



**SILVERSTONE**<sup>®</sup>  
Designing Inspiration

# ADAPTER SERIES SST-AD60-C

Compact, intelligent multi-voltage 60W USB Type-C adapter

- Maximum 60W 3A fast charging for USB Type-C equipped laptops, tablets, and mobile phones
- Intelligent detection and auto adjust to various DC voltage output of 20V / 15V / 12V / 9V / 5V
  - 25mm thick compact and slim design for easy transport
    - Up to 88% high efficiency
    - Meets DoE level 6 standard for energy efficiency
    - Multiple protection circuitry and safety certification



# SPECIFICATION

## Adapter Series

### AD60-C

#### 60W USB Type-C AC-DC Adapter

#### 1. Input Characteristics:

ITEM	CONDITION	SPECIFICATION
1.1 Rated Input Voltage:		100Vac~240Vac
1.2 Input Voltage Range:		90Vac to 264Vac
1.3 Input Frequency Range:		47Hz to 63Hz ( ± 1Hz )
1.4 Input Current:	100Vac, 240Vac / 3A load	≤ 2A
1.5 Efficiency: (Warm up 10minutes later)	5Vdc / 3A load 9Vdc / 3A load 12Vdc / 3A load 15Vdc / 3A load 20Vdc / 3A load	≥ 79% ≥ 84% ≥ 85% ≥ 85% ≥ 86% ( DC Cable ≤ 800 mm,18AWG)
1.6 Power Saving:	115Vac, 230Vac / 5Vdc_0A load	≤ 0.1W
1.7 Inrush Current:	100Vac, 240Vac / 3A load	Shall be less than the rating of adapter critical component (including rectifiers, fuse surge and current limiting device)
1.8 DOE(Level VI):	(1)115Vac / 0A load (2)115Vac / 25%,50%,75%,100% load (Average Active Mode Efficiency ,Warm up 30 minutes later)	5Vdc ≤ 0.1W 5Vdc ≥ 81.39%, 9Vdc ≥ 86.62%, 12Vdc ≥ 87.4%, 15Vdc ≥ 87.73%, 20Vdc ≥ 88% ( DC Cable ≤ 800 mm,18AWG)

## 2. Output Characteristics:

ITEM	CONDITION	SPECIFICATION
2.1 Output Rated Voltage:		5V/9V/12V/15V/20V
2.2 Output Current:	at constant voltage mode	5V/3A 9V/3A 12V/3A 15V/3A 20V/3A
2.3 Output Voltage Setting:	at the output end of DC cable	5V±5% 9V±5% 12V±5% 15V±5% 20V±5% (DC CABLE ≤ 800 MM, 18AWG)
2.4 Output Voltage Ripple and Noise: (0.1uF Ceramic Cap. and 35V 47uF Aluminum Cap. Paralleled between the end of output cable)	100Vac, 240Vac / 0A~3A load	≤ 200mVp-p
2.5 Turn-On Delay Time:	At 100Vac / 3A load, output voltage shall remain regulation	≤ 3Sec
2.6 Hold Up Time:	At 100Vac or 240Vac / 3A load, output voltage shall remain regulation	≥ 5ms
2.7 Rise Time:	At 100Vac / 3A load, DC output rise time from 5V to 9V 5V to 12V 5V to 15V 5V to 20V	≤ 275ms
2.8 Fall Time	At 100Vac / 3A load, DC output fall time from 9V to 5V 12V to 5V 15V to 5V 20V to 5V	≤ 275ms
2.9 Dynamic Load Change:	(1) Output load step is : <b>【1】</b> 0 % ~50 % <b>【2】</b> 50 %~100 % (2) S/R=0.5A/us (3) Frequency is 100Hz and 1KHz	5V ± 15% 9V ± 15% 12V ± 15% 15V ± 15% 20V ± 15%
3.0 Overshoot:	100Vac, 240Vac / 0A and 3A load	5V ± 10%

