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# 35W CONVECTION COOLED

The LCW series of regulated output convection cooled AC-DC power supplies are designed to provide a cost effective solution for industrial electronics, technology and household applications. Features include wide range AC input from 85-305VAC, output voltage adjustment, low stand-by power consumption, output short circuit protection, over current and over voltage protection. Applications include auxiliary power sources, security installations, lighting control, smart home or office control systems, ticketing and vending applications.

#### **Features**

- 35W convection cooled
- Integrated connector cover
- ITE, industrial & household approvals
- Class B conducted & radiated emissions
- Input voltage range 85-305VAC
- Regulated single outputs from 5.0V to 24VDC
- Output voltage trim ±10%
- Efficiency to 88%
- Short circuit, overvoltage & overload protection
- Conformal coating option
- -30°C to +70°C operating temperature
- 3 year warranty

#### **AC-DC POWER SUPPLIES**



#### **Applications**









Household Appliances

Industrial Instrumentation Technology Electronics

#### **Dimensions**

3.898" x 3.228" x 1.181" (99.0 x 82.0 x 30.0mm)

#### **Models & Ratings**

Model Number <sup>(3)</sup>	Output Voltage		Output Voltage Ripple &		Efficiency <sup>(2)</sup>	Maximum	Power
Model Number	Nominal	Adjustment Range <sup>(4)</sup>	Output Current	pk to pk <sup>(1)</sup>	Efficiency	Capacitive Load	Power
LCW35US05	5.0V	4.5 - 5.5V	7.0A	80mV	86%	8000µF	35W
LCW35US12	12.0V	10.8 - 13.2V	3.0A	120mV	88%	1500µF	35W
LCW35US15	15.0V	13.5 - 16.5V	2.4A	120mV	86%	1000μF	35W
LCW35US24	24.0V	21.6 - 26.4V	1.5A	150mV	87%	750µF	35W

#### Notes:

- $1.\ Ripple\ \&\ noise\ measured\ with\ 20MHz\ bandwidth\ and\ 47\mu F\ electrolytic\ capacitor\ in\ parallel\ with\ 0.1\mu F\ ceramic\ capacitor.$
- 2. Typical efficiencies measured at 230VAC full load.
- ${\it 3. Add suffix -} E\ to\ model\ number\ to\ specify\ conformal\ coating\ option,\ MOQ\ applies,\ please\ contact\ sales.$
- 4. Output power rating must not be exceeded.

# **CONTINUE** ← LCW35 Series

## Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
	85	115/230	305	VAC	Derate output power linearly from 100% at 100VAC to 80% at 85VAC and from 100% at 277VAC to 80% at 305VAC
Input Voltage - Operating	120		430	VDC	Alternative input. Not to be used in addition to AC input. DC input not included in safety approvals, external DC rated fuse required. Derate output power linearly from 100% at 120VDC to 80% at 100VDC and from 100% at 390VDC to 80% at 430VDC
Input Frequency	47	50/60	63	Hz	
Innuit Current Full Load			0.8	А	115VAC
Input Current - Full Load			0.6		230VAC
No Load Input Power			0.3	W	
		30			115VAC cold start at 25°C ambient
Inrush Current		50		А	230VAC cold start at 25°C ambient
Earth Leakage Current			0.75	mA	277VAC/50Hz (Typ)
Input Protection	T2.0A/300VAC Internal fuse fitted in line				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & C	onditio	ns
Output Voltage	4.5		26.4	VDC	See Models & Ratings table		tings table
Initial Set Accuracy		±2		%		LCW	/35US05
		±1		%	Full load	All o	ther models
Voltage Adjustment		±10		%			
Minimum Load	0			А	No minimum load required		required
Charle Un Dalay	58		130		115VAC fu	ll load	
Start Up Delay	60		138	ms	230VAC fu	III load	
Hold Up Time		8			115VAC		
		30		ms	230VAC		
Drift			±0.03	%	After 20 minutes warm up, 230VAC, 0°C to 50°C		varm up, 230VAC, 0°C to 50°C
Line Regulation		±0.5		%	100-264VAC, full load		oad
Land Daniel dies			±1.0	%	0-100%	LCW	/35US05
Load Regulation			±0.5		load	All o	ther models
Transient Response			10	%	Recovery within 1% in less than 5ms for a 50-75% and 75-50 step		% in less than 5ms for a 50-75% and 75-50% load
Ripple & Noise				mV pk-pk	See Models & Ratings table		tings table
Over/Undershoot			10	%	Full load 5ms recovery		overy
			6.3		LCW35US	05	
O " D "			16.2		LCW35US	12	
Overvoltage Protection			21.7		LCW35US	15	Hiccup mode, auto recovery
			33.6		LCW35US	24	
Overload Protection	110		200	%	Nominal o	utput cı	urrent, auto recovery
Temperature Coefficient		±0.03	5	%/°C			
Short Circuit Protection	Continuous	, hiccup with	auto recovery				





