

ACE05W-xxV



FEATURES

- Ultra-wide voltage input range
- No load power consumption <math><0.1W</math>
- Wide operating temperature range - High efficiency up to 82%
- Compact in size (2.54×2.54cm)
- Protections: Short circuit/Over load/Over voltage
- Operating altitude up to 5000 meters
- 3 years warranty

ACE05W-xxV is a 5W miniature (25.4*25.4*17.6mm) AC-DC module-type power supply, ready to be soldered onto the PCB boards of various kinds of electronic instruments or industrial automation equipments. This product allows the universal input voltage range of 85~305VAC.

MODEL ENCODING

ACE05W-xxV



SELECTION GUIDE

Product model	DC Voltage (Vdc)	Rated Current (A)	Rated Power (W)	Max.Capacitive Load (uF)
ACE05W-03V	3.3	1.56	4.99	4000
ACE05W-05V	5	1	5	3000
ACE05W-09V	9	0.555	4.995	1200
ACE05W-12V	12	0.416	4.992	1200
ACE05W-15V	15	0.333	4.995	680
ACE05W-24V	24	0.208	4.992	220

INPUT

Parameter	Units	Model
VOLTAGE RANGE	100-277VAC	
FREQUENCY RANGE	47-63Hz	
AVERAGE EFFICIENCY(TYP.)	69.5%	ACE05W-03V
	76%	ACE05W-05V
	79%	ACE05W-09V
	79%	ACE05W-12V
	78.5%	ACE05W-15V
	81.5%	ACE05W-24V
AC CURRENT(TYP.)	0.15A/115VAC	
	0.07A/230VAC	
INRUSH CURRENT(TYP.)	Cold Start 25mA at 230VAC 60Hz	
	Cold Start 15mA at 115VAC 60Hz	
LEAKAGE CURRENT	<0.25MA/264VAC	
RATED VOLTAGE RANGE	85-305VAC/100-430VDC	

OUTPUT

Parameter	Units	Model
RIPPLE & NOISE(MAX.)	100mVp-p	ALL SERIES
VOLTAGE TOLERANCE	±3.0%	ACE05W-03V
	±2.0%	ACE05W-05V
	±2.0%	ACE05W-09V
	±2.0%	ACE05W-12V
	±2.0%	ACE05W-15V
	±2.0%	ACE05W-24V

Parameter	Units	Model
LINE REGULATION	±0.5%	ALL SERIES
LOAD REGULATION	±1.0%	ALL SERIES
SETUP,RISE,HOLD UP TIME	1.7s,30ms,50ms/230VAC(at full load)	
	1.0s,30ms,5ms/115VAC(at full load)	

PROTECTION

Parameter	Units
OVER LOAD	110~135%
	Shut down o/p voltage, recovers automatically after fault condition is removed.
SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.
OVER VOLTAGE	3.3V: 3.8~9VDC
	5V:5.5~9VDC
	9V: 10~16VDC
	12V:13~15VDC
	15V: 17~24VDC
	24V: 26~34VDC
	Shut down o/p voltage, re-power on to recover.

ENVIRONMENT

Parameter	Units
WORKING TEMP.	-40 ~ +85°C (Refer to "Derating Curve".)
WORKING HUMIDITY	20 ~ 95%RH Non-condensing
STORAGE TEMP. HUMIDITY	-40 ~ +105°C, 10 ~ 95% RH Non-condensing
TEMP. COEFFICIENT	±0.02%/(0 ~ 50°C)
SOLDERING TEMPERATURE	Wave soldering:260°C,5s(max.); Manual soldering:360°C,3s(max.)

