LCW15 Series

AC-DC POWER SUPPLIES

15W 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 and technology 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

- 15W convection cooled
- Integrated connector cover
- ITE & industrial approvals
- Class B conducted & radiated emissions
- Input voltage range 85-305VAC
- Regulated single outputs from 3.3V to 48VDC
- Output voltage trim ±10%
- Efficiency to 83%
- Short circuit, overvoltage & overload protection
- Conformal coating option
- -30°C to +70°C operating temperature
- 3 year warranty

Applications

Industrial Electronics

Instrumentation

Technology

Dimensions

2.56" x 2.17" x 0.98" (65.0 x 55.0 x 25.0mm)

3.07" x 2.17" x 0.98" (78.0 x 55.0 x 25.0mm) including connector

Models & Ratings

Model Number[3]	Output Voltage		Output Current	Ripple & Noise pk to pk[1]	Efficiency[2]	Maximum Capacitive Load	Power
	Nominal	Adjustment Range[4]					
LCW15US03	3.3V	2.9 - 3.6V	3.0A	80mV	73%	3000µF	10W
LCW15US05	5.0V	4.5 - 5.5V	3.0A	80mV	78%	2400µF	15W
LCW15US12	12.0V	10.8 - 13.8V	1.3A	120mV	82%	1800µF	15W
LCW15US15	15.0V	13.5 - 16.5V	1.0A	120mV	82%	1200µF	15W
LCW15US24	24.0V	21.6 - 26.4V	0.625A	150mV	83%	600µF	15W
LCW15US48	48.0V	43.2 - 52.8V	0.32A	150mV	83%	300µF	15W

Notes:

1. Ripple & noise measured with 20MHz bandwidth and 47µF electrolytic capacitor in parallel with 0.1µF ceramic capacitor.
2. Typical efficiencies measured at 230VAC full load.
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.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage - Operating	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
	100		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	
Input Current - Full Load			0.35	A	115VAC
			0.25		230VAC
No Load Input Power		0.3		W	
Inrush Current		30		A	115VAC cold start at 25°C ambient
		50			230VAC cold start at 25°C ambient
Earth Leakage Current			0.5	mA	277VAC/50Hz
Input Protection	T1.0A/300VAC Internal fuse fitted in line				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions	
Output Voltage	2.9		52.8	VDC	See Models & Ratings table	
Initial Set Accuracy		±3		%	Full load	LCW15US03
		±2				LCW15US05
		±1				All other models
Voltage Adjustment		±10		%		
Minimum Load	0			A	No minimum load required	
Start Up Delay		125		ms	115/230VAC full load	
Hold Up Time		7		ms	115VAC	
		48			230VAC	
Drift			±0.03	%	After 20 minutes warm up, 230VAC, 0°C to 50°C	
Line Regulation			±1.0	%	LCW15US03/05, 100-264VAC, full load	
			±0.5		All other models, 100-264VAC, full load	
Load Regulation			±1.0	%	0-100% load	LCW15US03/05
			±0.5			All other models
Transient Response			10	%	Recovery within 1% in less than 5ms for a 50-75% and 75-50% load step	
Ripple & Noise				mV pk-pk	See Models & Ratings table	
Over/Undershoot			10	%	Full load 5ms recovery	
Overvoltage Protection			6.75	VDC	LCW15US03/05	Hiccup mode, auto recovery
			16.2		LCW15US12	
			21.8		LCW15US15	
			33.6		LCW15US24	
			60.0		LCW15US48	
Overload Protection	110		200	%	Nominal output current, auto recovery	
Temperature Coefficient		±0.03	5	%/°C		
Short Circuit Protection	Continuous, hiccup with auto recovery					

