

**50W** Convection cooled

AC-DC power supplies

The LBA50 series of compact, convection-cooled 50W AC-DC power supplies are designed to deliver quiet, consistent performance across a wide range of industrial technology applications. With a wide input range, regulated single output voltages from 5V to 48VDC and output voltage adjustment, the LBA50 series provides engineers with a versatile and robust power platform suitable for demanding industrial environments.

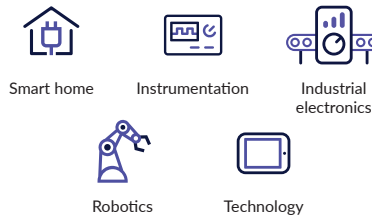
Featuring Class B conducted and radiated emissions, worldwide ITE safety approvals, wide temperature range, compact footprint, a power "ON" LED and an integrated connector cover, the LBA50 is designed for easy integration into applications including auxiliary power units, security and surveillance systems, industrial automation, lighting control, smart home and building control equipment.



## Features

- ▶ 50W convection cooled
- ▶ Universal, single phase input: 90 to 264VAC
- ▶ Regulated single outputs from 5V to 48VDC
- ▶ ITE safety approvals
- ▶ Class B conducted & radiated emissions
- ▶ Integrated connector cover
- ▶ Output voltage trim
- ▶ Efficiency, up to 86%
- ▶ Short circuit, overvoltage & overload protection
- ▶ LED power ON status indicator
- ▶ -30°C to +70°C operating temperature
- ▶ 3 year warranty

## Applications



## Dimensions

99.0 x 82.0 x 30.0 mm (3.89" x 3.22" x 1.18")

## Models & ratings

Model number	Output voltage		Output current	Ripple & noise pk to pk <sup>(1)</sup>	Efficiency <sup>(2)</sup>	Maximum capacitive load	Power
	Nominal	Adjustment range <sup>(3)</sup>					
LBA50US05	5.0V	4.5 - 5.5V	10.0A	100mV	83%	6000µF	50W
LBA50US12	12.0V	10.8 - 13.2V	4.2A	120mV	85%	1800µF	50W
LBA50US15	15.0V	13.5 - 16.5V	3.4A	150mV	85%	1200µF	50W
LBA50US24	24.0V	21.6 - 26.4V	2.1A	150mV	85%	600µF	50W
LBA50US48	48.0V	44.0 - 52.0V	1.1A	200mV	86%	120µF	52W

### Notes:

1. Ripple & noise measured with 20MHz bandwidth and using 20±2cm twisted pair-wire terminated with 47µF electrolytic capacitor in parallel with 0.1µF ceramic capacitor.
2. Typical efficiencies measured at 230VAC full load.
3. The total output power must not exceed the rated output power.

## Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage - operating	90	115/230	264	VAC	Derate output power linearly from 100% at 100VAC to 80% at 90VAC.
Input frequency	47	50/60	63	Hz	
Input current			2.0	A	115VAC full load
			1.0		230VAC full load
No load input power			1.0	W	
Inrush current			30	A	115VAC cold start at +25°C ambient
			65		230VAC cold start at +25°C ambient
Earth leakage current			0.75	mA	240VAC / 50Hz
Input protection	T3.15A/250VAC Internal fuse fitted in line				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	5		48	VDC	See Models & Ratings table
Initial set accuracy			±2	%	Full load
			±1		LBA50US05 All other models
Voltage adjustment	See Models & Ratings table				
Minimum load	0			A	No minimum load required
Start up time			2.5	s	115 / 230VAC full load at +25°C
Rise time			30	ms	115 & 230VAC full load
Hold up time	12/20			ms	115 / 230VAC full load
Drift			±0.03	%	After 20 minutes warm up, 230VAC, 0°C to +50°C
Line regulation			±0.5	%	100-264VAC, full load
Load regulation			2	%	From 0-100% load
			1		LBA50US05 All other models
Transient response			4	%	Recovery within 1% in less than 0.5ms for a 50-75% and 75-50% load step
Ripple & noise	See Models & Ratings table				
Over / Undershoot			10	%	Full load
Overvoltage protection	110		140	%	5V-24V models
			60	V	48V model
Overload protection	110		180	%	Nominal output current, auto recovery
Temperature coefficient		±0.03		%/°C	0 to +50°C
Short circuit protection	Continuous hiccup with auto recovery				

