Features

- High Efficiency up to 92.5%
- Excellent Thermal Performance up to 55°C ambient Temperature
- Comply with DOE & CEC Level and ErP Lot 9
- Comply with CQC 3178 115V/220V Industry Application Level II
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OCP, OVP, OTP, SCP
- Class I Power Supply
- Withstand 10G Vibration Test
- Operating Altitude up to 5,000m
- 5 Years Warranty

Description

The *CUV-090SxxxSP3* is a 90W, constant-voltage power supply that operates from 90-305 Vac input with excellent power factor and harmonic. It is created for outdoor telecommunication and security equipment requiring industry safety compliance. The high efficiency of the power supply and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, over current, output over voltage, over temperature, and short circuit.

Models

Output Voltage(V)	Input Voltage Range(Vac)(1)	Output Current Range(A)	Max. Output Power(W)	Typical Efficiency(2)	Typical Power Factor		Model Number(3)
					115Vac	230Vac	
36	90-305	0-2.50	90	92.5%	0.99	0.96	CUV-090S036SP3

Notes: (1) Certified input Voltage range: 100-240Vac.
(2) Measured at 100% load and 230Vac input (see below "General Specifications" for details).
(3) SELV output.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.5 mA	L/N-PE, 264Vac/60Hz
			0.5 mA	Output-PE, 264Vac/60Hz
Input AC Current	-	-	1.05 A	Measured at 95% load and 115Vac input.
	-	-	0.50 A	Measured at 100% load and 230Vac input.
Inrush Current(I^2t)	-	-	2.50 A^2s	At 230Vac input, 25°C cold start, duration=1.12 ms, 10%Ipk-10%Ipk.
PF	0.9	-	-	At 100-240Vac, 50-60Hz, 60%-100%Load (54-90W)
THD	-	-	20%	

Output Specifications

Parameter		Min.	Typ.	Max.	Notes
Output Voltage Tolerance		-2.5%Vo	-	2.5%Vo	At 100% load condition
Total Output Voltage Ripple (pk-pk)		-	-	1%Vo	At 100% load condition. Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor.
Startup Overshoot / Undershoot		-	-	5%Vo	At 100% load condition
Line Regulation		-	-	±0.5%	Measured at 100% load
Load Regulation		-	-	±1.0%	
Turn-on Delay Time		-	0.5 s	1.0 s	Measured at 115Vac input, 95%Load
		-	0.3 s	0.5 s	Measured at 230Vac input, 100%Load
Hold up Time		20 ms	-	-	Measured at 230Vac input, 100%Load
Load Dynamic Response	Output Deviation	-	-	5%Vo	R/S: 1 A/μs Load: 25% ~ 100% load
	Settling Time	-	-	10 ms	
Temperature Coefficient of Vo		-	0.03%/°C	-	Case temperature = 0°C~Tc max

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 115 Vac input:	87.5%	89.5%	-	Measured at 95% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 230 Vac input:	90.5%	92.5%	-	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	595,000 Hours	-	Measured at 230Vac input, 80%load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	120,000 Hours	-	Measured at 115Vac input, 80%load and 50°C ambient temperature; See lifetime vs. Ta curve for the details
Operating Temperature	-40 °C	-	+70 °C	
Operating Ambient Temperature for Safety Ta_s	-40 °C	-	+50 °C	
Operating Ambient Temperature for Warranty Ta_w	-40 °C	-	+40 °C	Case temperature for 5 years warranty Humidity: 5%RH to 95%RH; No condensation
Operating Altitude	-	-	5000 m	The ambient temperature derating of 3.5℃ /1000m is needed for operating altitude greater than 2000m (6500ft).
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5%RH to 95%RH; No condensation

General Specifications (Continued)

