SPECIFICATION

High Quality
Switching Power Adapter

Universal AC Input
180W 19VDC
Single Output

P/N: A190095EDL

** Specification Approval**
This specification (total 8 pages including cover page) is approved in it's entirety by:

Company Name	Print Name	Signature	Date

Specification subject to change without notice unless prior agreement in place.

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022411V.1

1-0. General Description

The purpose of the document is to specify a single phase AC input, single output switching power supply. This specification is suitable for Top P/N: A190095EDL. This product is an AC to DC switching power transfer device, it can provide for a maximum of +19VDC 9.47A output with constant voltage source. This specification defines the input, output, performance, environmental, noise and safety requirements for the specified power supply.

2-0. Input Requirements

2-1. Input Voltage

Rated Voltage: 100-240VAC +/-10% (90-264VAC)

2-2. Input Frequency

47~63 Hz

2-3. Input Current

3.0A (Max.) @ Rated AC input with full load.

1.5A (Max.) @ Rated AC input with full load.

2-4. Efficiency

87% typical at normal line input and full load output

Meet CEC Level V Requirement.

2-5. Confiuration

3-wire AC input (IEC320-C14)

2-6. Input Fuse

The hot line side of the input shall have a fuse, rating (3.15A250)

2-7. Inrush Current

≦ 50A at 110 Vac

≦ 100A at 220 Vac at cold start, maximum load.

2-8. Line Regulation

This line regulation is less than ±1, of rated output voltage @ full load.

2-9. Hold Up Time

≧10 mSec., @ normal line, full load.

2-10. Rise Time

≦50 mSec., @ rated AC input, full load.

From 10% to 90% of output voltage.

2-11. Turn-On Time

The output voltage should rise to 90% of rated output voltage in less than 3 SEC. from AC apply to 110Vac start up.

2-12. Harmonic Standard and Power Factor

The adapter complies with IEC 61000-3-2 Class D harmonic standard while input power over than 75W. The P.F. shall >0.95 @100Vac input and >0.9 @240Vac input.

2-13. No Load Power Consumption

Less than ≦ 0.5W., @ 230Vac / 50Hz.

Meet CEC Level V

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage	Current Min.	Current Max.
19VDC	0	9.47A

3-2. Load Regulation

Voltage (Vdc)	Tolerance (%)	Regulation (Vdc)
19VDC	+/-5%	18.05~19.95V

3-3. Dynamic Load Regulation

±5% excursion for 50% -100% or 100% -50% load change of DC output at any frequency up to 1KHz(duty 50%)

3-4. Ripple

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, Switching frequency ripple and noise and dynamic load variations measured with a 20MHz bandwidth oscilloscope.

Output	Ripple/Noise
+19VDC	300mV

Ripple / Noise: 60Hz ripple + switching ripple and noise
Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor

3-5. Over Voltage Protection

150% Max. of rated voltage.
The output voltage shall be shutdown and latched when OVP occurred.

3-6. Over Current Protection

110~150% of rated output current.
The adapter can withstand continuous short at DC output and no damage.
It will enter into normal condition if the fault condition is removed.

3-7. Stability

2% Max. at constant load with constant input (after 30 minutes of operation).

3-8. Temperature Rise

Less than 45℃ on top/bottom case at normal AC input & 80% load of DC output at environment temperature@25℃

3-9. Drop-out Power Line Disturbance

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

3-10. Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

3-11. Leakage Current

=<300uA, at 240Vac/50 Hz

4-0. Reliability

4-1. MTBF MI-DB-217F

The power supply shall be designed and produced to have a mean time between failures (MTBF) of 50,000.

5-0. Environment

5-1 Temperature

Operating: 0 to 40℃

Storage: -20 to 85℃

5-2 Humidity

Operating : 10 to 90 %

Storage: 5 to 90 %

5-3 Altitude

From sea level to 2,000 Meters (operation) and 5,000 Meters (non-operation).

6-0. Safety

6-1. Hi Pot Test

4242c 5mA 3 Sec. between primary and secondary circuit

6-2. Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit

IR should ≧ 50MΩ.

