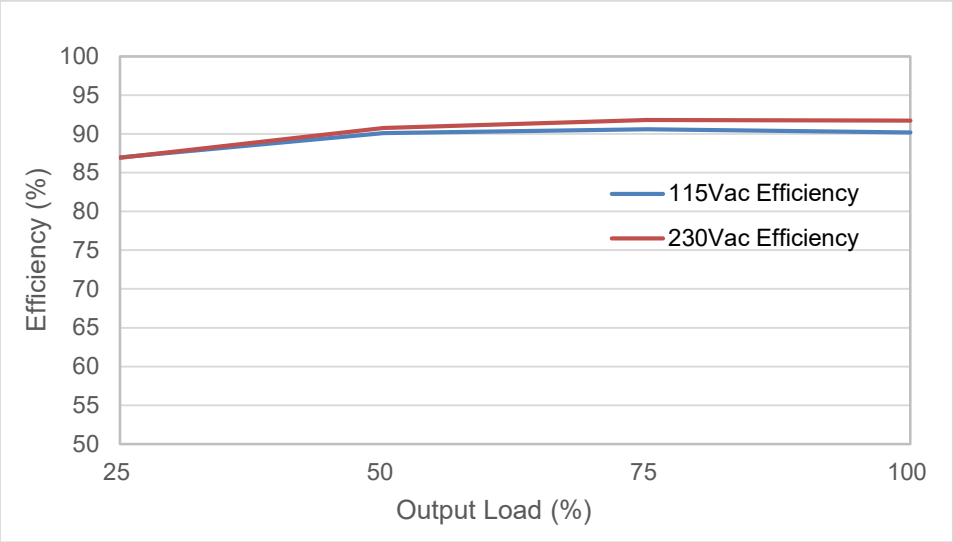

Fig 1. ADT-090A24AA F-A efficiency versus output load.

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Output Ratings / Characteristics

Nominal Output Voltage		24V
Output Current		0-3.75A
Output Power		90W
Line Regulation		± 0.5%
Load Regulation		± 4.5%
PARD* (20MHz)	0 to 40°C	240 mV pk-pk
	-10 to 0°C	480 mV pk-pk
Start-up Time (typ.)		1000 ms @ 115Vac 500 ms @ 230Vac
Rise Time (max)		40ms @ nominal input, full load
Hold-up Time (typ)		30 ms @ nominal input, full load
Transient Responses		± 5% @ 0.1A -50% & 50% -100% load change, Slew rate 2.5A/us ,100 to 10KHz, 50% Duty Cycle
Capacitive Load (max)		470uF

*PARD is measured with an AC coupling mode, and in parallel with 0.1uF ceramic capacitor & 470uF 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: 5.5mm, I.D: 2.5mm, length: 11mm)
	Length	1800 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 (16400 feet)
Ball Impact Test		Test height 130cm, 1 sample 1 time, Steel Ball 500g, Concrete floor
Drop Test		Test height 100cm, 6 face for each sample, concrete floor Function test pass after drop test
Shock Test (Non-Operating)		50G, 11ms, 1 shock for each direction
Vibration (Non-Operating)		5-500Hz, 2.09Grms, 20mins, one cycle for each three axis

Protections

Overvoltage (max)	33V, 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: 115Vac, 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
		CCC GB4943.1
		PSE J60950-1 (H29)
		KC K60950-1
CE		Comply with EMC Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU
Galvanic Isolation	I/P to O/P	3000Vac