## General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		86		%	230VAC Full load (see Models & Ratings table)
Isolation: Input to Output	4000			VAC	
Input to Ground	2000			VAC	Class I construction
Output to Ground	1250			VAC	
Switching Frequency		65		kHz	
Power Density			2.52	W/in³	
Mean Time Between Failure	300			khrs	MIL-HDBK-217F, Notice 2 25°C GB
Weight		0.374 (170)		lb(g)	
Case Material	Aluminium chassis with vented galvanized steel cover				
Conformal Coating Option	g Option Acrylic resin, UL94V-0 rated, certified (UL No. E351072), minimum 30µm coating thickness. Add suffix -E to part number				

## **Environmental**

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions	
Operating Temperature	-30		+70	°C	See derating curve	
Storage Temperature	-40		+85	°C		
Cooling	Natural con	Natural convection				
Humidity	5		90	%RH	Non-condensing	
Operating Altitude			5000	m		
Shock and Vibration	Tested acco	Tested according to EN60068-2-27, 10 - 500Hz, 5g (1H) for each X,Y and Z plane				

## **EMC: Emissions**

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	
Radiated	EN55032	Class B	

## **EMC: Immunity**

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	Α	Contact ±6kV/Air ±8kV
Radiated Immunity	EN61000-4-3	3	Α	10V/m
EFT	EN61000-4-4	3	Α	±2kV
Surge	EN61000-4-5	Installation class 4	Α	Line to line ±2kV, line to ground ±4kV
Conducted	EN61000-4-6	3	Α	10Vrms
		Dip. 100% (0VAC), 10ms	Α	
		Dip. 100% (0VAC), 20ms	В	
Dips	EN61000 4 11	Dip. 60% (88VAC), 200ms	Α	
	EN61000-4-11	Dip. 30% (154VAC), 500ms	Α	
		Dip. 20% (176VAC), 5000ms	Α	
Interruptions		Int. 100% (0VAC), 5000ms	В	



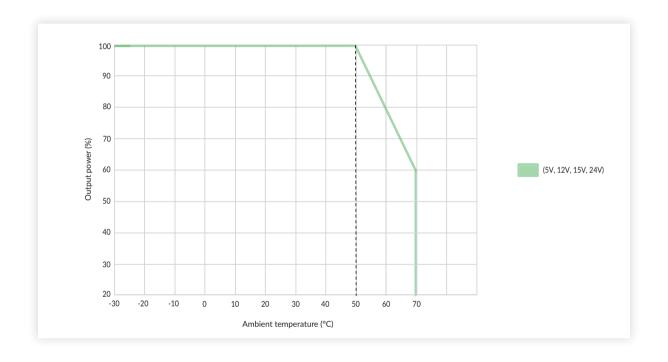


## **Safety Approvals**

Certification	Standard	Notes & Conditions
UL	UL62368-1	Information Technology
EN	EN62368-1, EN60335, EN61558	Information Technology and Household
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

## **Application Notes**

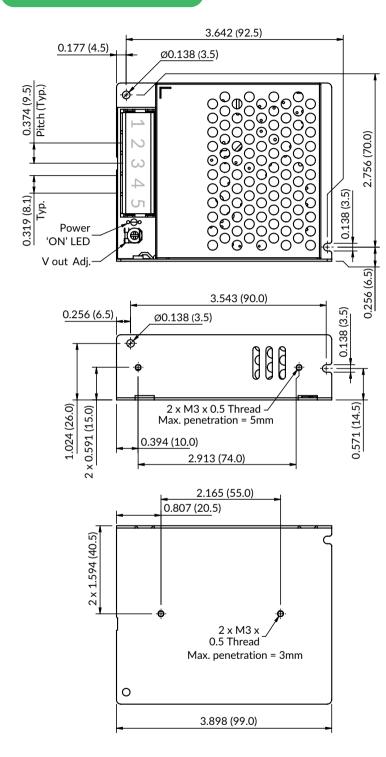
#### Temperature Derating

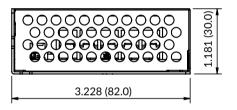




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#### **Mechanical Details**





F	Pin-Out				
Pin	Function				
1	AC(L)				
2	AC(N)				
3	GND				
4	-Vo				
5	+Vo				

Connector torque: M3.5, 0.8Nm

#### Notes:

- 1. All dimensions are in inches (mm).
- 2. Tightening torque: M3, 0.4Nm fixings
- 3. General tolerances: ±0.039 (±1.00)
- 4. Chassis must be connected to protective earth.
- 5. Use 22-14 AWG wire range for connector