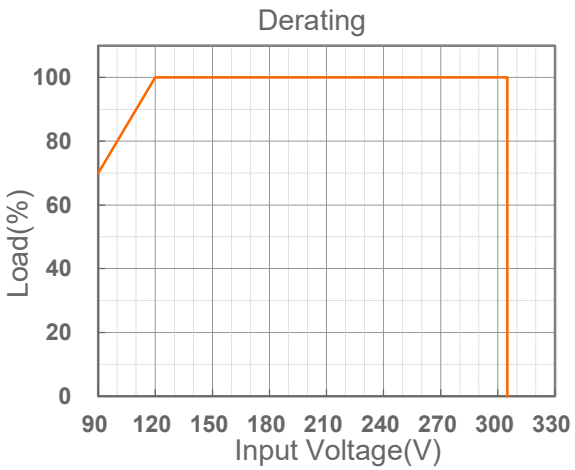
Parameter	Min.	Typ.	Max.	Notes
Dimensions Inches (L × W × H) Millimeters ((L × W × H)		5.51 x 2.66 x 1.39 140 x 67.5 x 35.4		With mounting ear 6.57 x 2.66 x 1.39 167 x 67.5 x 35.4
Net Weight	-	652 g	-	

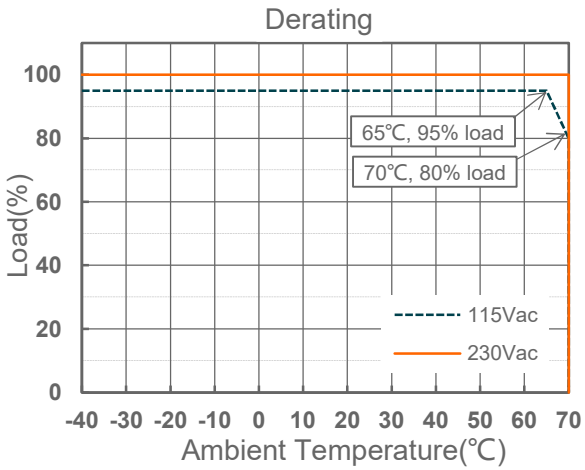
Safety & EMC Compliance

Safety Category	Standard	
CCC	GB 17625.1-2022; GB 4943.1-2022; GB/T 9254.1-2021	
EMI Standards	**Notes**	**Performance Criteria**
EN 55032(1), GB/T 9254.1	Conducted emission Test & Radiated emission Test	B
EN 61000-3-2, GB 17625.1	Harmonic current emissions	A
EN 61000-3-3	Voltage fluctuations & flicker	
EMS Standards	**Notes**	**Performance Criteria**
EN 61000-4-2	Electrostatic Discharge (ESD): 15 kV air discharge, 8 kV contact discharge	A
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS	A
EN 61000-4-4	Electrical Fast Transient / Burst-EFT	A
EN 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 6 kV, Common Mode 10 kV	A
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS	A
EN 61000-4-8	Power Frequency Magnetic Field Test	A
EN 61000-4-11	Voltage Dips	B (<±10%Vo)
EN 55024	Electromagnetic Immunity Requirements Applies To ITE	
GB/T 17626.5	Surge Immunity Test: 4 kV	A

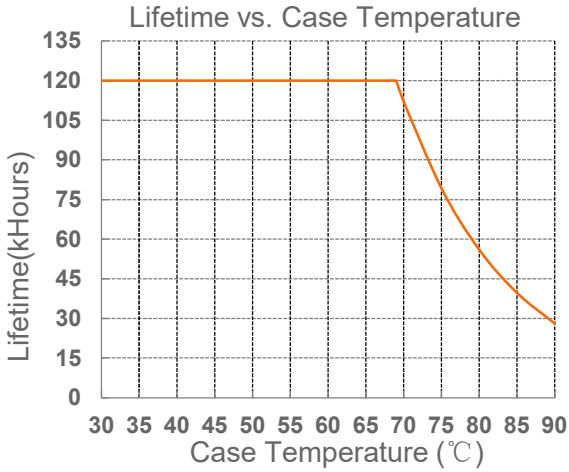
Note: (1) This power supply meets the EMI specifications above, but EMI performance of a system that contains it depends also on the other devices connected to the Power Supply and on the system itself.