## General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See Models & Ratings table				
Isolation: input to output input to ground output to ground	3000			VAC	Class I construction
	1800			VAC	
	500			VAC	
Switching frequency		65		kHz	Full load
Power density			0.206 (3.38)	W/cm <sup>3</sup> (W/in <sup>3</sup> )	
Mean time between failure	400			khrs	MIL-HDBK-217F, Notice 2 +25°C GB at 230VAC
Weight		200 (0.441)		g (lb)	
Case material	Aluminium chassis with vented galvanized steel cover				

## 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	20		95	%RH	Non-condensing
Operating altitude			2000	m	
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	
Harmonic currents	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

## EMC: immunity

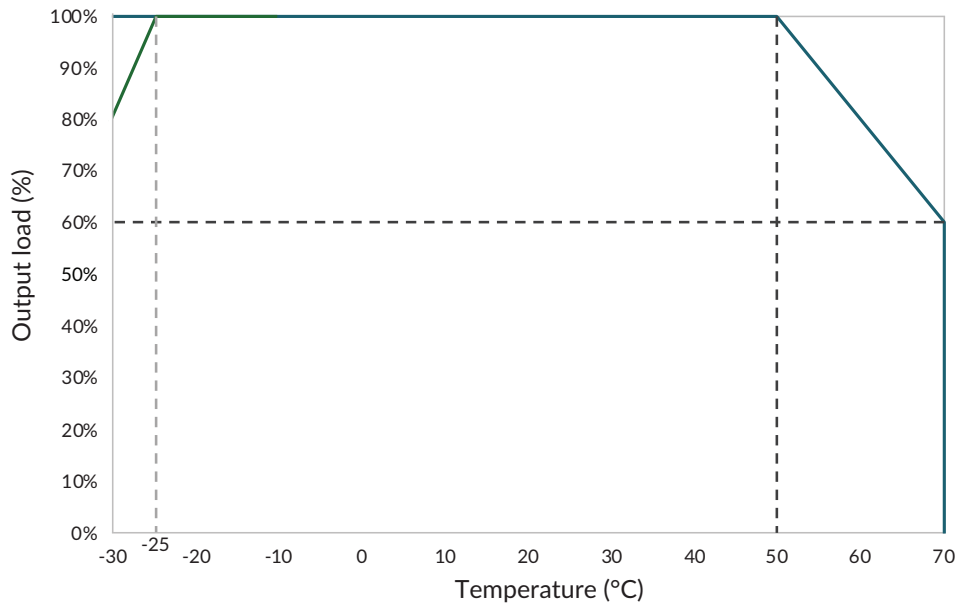
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	2/3	B	Contact ±4kV / Air ±8kV
Radiated immunity	EN61000-4-3	10V/m	B	
EFT	EN61000-4-4	±2kV	B	
Surge	EN61000-4-5	Installation class 3	B	Line to line ±1kV, line to ground ±2kV
Conducted	EN61000-4-6	10Vrms	B	
Magnetic field	EN61000-4-8	30A/m	A	
Dips	EN61000-4-11 (230VAC)	Dip. 100% (0VAC), 10ms	B	
		Dip. 30% (154VAC), 500ms	B	
		Dip. 20% (176VAC), 5000ms	B	
Interruptions	EN61000-4-11	Int. 100% (0VAC), 5000ms	C	