≦ 750 uA, at 240Vac/50 Hz

6-4. Safety

UL, CUL, TUV/GS, CE, FCC

6-5. EMS

Items	Specification	Reference
ESD	Contact: ± 4KV	IEC 61000-4-2
	Air: ± 8KV	
RS	Frequency: 1KHz Field Strength: 3V/M	IEC 61000-4-3
EFT	1.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: ± 1KV (peak)	IEC 61000-4-5
	Line to F.G : ± 2KV (peak)	

6-6. EMI

Comply with Standards
CISPR 22, EN 55022 Class B

7-0. Mechanical Characteristics

7-1. Physical Size: 171 mm (L) * 71 mm (W) * 40 mm (H)

7-2. Enclosure material : 94V-1 minimum

7-3. Output Cable Reference: Ul2464

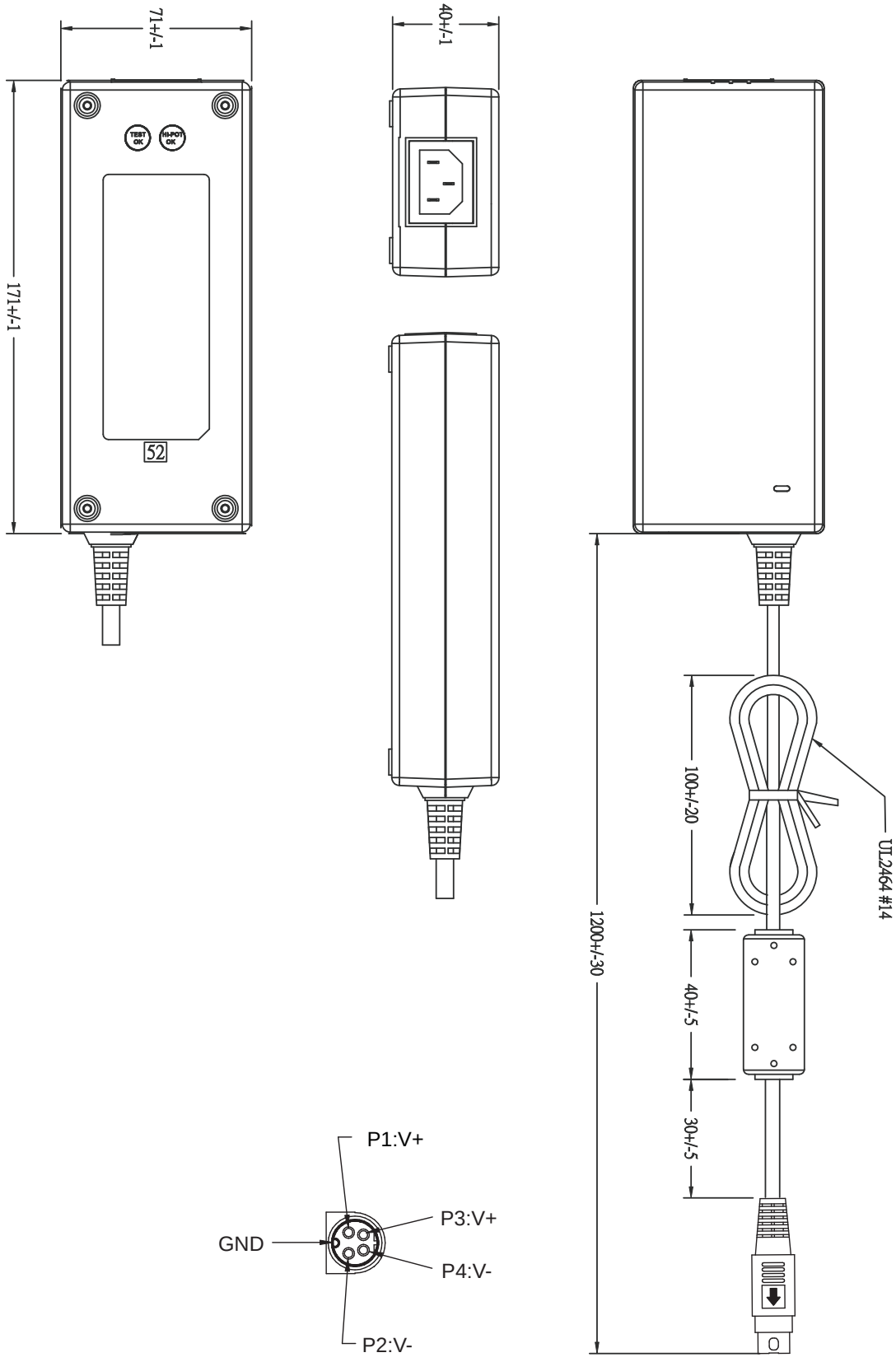
7-4. Vibration Test

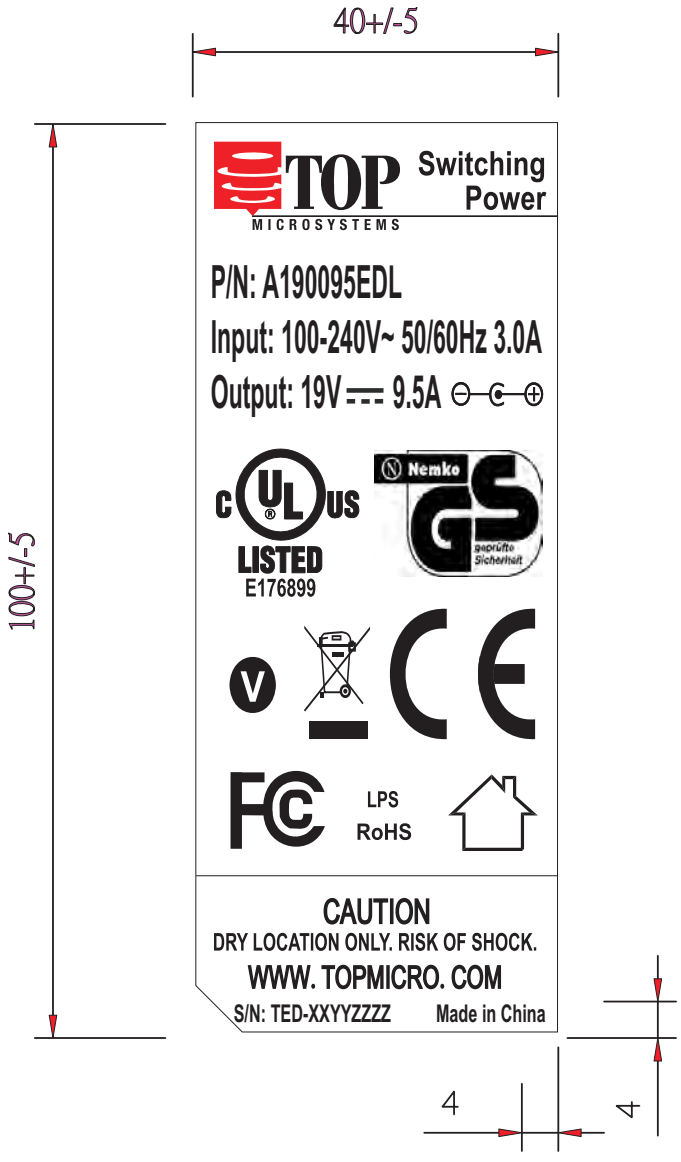
The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm Along the 3 directions namely X-Y-Z. The each direction should be vibrated for 60 minutes, after testing no abnormal electrical or mechanical should occur.

7-5. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN60950)

Products shall be dropped from a height of 900 mm onto a horizontal surface consists of hardwood at 13mm thick, mounted on two layers of plywood each 19mm to 20mm thick, all supported on a concrete or equivalent non-resilient floor. Upon conclusion of test, the equipment need not be operational.

7-6. Net Weight: 820g


71+/-1
40+/-1
171+/-1
TEST OK
HI-POT OK
52
100+/-20
UL2464 #14
1200+/-30
40+/-5
30+/-5
P1:V+
P3:V+
GND
P4:V-
P2:V-


40+/-5
100+/-5
TOP
MICROSYSTEMS
Switching
Power
P/N: A190095EDL
Input: 100-240V~ 50/60Hz 3.0A
Output: 19V ⎓ 9.5A
c UL us
LISTED
E176899
Nemko
GS
geprüfte Sicherheit
LPS
RoHS
CAUTION
DRY LOCATION ONLY. RISK OF SHOCK.
WWW. TOPMICRO. COM
S/N: TED-XXYYZZZZ
Made in China
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