Parameter	Units
VIBRATION	PCB Mounting: 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes
	Terminal Blocks: 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes
OVER VOLTAGE CATEGORY	OVC II; According to EN61558-1; altitude up to 4000 meters
SAFETY PROTECTION	Class II

SAFETY & EMC

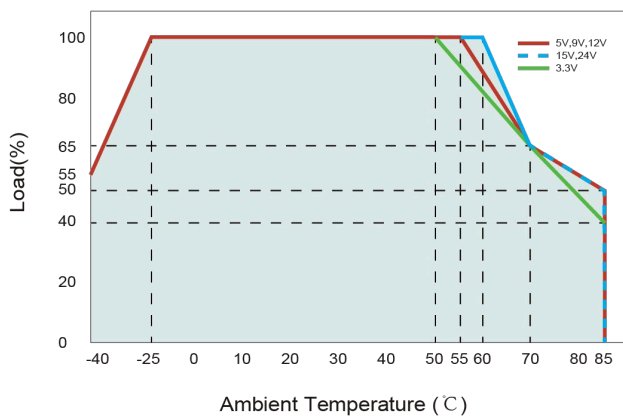
Parameter	Units	Model	
SAFETY STANDARDS	EN60335-1 approved , design to meet		
	BS EN62368-1, EN61558-1		
WITHSTAND VOLTAGE	I/P-O/P: 4KVAC/1min		
ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C/ 70% RH		
EMC EMISSION	Parameter	Standard	Test Level/Note
	Conducted	EN55014-1	CLASS B
	Radiated	EN55014-1	CLASS B
	Harmonic Current	EN61000-3-2	CLASS A
	Voltage flicker	EN61000-3-3
EMC IMMUNITY	BS EN/EN55035, BS EN/EN61000-6-2		
	Parameter	Standard	Test Level/Note
	ESD	EN61000-4-2	Level 3, 8KV air, Level 2, 4KV contact, criteria B
	RF field susceptibility	EN61000-4-3	Level 3, 10V/m criteria A
	EFT/Burst	EN61000-4-4	Level 3, ±2KV criteria B
			Level 3, ±4KV criteria B (consider fig. 2)
			Level 3, ±4KV criteria A (consider fig. 3)
	Surge	EN61000-4-5	Level 3, ±1KV/L-L criteria B
			Level 3, ±2KV/L- criteria B (consider Fig.2)
			Level 3, ±2KV/L- criteria B (consider Fig.3)
	Conducted	EN61000-4-6	Level 3, 10Vr.m.s criteria A
Voltage Dips and interruptions	EN61000-4-11	> 95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods	

DIMENSION, WEIGHT & PACKING

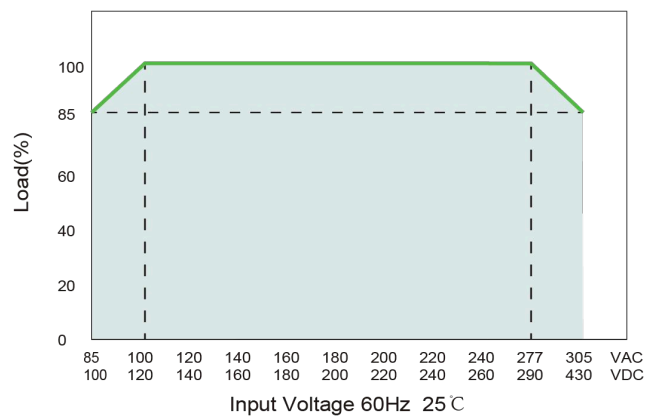
Parameter	Units
Weight	PCB Mounting: 17.5g/pcs; Terminal Blocks: 38g/pcs;
Packing	PCB Mounting: 42.5 × 27.5 × 14cm 200pcs/Carton;
	Terminal Blocks: 57 × 27 × 19cm 100pcs/Carton
Dimension (LxWxH)	PCB Mounting: 25.4 × 25.4 × 17.6 mm
	Terminal Blocks: 75.8 × 31.3 × 26.2 mm
Housing material	Plastic / UL94-V0
MTBF	300Khrs min. MIL-HDBK-217F(25°C)