LCW15 Series

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		82		%	230VAC Full load (see Models & Ratings table)
Isolation: Input to Output	4000			VAC	Class I construction
Input to Ground	2000			VAC	
Output to Ground	500			VAC	
Switching Frequency		65		kHz	
Power Density			2.75	W/in³	
Mean Time Between Failure	700			khrs	MIL-HDBK-217F, Notice 2 25°C GB
Weight		0.198 (90.0)		lb(g)	
Case Material	Aluminium chassis with vented galvanized steel cover				
Conformal Coating 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 convection				
Humidity	5		90	%RH	Non-condensing
Operating Altitude			5000	m	
Shock and Vibration	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

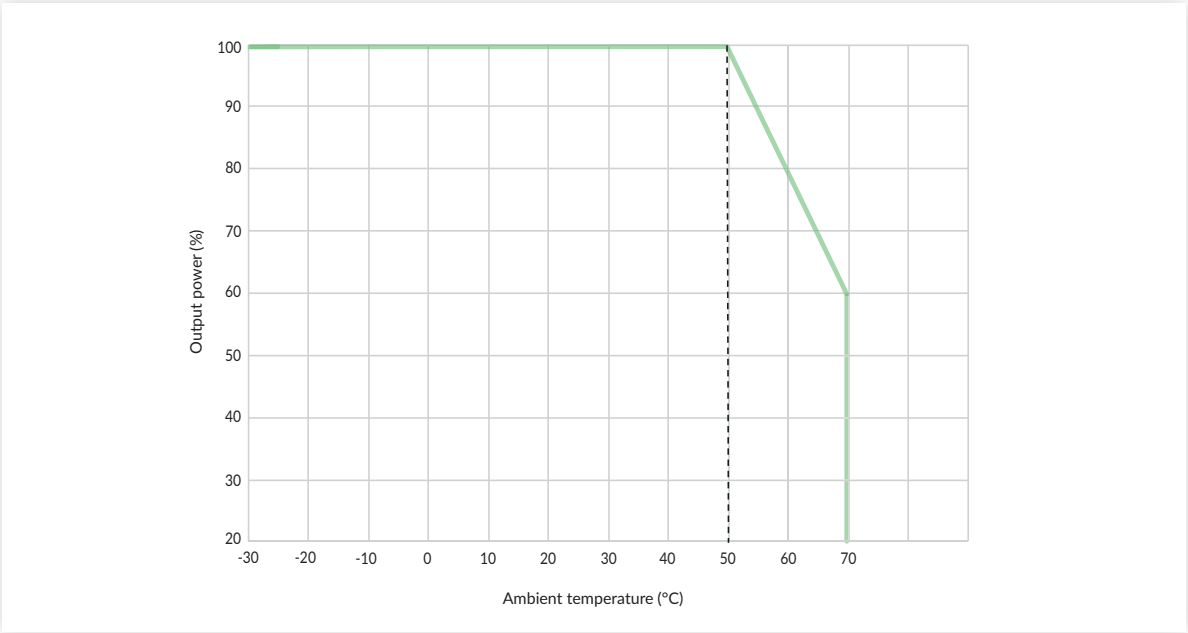
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	A	Contact ±6kV/Air ±8kV
Radiated Immunity	EN61000-4-3	3	B	10V/m
EFT	EN61000-4-4	3	A	±2kV
Surge	EN61000-4-5	Installation class 4	A	Line to line ±1kV, line to ground ±2kV
Conducted	EN61000-4-6	3	A	10Vrms
Dips	EN61000-4-11	Dip. 100% (0VAC), 10ms	B	
		Dip. 100% (0VAC), 20ms	B	
		Dip. 60% (88VAC), 200ms	A	
		Dip. 30% (154VAC), 500ms	A	
		Dip. 20% (176VAC), 5000ms	A	
Interruptions		Int. 100% (0VAC), 5000ms	B	