## Safety approvals

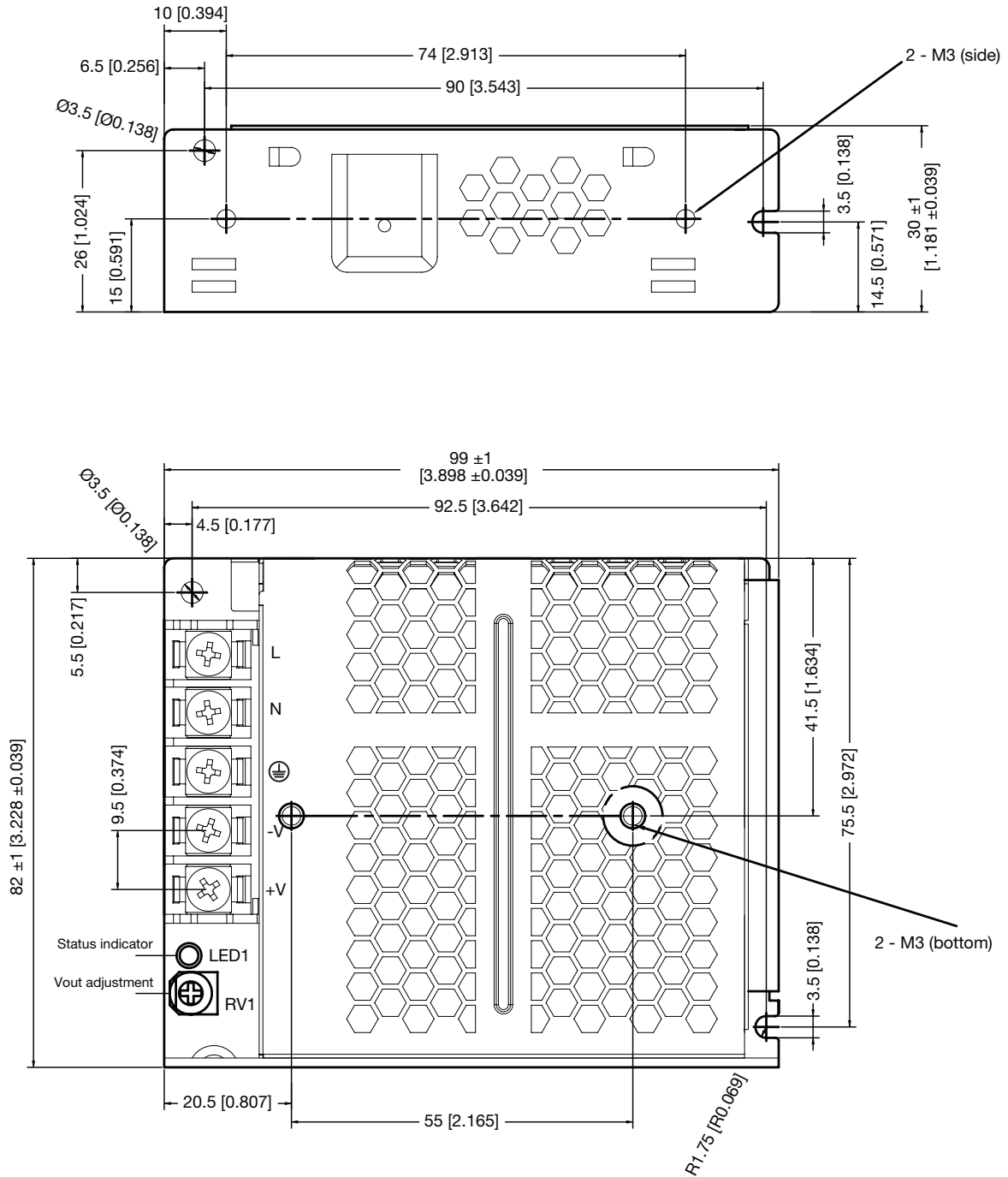
Certification	Standard	Notes & conditions
CB	IEC62368-1	Information technology
UL	UL62368-1	Information technology
TUV	EN62368-1	Information technology
CCC	China Compulsory Certification, GB4943, GB17625.1, GB4943.1, GB/T9254	Information technology
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

## Application notes

### Temperature derating



## Mechanical details



### Notes:

1. All dimensions are in mm (inches).
2. Terminal screw tightening torque: M4 12N-m (1.2Kgf-cm)
3. Mounting screw tightening torque: M3 0.4N-m (4Kgf-cm)
4. Mounting screw penetration depth: 3mm max
5. Mounting screw length : 5mm
6. Chassis must be connected to protective earth

Specifications subject to change without notice.