

EXL Switching Power Supply

DL-50W-EXL_V1.0

Guangdong Done Electronic Technology Co., Ltd

Features

- Input voltage: 100-240Vac ~ 50/60Hz
- Efficiency: 87%(Typ.) air cooling
- Constant voltage mode output
- Class I metal housing structure, protection class: IP20
- Surge protection level: differential mode 2KV, common mode 4KV
- Complete protection functions: output over-voltage, output over-current, short circuit protection
- No load power consumption <0.3W
- 3 years warranty



Product introduction

DONE DL-50W-EXL is a series of enclosed switching power supply products with output power of 50W. DL-50W-EXL adopts an input voltage range of 90-264Vac, provides an output voltage line of 12, 15, 24, 36, 48Vdc. Designed with IP20 protection, it has complete protection functions, including OVP, OLP and SCP protection functions. The aluminum housing case greatly improves the heat dissipation efficiency of the product and increases the reliability of the product application.

Model list

Model NO.	Input voltage	Output power	Output voltage	Max. current	Eff. (Typ.)
DL-50W-V12-EXL	100-240Vac 50/60Hz	50W	12Vdc	0-4.17A	≥87%
DL-50W-V15-EXL	100-240Vac 50/60Hz	50W	15Vdc	0-3.34A	≥87%
DL-50W-V24-EXL	100-240Vac 50/60Hz	50W	24Vdc	0-2.08A	≥88%
DL-50W-V36-EXL	100-240Vac 50/60Hz	50W	36Vdc	0-1.4A	≥88%
DL-50W-V48-EXL	100-240Vac 50/60Hz	50W	48Vdc	0-1.05A	≥88%

Note:

1. Test conditions of the above parameters: Ta=25℃, 230Vac input, full load operation for 30 minutes;
2. Including setting error, linear adjustment rate and load adjustment rate;
3. Switching Power supply is used as a component with terminal equipment. EMC is affected by the whole set of devices. Terminal equipment manufacturers need to re-confirm the EMC for the whole set of devices.
4. Industrial control switching power supply according to IT/AV standards, EMC according to Class A level.

Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	100Vac 140Vdc	230Vac	240Vac 330Vdc	N/A
Input voltage range	90Vac	-	264Vac	N/A
Rated frequency	47Hz	50/60Hz	63Hz	N/A
Power factor	-	>0.5	-	100% load, 230Vac input
Input current	-	-	1.2A	100% load, 100Vac input
Inrush current	-	-	80A	230Vac, cold start (25℃)
16A Circuit breaker The number of power supplies of the same model can be configured	7pcs (Type B circuit breaker)12pcs (Type C circuit breaker) for 230Vac input			

Output characteristics

Parameter	Min	Typ.	Max	Note
Rated current DL-50W-V12-EXL DL-50W-V15-EXL DL-50W-V24-EXL DL-50W-V36-EXL DL-50W-V48-EXL	-	4.17A 3.34A 2.08A 1.40A 1.05A	-	N/A
Output voltage range DL-50W-V12-EXL DL-50W-V15-EXL DL-50W-V24-EXL DL-50W-V36-EXL DL-50W-V48-EXL	10.2V 13.5V 21.6V 32.4V 43.2V	12V 15V 24V 36V 48V	13.8V 18V 28.8V 39.6V 52.8V	N/A
Rated power(100-240Vac)	-	50W	-	N/A
Efficiency@230Vac DL-50W-V12-EXL DL-50W-V15-EXL DL-50W-V24-EXL DL-50W-V36-EXL DL-50W-V48-EXL	86% 86% 87% 87% 87%	87% 87% 88% 88% 88%	-	full load @230Vac

