

# Laptop Power Adapter



## Single Output 230W Data Sheet

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### Description

This series is a class 1, single-output AC to DC 230W green adapter with C6 inlet type. It can be operated from AC 90V~264V with good efficiency performance for Notebook /Gaming PC / AIO / Mini PC / Thin Client / Docking application. It also complies world-wide Safety and EMC regulations.

### Features

- \* Full AC input voltage design with C6 socket
- \* Withstand 300Vac surge voltage for 5 seconds
- \* Full Protections: Short-circuit/ Over-voltage/ Over-current/ Over temperature operating.
- \* Energy efficiency level VI compliance
- \* Various DC plug types available
- \* IEC/EN 62368-1 design compliance
- \* Up to 5000 meters operating altitude (note #4)
- \* High reliability



### Electrical Specification

| Model Name                          | PA-1231-16                                 |
|-------------------------------------|--------------------------------------------|
| <b>Output</b>                       |                                            |
| Rated power                         | 230W                                       |
| Rated voltage                       | 19.5V                                      |
| Rated current                       | 11.8A                                      |
| Ripple & Noise(max.) (note #2)      | 380mV                                      |
| Line & load regulation              | ±5%                                        |
| Hold-up time(typ.)                  | 5ms                                        |
| Timing: AC ON delay / rising (max.) | 5 sec / 40ms                               |
| <b>Input</b>                        |                                            |
| Rated voltage range                 | 100~240Vac                                 |
| Operated voltage range              | 90~264Vac, 300Vac for 5 sec                |
| Current range (max.)                | 3.5A/100Vac                                |
| Inrush current                      | No component damaged (<I <sup>2</sup> *t). |
| Frequency range                     | 50-60Hz                                    |
| Leakage current (max.)              | 80uA at 250Vac / 50Hz                      |

|                            |                                                                      |
|----------------------------|----------------------------------------------------------------------|
| Average efficiency (typ.)  | 89%                                                                  |
| <b>Protection Function</b> |                                                                      |
| Over voltage (max.)        | 150% of rated voltage, latch-off protection                          |
| Over current (max.)        | 160% of rated current, hiccup mode protection until fault is removed |
| Short circuit at O/P       | No damage, hiccup mode protection until fault is removed             |
| Over temperature           | No damage, auto recovery until temperature is back to normal         |
| <b>Others</b>              |                                                                      |
| MTBF (min.) (note#3)       | 500K hours @ rated load                                              |
| <b>Environment</b>         |                                                                      |
| Temperature (note#5)       | (operating) -20~70°C / (storage) -40~85°C                            |
| Humidity                   | (operating) 10~90% RH non-condensing / (storage) 5~95% RH            |
| Altitude (max.)            | 5000 meters                                                          |
| <b>Mechanical</b>          |                                                                      |
| Dimension                  | 155(L)*75(W)*25.4mm(H)                                               |
| Vibration                  | 10~500 Hz, 5G 20min./1cycle per axis for all axes (X, Y, Z)          |
| Weight (typ.)              |                                                                      |
| <b>Safety</b>              |                                                                      |
| Standard                   | IEC/EN 60950-1, K60950-1, IEC/EN 62368-1, CNS14336-1                 |
| Withstand voltage          | Input-Output: 4242VDC / Input-FG: 2150VDC                            |
| Isolation resistance(min.) | Input-Output: 30Mohm @ 500VDC, 25°C, 70%RH                           |
| <b>EMC</b>                 |                                                                      |
| EN55032 (CISPR32)          | Conducted EMI: class B / Radiated EMI: class B                       |
| FCC                        | Conducted EMI: class B / Radiated EMI: class B                       |
| EN61000-3-2                | Harmonic distortion: not applicable                                  |
| EN61000-4-2                | ESD: ±8KV contact discharge / ±15KV contact discharge                |
| EN61000-4-3                | Radiated RF immunity: 3V/m                                           |
| EN61000-4-4                | EFT: ±1KV (AC port)                                                  |
| EN61000-4-5                | Surge: ±2KV DM / ±4KV CM                                             |
| EN61000-4-6                | Conducted RF immunity: 3V/m                                          |
| EN61000-4-8                | Magnetic field immunity: 3A/m                                        |
| EN61000-4-11               | Voltage dip immunity                                                 |

## Notes

#1: All specification defined at 230Vac/50Hz, rated power and 25°C ambient temperature if not mentioned specifically.

#2: Ripple noise is measured with 0.47uF MLCC & 47uF low ESR capacitor.

#3: Calculated by Telcordia SR332 at 25°C ambient temperature.

#4: When operating altitude is higher than 2000m, the environment temperature derating factor is 0.36°C/100m.

Mechanical Specification

