



# SMPS1K2-SKU DATA SHEET

High End switching power supply for audio applications

Sheet : 26032023  
Revision 4.0

## Features

- 100VAC ~ 250VAC Input (PFC)
- Standby input
- Amp enable output
- Onboard standby power supply
- 23.5CM \* 13CM \* 5.8CM
- 0.1W Power consumption in standby mode

Custom made for



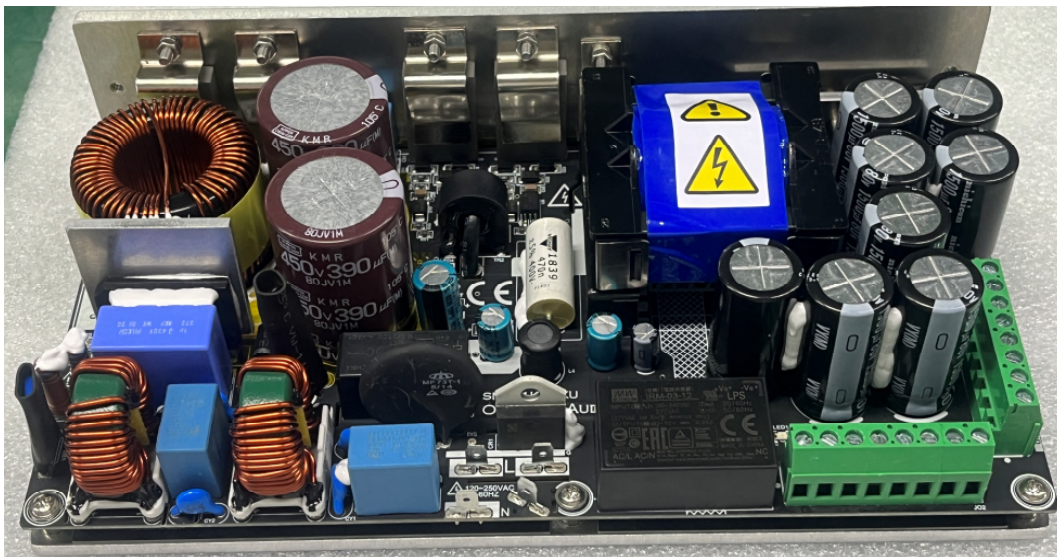
Orchard Audio

## Typical applications

- \* Professional audio systems
- \* Consumer audio products
- \* HiFi audio systems

## Highlights

- \* High reliability
- \* High efficiency
- \* Low EMI signature
- \* Power factor corrector



# Safety compliance

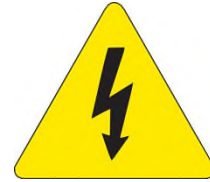
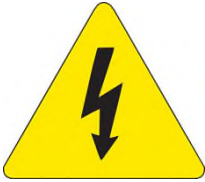
The **SMPS1K2-SKU** is safety tested according to the following standards:

- IEC60065:2014 + A11:2017
- IEC62368-1:2014 + A11:2017
- UL62368-1:2014 Ed.2
- CSA62368-1:2014 Ed.2
- AS/NZS 623681.1:2018

## Relevant standards

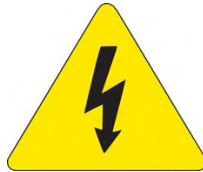
- \* IEC60065:2014 + A11:2017
- \* IEC62368-1:2014 + A11:2017
- \* UL62368-1:2014 Ed.2
- \* CSA62368-1:2014 Ed.2
- \* AS/NZS 623681.1:2018

## Safety Warning

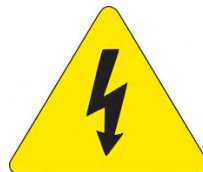


The SMPS1K2-SKU operates at mains voltage and carries hazardous voltages up to **420VDC** at accessible parts. These parts may never be exposed to inadvertent touch.

Observe extreme care during installation and never touch any part of the unit while it is connected to the mains. Disconnect the unit from the mains and allow all capacitors to discharge for **15 minutes** before handling it.



**IMPROPER HANDLING MAY RESULT IN PERSONAL INJURY**



**Ignoring the safety warning may lead to a nasty surprise on later stage!**



## **Introduction**

The SMPS1K2-SKU is a high efficiency **Safety Class 2 unregulated** high efficiency switch mode power supply specifically designed for audio applications, where high system reliability is a required feature.

The SMPS1K2-SKU is a SMPS with power factor corrector front end, excellent PFC regulation guarantees low voltage drop at the output across the entire load curve.

SMPS1K2-SKU also features an advanced over current protection & thermal protection, AC-Line loss detection to immediately stop the SMPS once disconnected from the AC-LINE.