Safety Approvals

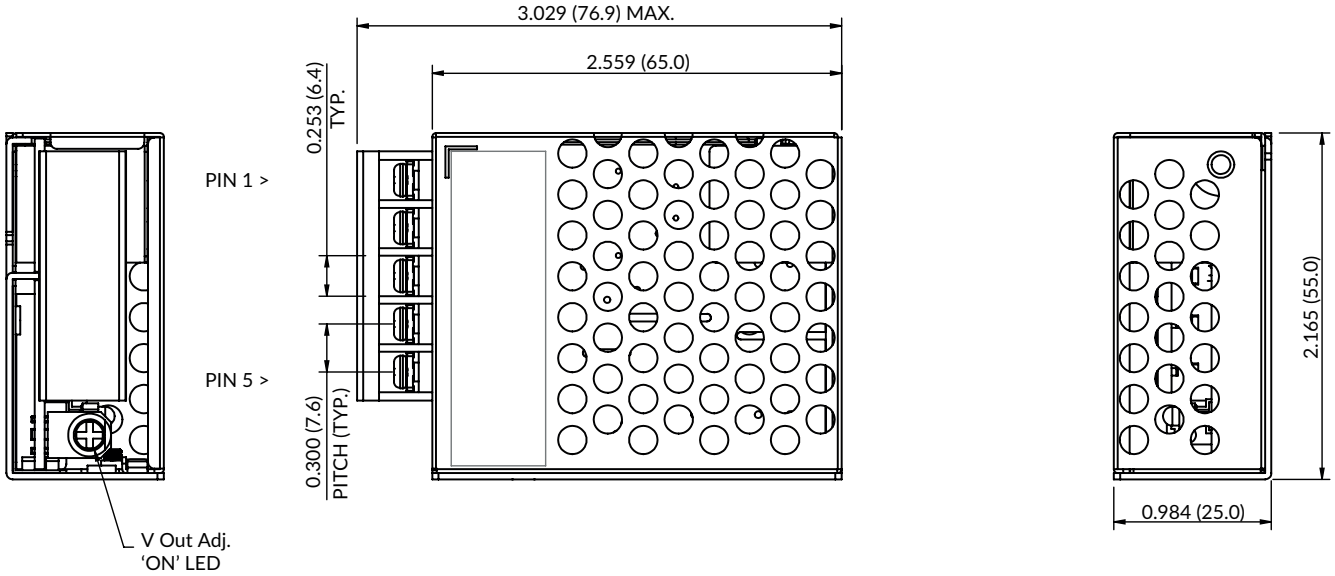
Certification	Standard	Notes & Conditions
UL	UL62368-1	Information Technology
EN	EN62368-1	Information Technology
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

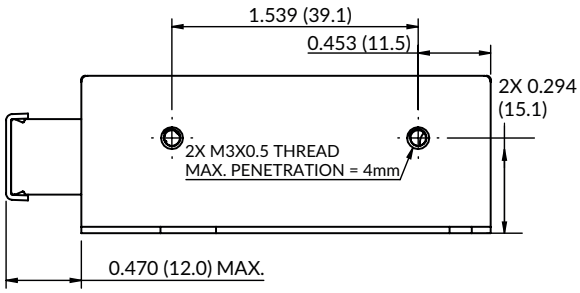
Application Notes

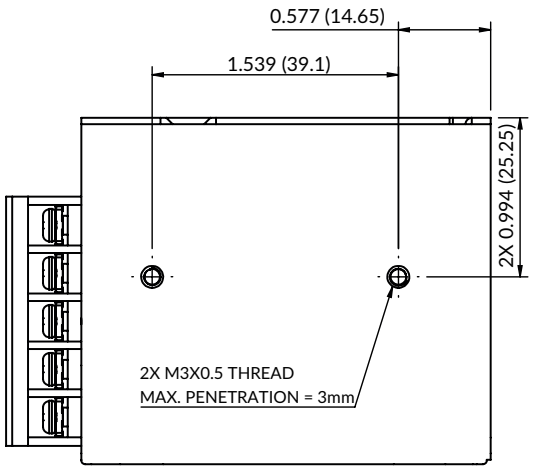
Temperature Derating



Mechanical Details







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

Connector torque: M3, 0.4Nm

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