ENGINEERING DATA

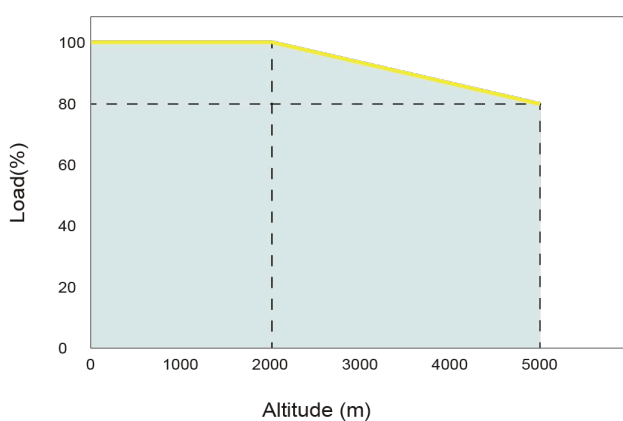
Derating Curve



Static Characteristics



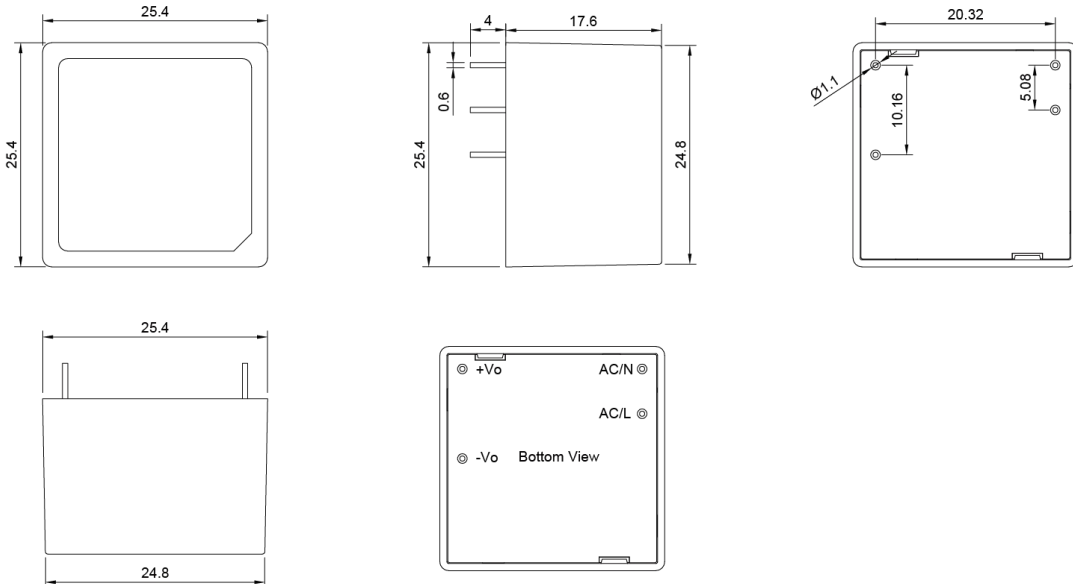
Derating Curve



- Note: 1. With an AC input between 85-100V/277-305VAC and a DC input between 100-120V/390-430VDC, the output power must be derated as per temperature derating curves.
2. This product is suitable for applications using natural air cooling