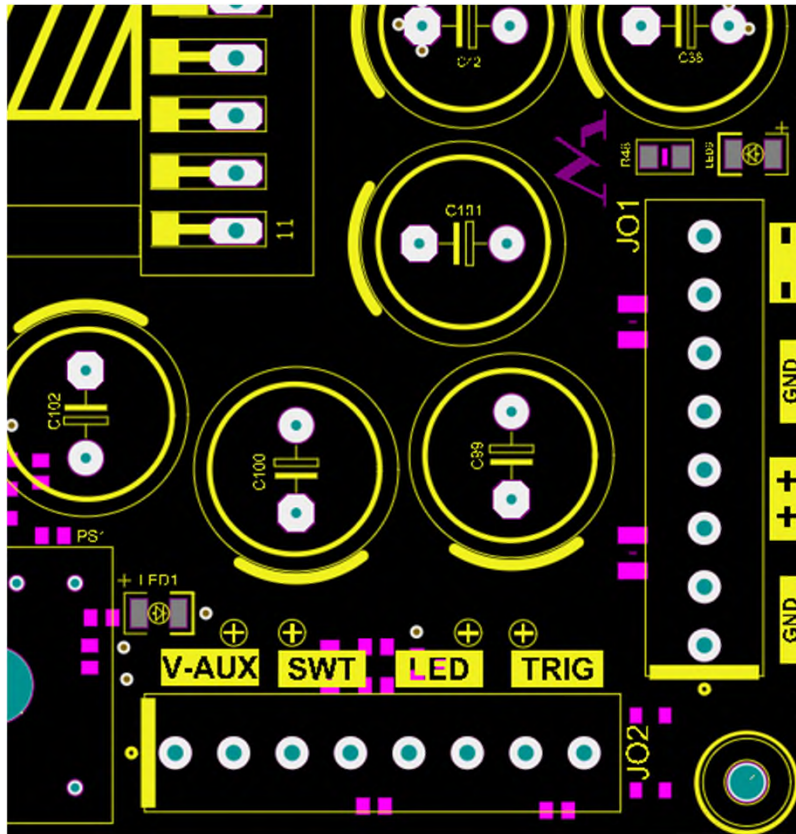
This SMPS is the result of countless hours of design, development, testing for each circuit to combine one reliable product.

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## **Detailed description of specifications**

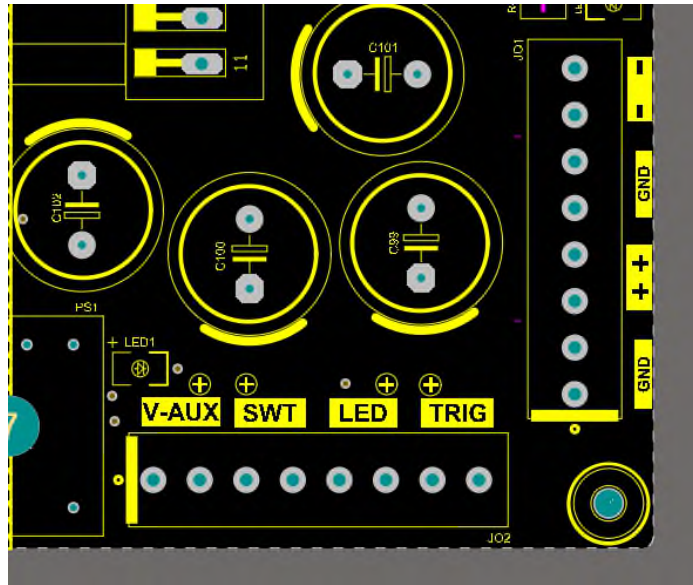
- Power factor corrector.
- Unregulated SMPS.
- Wide input voltage range (100 VAC ~ 250 VAC).
- Dual output voltage model (+/-40 VDC ).
- Standby switch input eliminates the need for mechanical switches.
- Onboard standby power supply (+12VDC 200mA).
- AC-Line loss detection

### Connector Pinouts



JO1 connector				
Connector	Pin number	Type	Function	Notes
V-AUX	1 & 2	Output	GND	GND rail
V-AUX	3 & 4	Output	+40V	Positive rail
V-AUX	5 & 6	GND	GND	GND rail
V-AUX	7 & 8	Output	-40V	Negative rail

### Connector Pinouts



JO2 connector				
Connector	Pin number	Type	Function	Notes
V-AUX	1	Output	+12VDC	Positive rail
V-AUX	2	GND	GND	GND rail
JO2 connector				
Connector	Pin number	Type	Function	Notes
SWT	1	Input	Standby	Standby input trigger
SWT	2	GND	GND	GND
JO2 connector				
Connector	Pin number	Type	Function	Notes
TRIG	2	Input	Trigger	Trigger input from 8V ~ 12V
TRIG	1	GND	GND	GND (Of the 8 ~ 12V trigger)
JO2 connector				
Connector	Pin number	Type	Function	Notes
LED OUT	1	Output	-	LED - output
LED OUT	2	Output	+	LED+ output

### General Performance Data

Parameter	Symbol	Min	Typ	Max	Unit	Note-1	Note-2
Input voltage	VAC_range_lo	100	*	250	V <sub>Ac</sub>		
Input frequency		47	50	63	Hz		
Switching frequency	F_sw	*	65	*	KHz		
Output voltage main	V_main output	+/-38		+/-41	V <sub>DC</sub>	Unregulated	
Output current (Continuous)	I_main output	*	4	*	A <sub>DC</sub>		
Output current (Peak)	IPK_main output	*	*	13	A <sub>DC</sub>	<b>15A Limit @ 240VAC</b>	<b>10A Limit @ 100V AC</b>
Output power main	Pout	*	350	<b>1000</b>	W		
Over current triggers @	OCP_trigger	*	14	16	A <sub>DC</sub>		
Thermal trigger	TH_trigger	*	70	75	C		
Output voltage (12V)	VAux1_reg	11.7	11.8	12.3	V <sub>DC</sub>	Regulated	
In-rush current	5R NTC	15	18	30	A		
Efficiency	Full power	87	90	91	%		
Idle Losses	SMPS not loaded	*	7.5	*	W		SMPS is ON
Stand-by loss		0.09	0.1	0.15	W		SMPS in Stand By