### 3. Protection Characteristics:

ITEM	CONDITION	SPECIFICATION
3.1 Short Circuit Protection:	When an internal fault occurs, or an external fault is applied to the power supply, such that an overload or short circuit is applied to the output, the power supply shall shut down and enter auto-recovery mode.	Shutdown and no damage
3.2 Over Voltage Protection:	The adapter will enter into shut down that means no output while over voltage happened at output terminal that caused by internal fault, the output trip voltage shall not exceed 27 volts. That will be return to normal state by AC reset.	Shutdown and no damage
3.3 Over Power Protection:	When an internal fault occurs, or an external fault is applied to the power supply, such that an overload or short circuit is applied to the output, the power supply shall shut down and enter auto-recovery mode.	Shutdown and no damage
3.4 Over Temperature Protection:	The power supply will enter into shut down while the abnormal thermal rise occurs. That will be return to normal state by AC reset.	No fire, no smoke
3.5 Over Current Protection:	115Vac, 230Vac / Full load	Output current limit : 4A(MAX) for 5Vdc / 9Vdc 12Vdc / 15Vdc / 20Vdc

## 4. Environmental Characteristics:

ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients: Refer to IEC61000-4-4	Impulse: $\pm 1\text{kV}$ applied to L,N	Normal operation shall be continued
4.2 Lightning Surge: Refer to IEC61000-4-5	$\pm 1\text{kV}$ applied differential mode  $\pm 2\text{kV}$ applied common mode	Normal operation shall be continued  Normal operation shall be continued
4.3 Electron Static Discharge: (Refer to IEC61000-4-2 Energy Storage Capacitor 150pF; Discharge Resistor 330 $\Omega$ )	Air Discharge: $\pm 8\text{KV}$ Contact Discharge: $\pm 4\text{KV}$	Normal operation shall be continued
4.4 Cooling:	Natural air cooling	
4.5 EMI: Adapter comply with the following national standards:  EMI Conducted Emission  EMI Radiated Emission	1.Full Load 2. The power supply with internal filter can meet.	FCC PART 15J CLASS B  CISPR22 EN55022 CLASS B  VCCI LEVEL II
4.6 Safety conforming:  4.6.1 Department of Energy 【DOE】		Regulated by customer  Comply with DOE standard
4.7 LEAKAGE CURRENT:	264Vac / 50Hz	$\leq 0.25\text{mA}$
4.8 Dielectric Strength: (Hi-Pot)	Between AC input and secondary applied AC 1.5KV / test time 1 minute / cut off current shall be less than 10mA	
4.9 Temperature:	Operating Storage	0 to 40°C -20 to +80°C
4.10 Humidity:	Operating Storage	20% ~ 80% 10% ~ 90%

## 5. Mechanical Characteristics:

ITEM	CONDITION	SPECIFICATION
5.1 Dimension (Length x Width x Height):		92 X 77.3 X 25.4 mm
5.2 Adapter weight:		230g (typical)
5.3 Input AC socket Type:		IEC 320-C14 Type
5.4 Vibration Test:	(1) Non-operating, 0.01g <sup>2</sup> /Hz at 5Hz slopping to 0.02g <sup>2</sup> /Hz at 20Hz, And maintain 0.02g <sup>2</sup> /Hz from 20Hz ~ 500Hz (2) PSD=3.13grms, 15 minutes/axis (3) Vibration duration:15minutes (4) Vibration waveform:Random (5) Force Direction X,Y,Z	Normal operation shall be continued.
5.5 Acoustic Noise:	(1) Position the microphone 30 centimeters above the x-y center of the AC adapter (2) Input voltage:110Vac/60Hz 220Vac/50Hz	The EUT < 30dB

*CAN ICES-3 (B) / NMB-3(B)*

**This device complies with Part 15 of the FCC Rules  
Operation is subject to the following two conditions:**

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

*SilverStone Technology Co., Ltd.*

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**[www.silverstonetek.com](http://www.silverstonetek.com)**

support@silverstonetek.com

NO. G11232611