Output characteristic

Parameter	Min	Typ.	Max	Note
Output voltage ripple	150mV@UP-12/15/24VDC/250mV@UP-36/48VDC			100% load
Accuracy of output voltage	-1%	-	+1%	100% load
Line regulation	-1%	-	+1%	50-100% load@230Vac
Load regulation	-1%	-	+1%	50-100% load@230Vac
Starting time	-	-	500ms	Full load@230Vac
Rise time	-	-	30ms	100% load@230Vac
Hold time	-	-	16ms	100% load@230Vac

Protection

Function	Function instructions
Output overload protection	Protection mode: hiccup mode, recovers automatically after fault condition is removed.
Output short circuit protection	Hiccup mode: recovers automatically after fault condition is removed
Output over-voltage protection	Output voltage > working voltage 1.08-1.5times turn-off
Output over-current protection	Output current >1.1<1.5 times turn-off

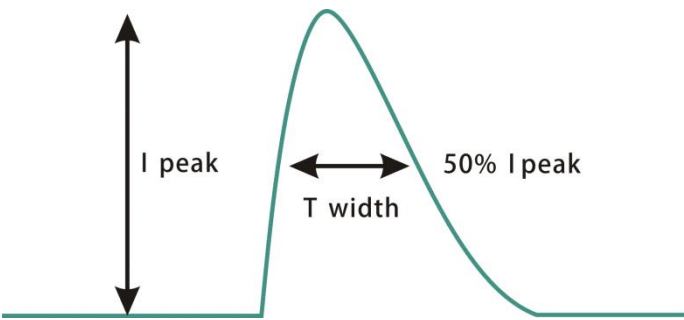
Safety and EMC

Safety categories	Standard
Safety	Compliance to UL8750, TUV BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16,GB 4943.1
EMC	Compliance to BS EN/EN55032 (CISPR32) Class A, BS EN/EN55014, BS EN/EN61000-3-2 Class A($\leq 80\%$ Load)
Surge protection	Differential mode L-N $\pm 2\text{KV}$ (2 ohm) ,common mode L, N-PE $\pm 4\text{KV}$ (12 ohm); Refer to IEC61000-4-5 2014
High-pot test	I/P-O/P:4KVac I/P-PE:2KVac O/P-PE:1.25KVac
Insulation impedance	I/P-PE:100M Ω / 500VDC; I/P-O/P:100M Ω / 500VDC / 25 $^{\circ}\text{C}$ / 70% RH
Leakage current	<0.7mA@230Vac

Environmental

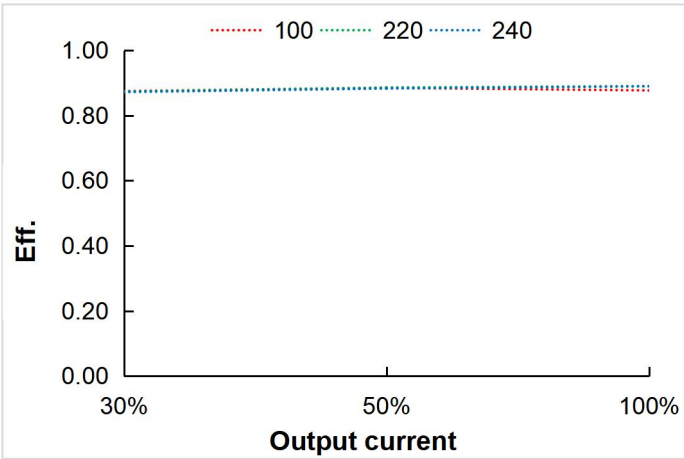
Environmental categories	Parameter
Working temperature	-40 $\sim$ +70 $^{\circ}\text{C}$ (refer to "temperature Curve ")
Working humidity	20 ~ 90% RH, non condensing
Storage temperature, humidity	-30 $\sim$ +85 $^{\circ}\text{C}$, 10 ~ 90% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25 $^{\circ}\text{C}$)
Lifetime	30,000 hours @Ta $\leq 50^{\circ}\text{C}$, 230Vac, 100% Load(20% derating for every 10 $^{\circ}\text{C}$ rise)