Derating

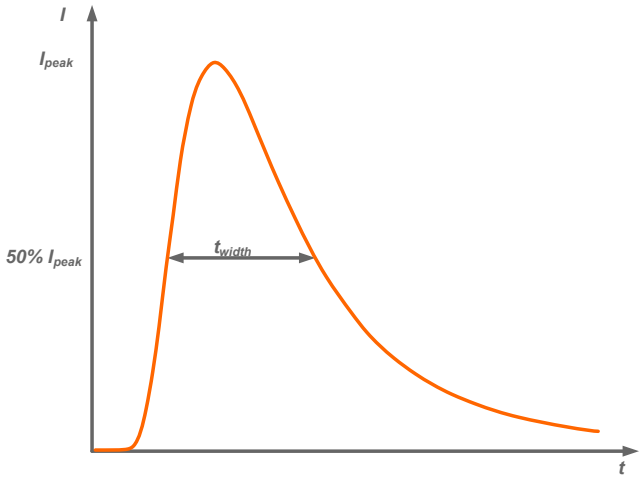




Lifetime vs. Case Temperature



Inrush Current Waveform



Input AC Voltage	I_{peak}	t_{width} (@ 50% Ipeak)
115Vac	24.8A	480μs
230Vac	54.6A	400μs

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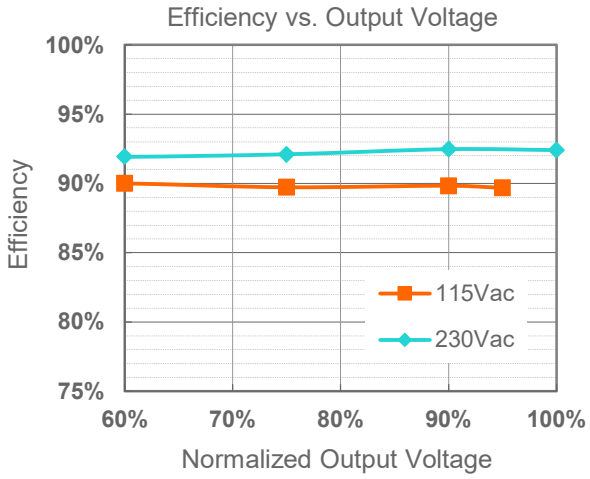
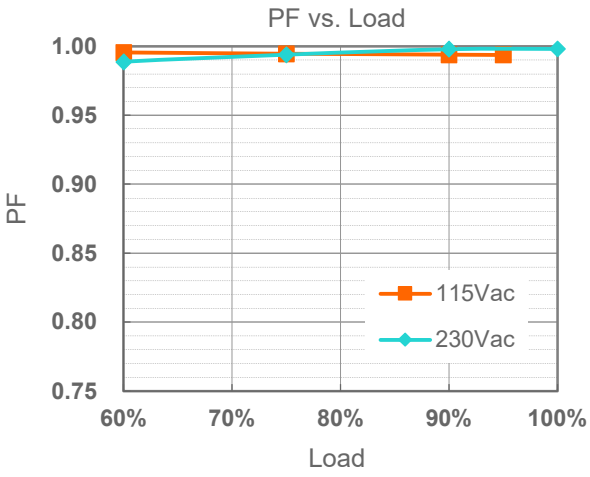
Inrush Current Waveform (Continued)

MCB	Tripping Curves	B	B	B	B	C	C	C	C
	Rated Current	10A	16A	20A	25A	10A	16A	20A	25A
The Number of LED Driver can be Configured	115Vac	6	10	13	16	8	13	16	20
	230Vac	3	5	6	8	5	9	11	14