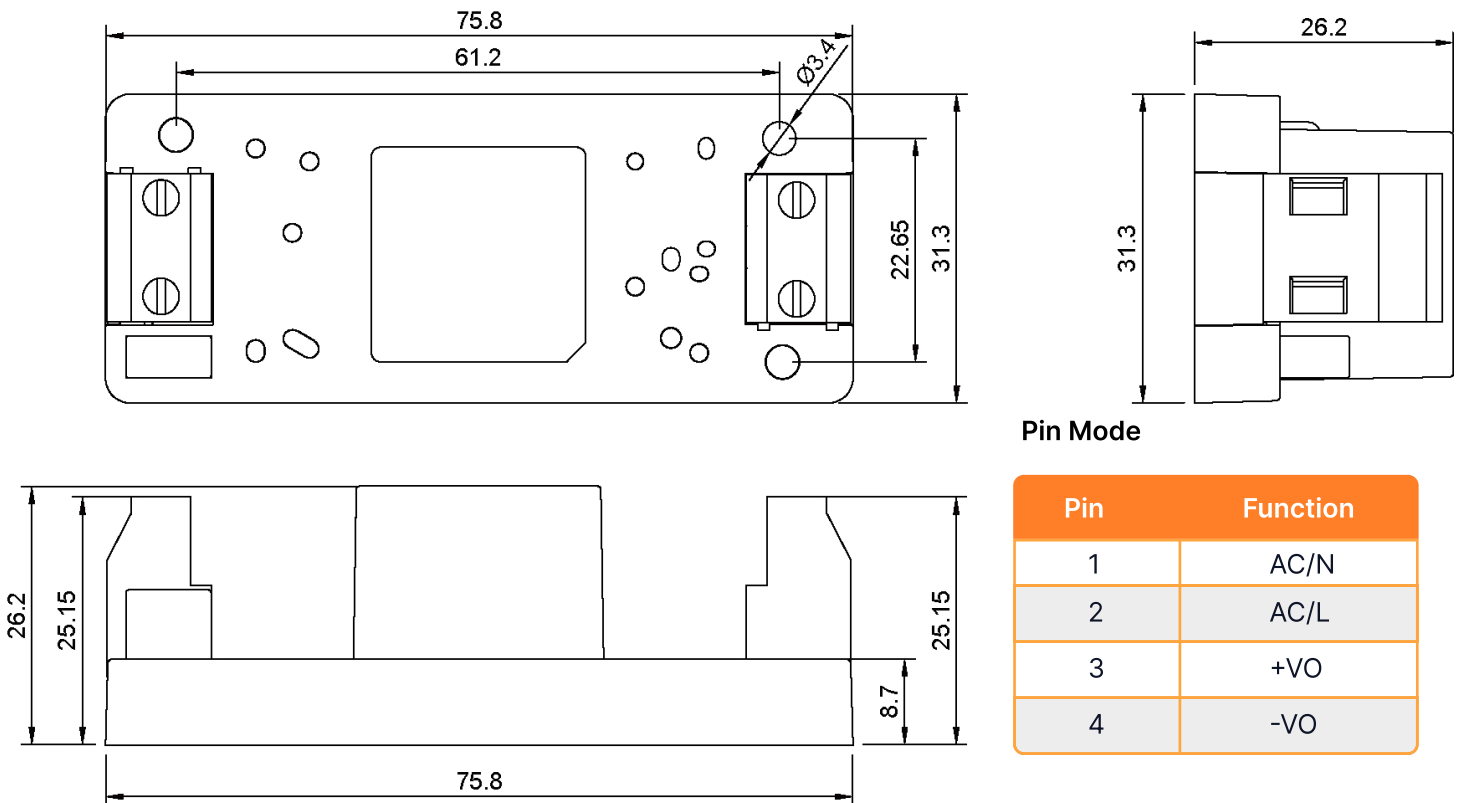
DIMENSIONS AND INSTALLATION (ACE05W-xxV)

(Unit: mm , tolerance: ±0.5mm)



DIMENSIONS AND INSTALLATION (ACE05W-xxV)

(Unit: mm , tolerance: ±0.5mm)



Pin Mode

Pin	Function
1	AC/N
2	AC/L
3	+VO
4	-VO

DESIGN REFERENCE

1. Typical application

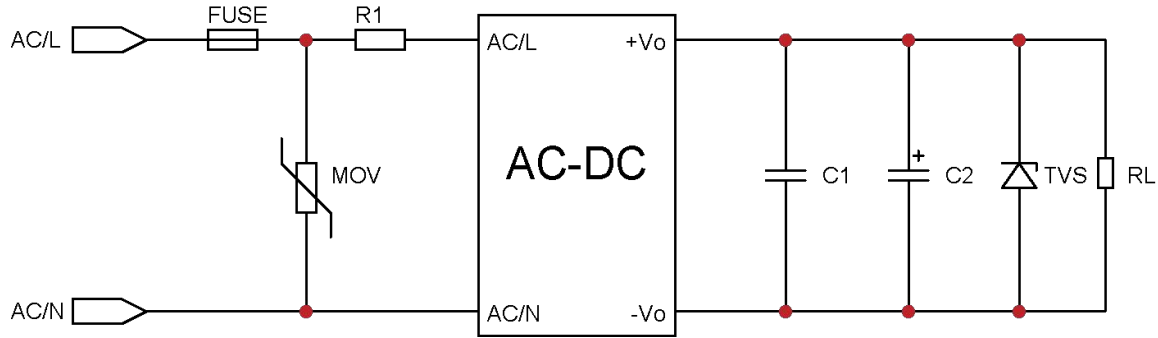


Fig.1: Typical circuit diagram

Product model	C1(uF)	C2(uF)	FUSE	R1	TVS	MOV
ACE05W-03V	1	150	1A/300V Slow fuse, must be connected	12Ω/3W (Winding resistor, must be connected)	SMBJ7.0A	10D561K
ACE05W-05V		150			SMBJ7.0A	
ACE05W-09V		120			SMBJ12A	
ACE05W-12V		120			SMBJ20A	
ACE05W-15V		120			SMBJ20A	
ACE05W-24V		68			SMBJ30A	

Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). Choose a Capacitor voltage rating with at least 20% margin. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is recommended suppressor diode to protect the application in case of a converter failure.

2. EMC Solution - Recommended circuit

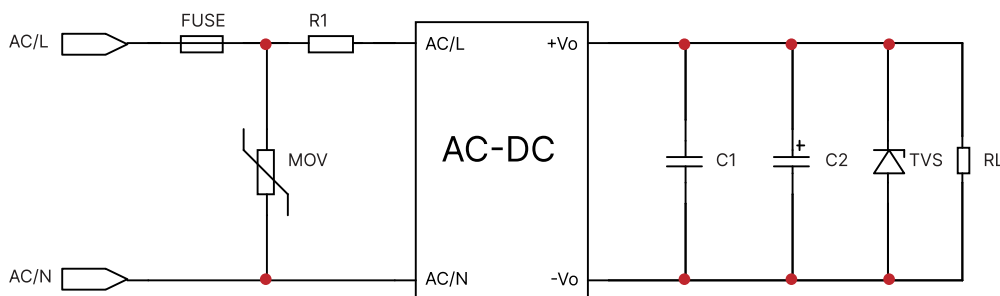


Figure 2: EMC application circuit with higher requirements

Component Type	Recommended Value
MOV	14D561K
R1	33Ω/3W(Winding resistor ,must be connected)
FUSE	2A/300V Slow fuse, must be connected

3.EMC Solution - Recommended circuit

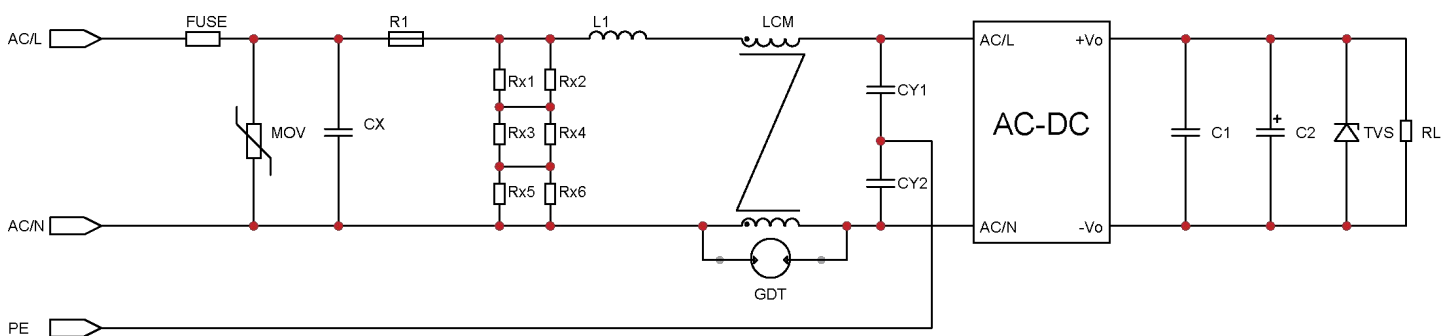


Figure 3 : category I device recommendation circuit

(Recommended when the output end of the product needs to be connected to PE or connected to PE through a Y capacitor)

Component Type	Recommended Value
FUSE	2A/300V Slow fuse, must be connected
MOV	14D561K
CX	334K/305VAC
R1	33Ω/3W(Winding resistor ,must be connected)
L1	1.2mH/0.3A
CY1/CY2	1nF/400VAC
GDT	300V/1KA
LCM	20mH

Note:Rx1/Rx2/Rx3/Rx4/Rx5/Rx6 is the bleed resistance of CX, the recommended resistance value is 1.5MΩ/150VDC