Inrush current

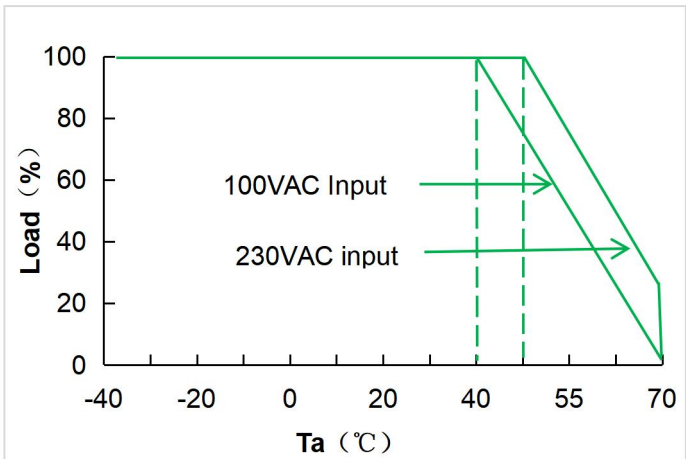


Input voltage	Peak current	T(@50% Peak current)
100Vac	27.44A	213us
230Vac	61.6A	214us
264Vac	67A	232us

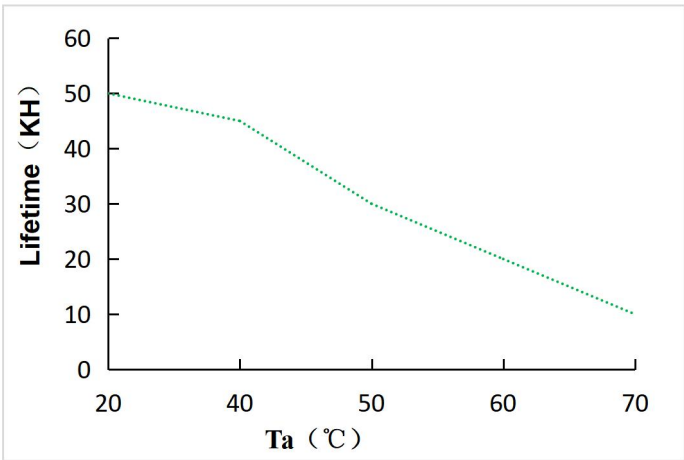
DL-50W-EXL Parametric curves



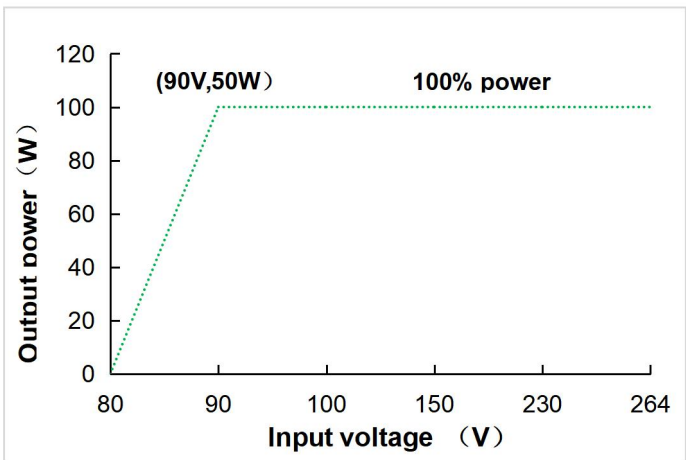
Eff. VS Output current



Output power VS T_a