EMC

EMC / Emissions		CISPR / EN 55032 Class B BSMI CNS13438 FCC Part 15 GB/T9254 KN32
Harmonic Current Emissions	IEC61000-3-2	Class D ; GB17625.1-2003
Immunity to		EN 55024; KN35
Radiated and conducted Emissions		Conducted Emissions: EN55032 Class B Radiated Emissions: EN55032 Class B
Voltage Flicker	IEC61000-3-3	
Electrostatic Discharge	IEC61000-4-2	Level 4 Criteria A[1)] Air Discharge: 15kV Contact Discharge:8kV
Radiated Field	IEC61000-4-3	Level 2 Criteria A[1)] 80MHz-1GHz, 3V/m , 80% AM(1KHz)
Electrical Fast Transient / Burst	IEC61000-4-4	Level 2 Criteria A[1)]: 2kV
Surge	IEC61000-4-5	Level 3 Criteria A[1)] Common Mode[4)]: 2kV Differential Mode[5)]: 1kV
Conducted	IEC61000-4-6	Level 2 Criteria A[1)] 150kHz-80MHz, 3Vrms, Sine Wave, 80%, AM modulation
Power Frequency Magnetic Fields	IEC61000-4-8	Level 2 Criteria A[1)] Magnetic field strength 1A/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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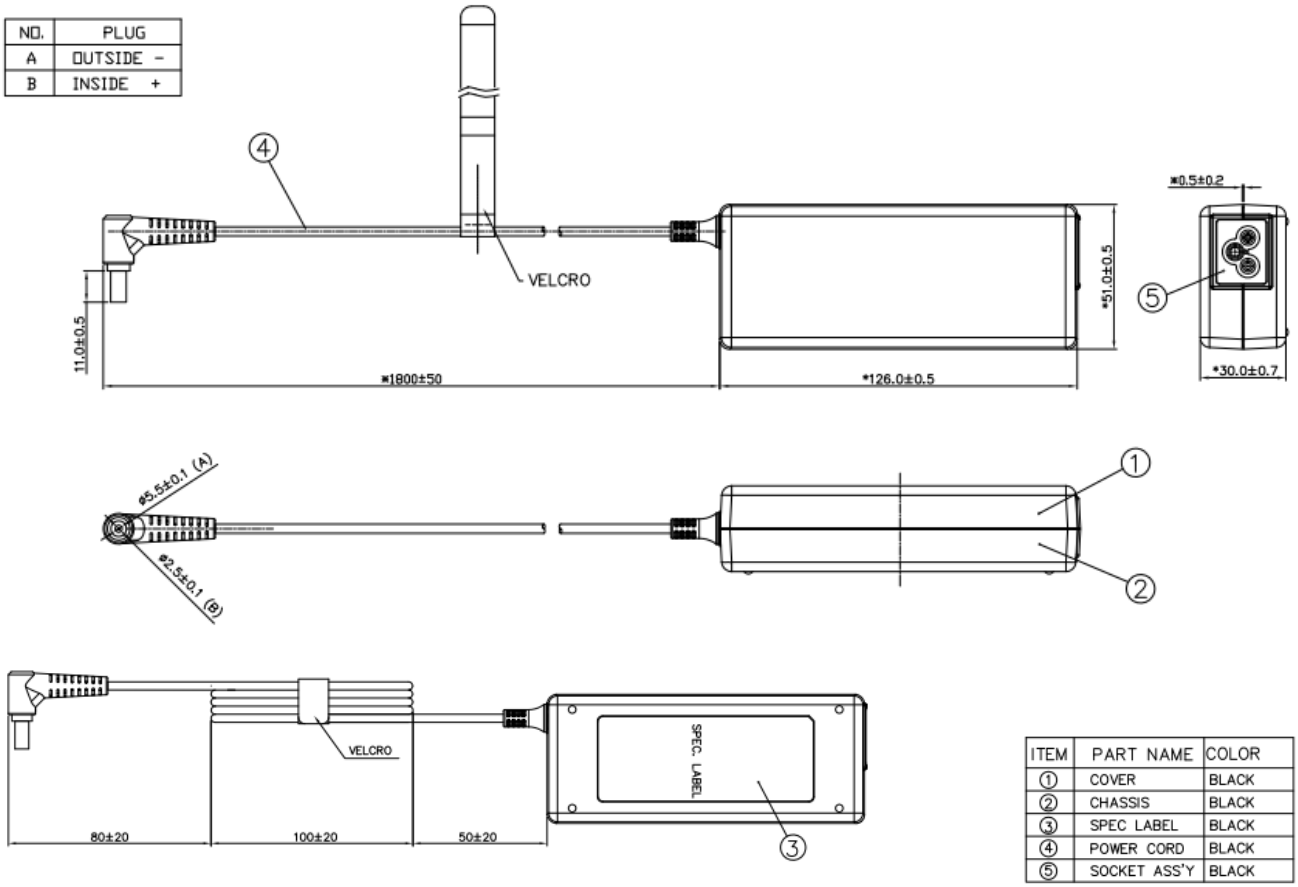

ITEM	PART NAME	COLOR
①	COVER	BLACK
②	CHASSIS	BLACK
③	SPEC LABEL	BLACK
④	POWER CORD	BLACK
⑤	SOCKET ASS'Y	BLACK

Engineering Data

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

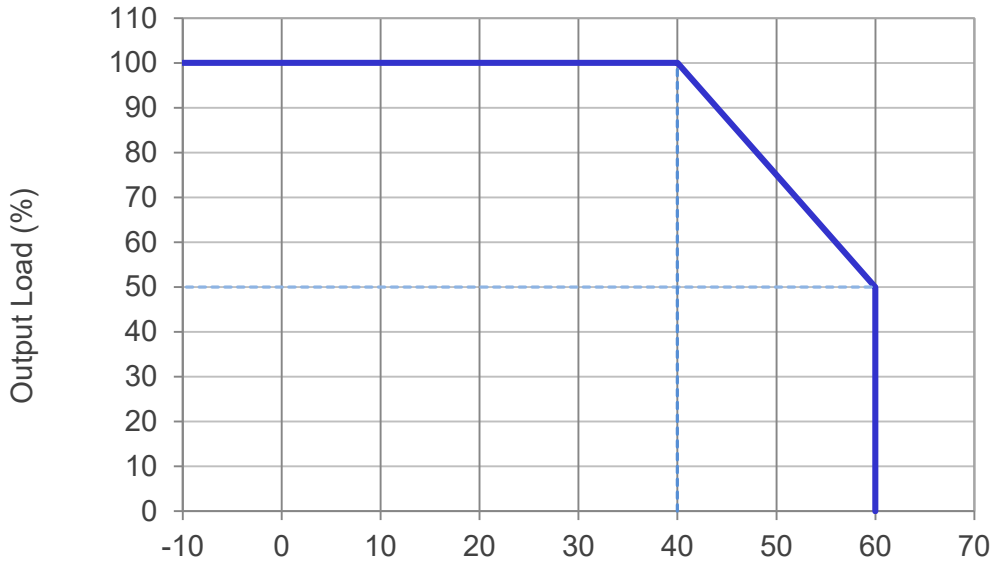

Fig. 2 De-rating for All Mounting Orientation
> 40°C de-rate power by 2.5% / °C

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Attention

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