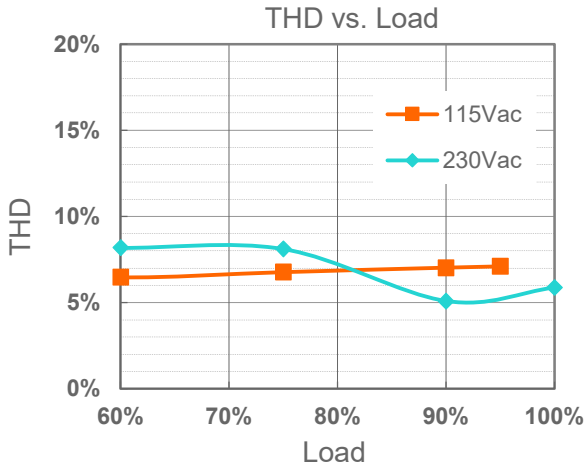
Efficiency vs. Load



Power Factor



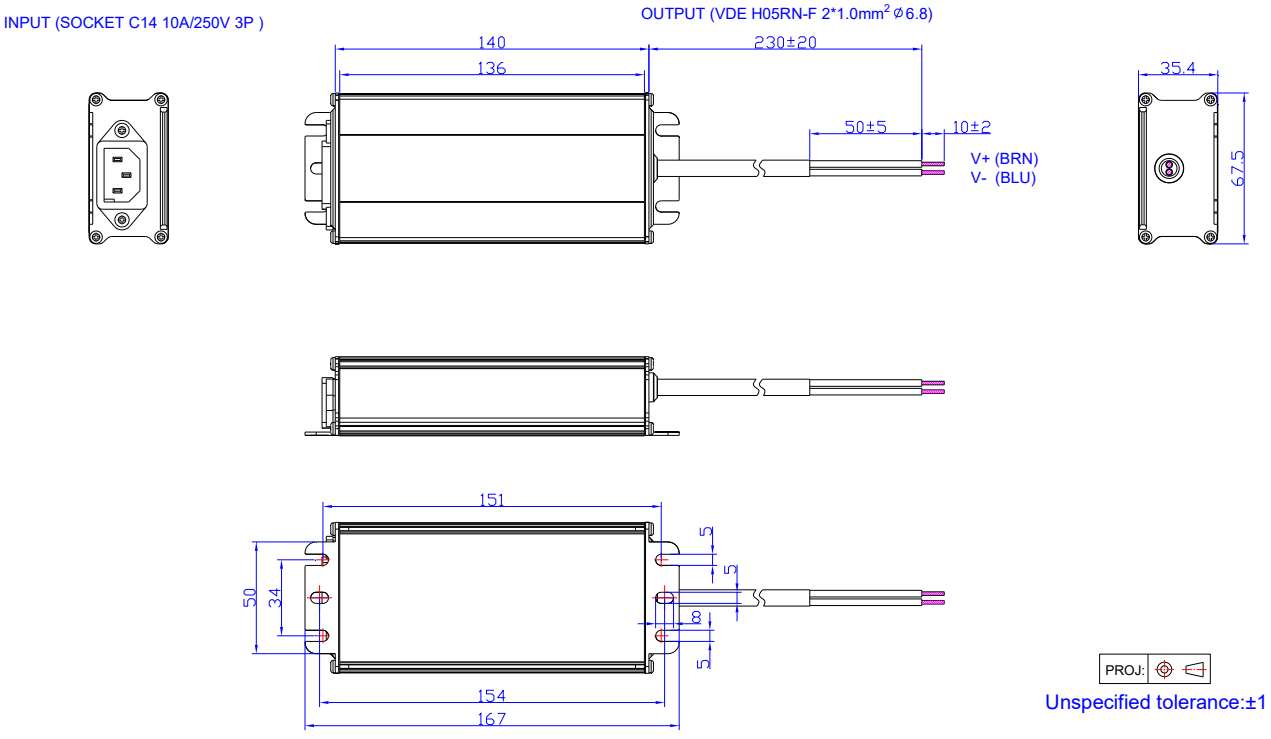
Total Harmonic Distortion



Protection Functions

Parameter	Notes
Over Current Protection	Auto Recovery. The driver shall be self-recovery when the fault condition is removed.
Over Temperature Protection	Auto Recovery. Returning to normal after over temperature is removed.
Short Circuit Protection	Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

Mechanical Outline



Unspecified tolerance:±1

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RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

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Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2025-02-14	A	Datasheet Release	/	/

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