Lifetime VS T_a

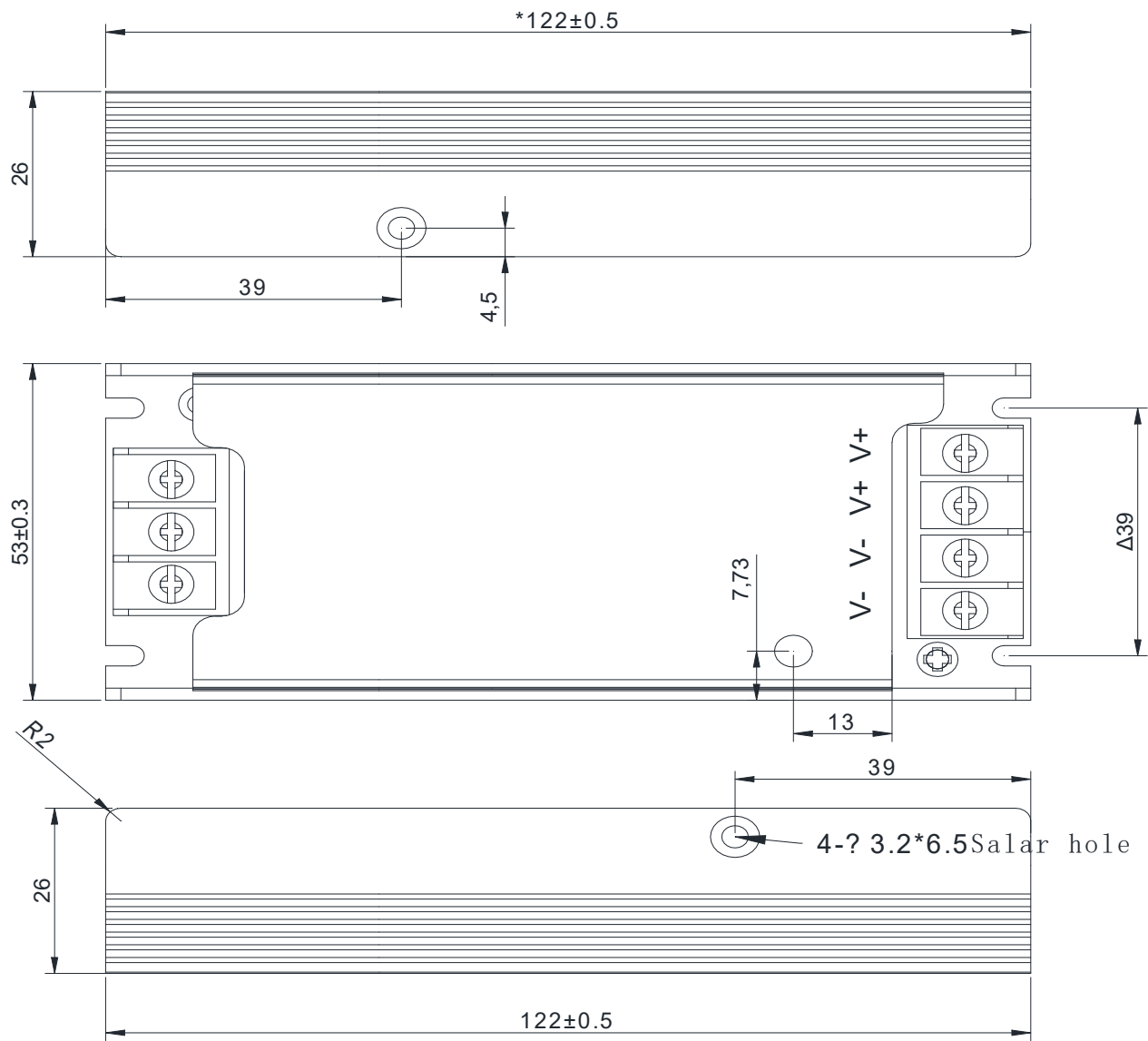


Output power VS Input voltage

Mechanical specification

Size (mm)	L122mm*W53mm*H26mm	0.288KG
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DL-50W-EXL



Packaging

Packaging (mm) L475mm*W350mm*H205mm

One Carton 4layers and 8pcs/layer, 32pcs/carton in total.

