



AC-A0782 Series AC-DC power module

Description

AC-XX015A0782 is a 15W compact size (52.4X27.2X24mm) AC-DC power module with the advantages of wide AC input and simultaneous DC input voltage compatibility, low power consumption, low ripple noise, high reliability, and safe isolation. It is designed for direct soldering onto the PCB boards of various electronic instruments or industrial automation equipments. The module adopts a flame-retardant plastic case and silicone potting, which enhances heat dissipation capability, provides basic dust and moisture-proof functions, and meets the 5G vibration-proof requirements. With an efficiency of up to 86.5% and ultra-low no-load power consumption of less than 0.1W, the AC-XX015A0782 series complies with global regulatory requirements for low power consumption of electronic products. The entire series features a Class II design (without FG pin), built-in EMI filter devices, and adheres to CISPR32/EN55032 CLASS B standards, offering excellent electromagnetic compatibility (EMC) characteristics to protect terminal electronic equipment from electromagnetic interference.

Features

- Typical efficiency up to 86.5%
- Compact size: 52.4mm(L)×27.2mm(W)×24.0mm(H)
- Wide input range: 90-305VAC or 127-432VDC
- Ultra-low no-load power consumption (<0.1W)
- Class II design (no FG pin) with built-in EMI filter
- Complies with CISPR32/EN55032 CLASS B EMC standards
- Flame-retardant case + silicone potting (dustproof, moisture-proof, vibration-resistant for 5G)
- Multiple protection functions (overload, overvoltage) with hiccup protection mode
- Wide operating temperature range: -30~70°C (refer to Temperature Derating Curve)
- 3-year warranty and high MTBF (>1200K)

Applications

- Industrial electrical equipment
- Mechanical equipment
- Factory automation equipment
- Hand-held electronic devices
- Other electronic instruments requiring compact, high-reliability power supply

Model Encoding

AC - XX - 015 - A0782

- Series name: AC
- Output voltage: XX (12 for 12V, 24 for 24V)
- Rated wattage: 015 (15W)
- Housing Number: A0782

Specification(order code)

Category	Parameter	AC-12015A0782	AC-24015A0782
Output	DC voltage	12V	24V
	Rated current	1.25A	0.625A
	Current range	0~1.25A	0~0.625A
	Rated Power	15W	15W
	Efficiency (Typ.)	86.5%	86.5%
	Maximum capacitive load	2000uF	680uF
	Voltage accuracy*③	±4.0%	±2.0%
	Line Regulation	±1.0%	±0.5%
	Load Regulation	±2.0%	±1.0%
	Ripple and Noise (max.)*④	150mVp-p	240mVp-p

	Start-up time / Rise time* ^⑥ (Full load)	1000ms / 30ms	1000ms / 30ms
	Holding time (Typ.) (230VAC/115VAC, Full load)	15ms	15ms
Input	Voltage range* ^②	90-305VAC or 127-432VDC	90-305VAC or 127-432VDC
	Frequency range	47~63Hz	47~63Hz
	AC current (Max.)	0.39A	0.39A
	Inrush current (Typ.) (Cold start, 230VAC)	40A	40A
	Leakage current (277VAC)	<0.25mA	<0.25mA
Protection	Overload	105%~165% of rated output power; Hiccup protection mode, automatic recovery after load reduction	105%~165% of rated output power; Hiccup protection mode, automatic recovery after load reduction
	Over voltage	13.0~18.0V; Hiccup protection mode, automatic recovery after fault elimination	25.0~35.0V; Hiccup protection mode, automatic recovery after fault elimination
Environment	Working Temp	-30~70℃ (refer to <Temperature Derating Curve>)	-30~70℃ (refer to <Temperature Derating Curve>)
	Working humidity	20~90% RH, non- condensing	20~90% RH, non- condensing

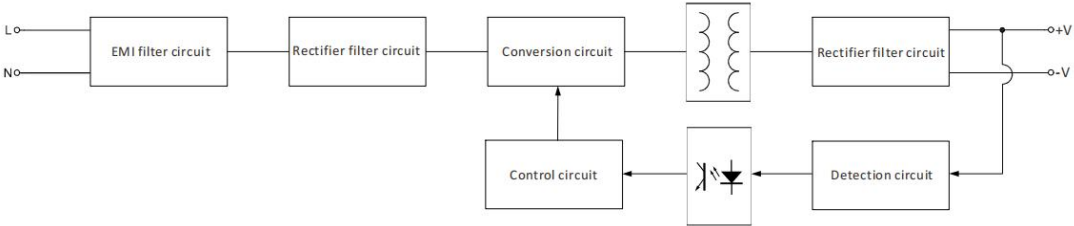
	Storage Temp & Humidity	-40+85℃, 10-90% RH	-40+85℃, 10-90% RH
	Temp.coefficient (-30~50℃)	±0.05%/℃	±0.05%/℃
	Vibration	10~500Hz, 5G, 10 minutes/cycle, 60 mins for each of X, Y and Z axes	10~500Hz, 5G, 10 minutes/cycle, 60 mins for each of X, Y and Z axes
	Soldering temperature	Wave soldering: 265℃, 5s (max.); Manual soldering: 390℃, 3s (max.)	Wave soldering: 265℃, 5s (max.); Manual soldering: 390℃, 3s (max.)
	Operating height*⑧	2000M (complies with IEC/EN/UL/BS 62368-1, GB 4943.1, EN 61558-1, EN 60335-1)	2000M (complies with IEC/EN/UL/BS 62368-1, GB 4943.1, EN 61558-1, EN 60335-1)
Safety	Safety standards	IEC/EN/UL/BS 62368-1, GB 4943.1, EN 61558-1, EN 60335-1	IEC/EN/UL/BS 62368-1, GB 4943.1, EN 61558-1, EN 60335-1
	Withstand voltage (I/P-O/P)	4KVAC	4KVAC
	Isolation resistance (I/P-O/P, 500VDC, 25℃, 70% RH)	100M Ohms	100M Ohms
Electromagnetic Compatibility (Emission)	Conducted disturbance	CISPR32/EN5503 2 CLASS B	CISPR32/EN5503 2 CLASS B
	Radiated	CISPR32/EN5503	CISPR32/EN5503

	disturbance	2 CLASS B	2 CLASS B
	Harmonic current	IEC/EN61000-3-2 Class A	IEC/EN61000-3-2 Class A
Electromagnetic Compatibility (Immunity)	ESD (IEC/EN61000-4-2)	Contact: $\pm 6\text{KV}$ / AIR: $\pm 8\text{KV}$, perf.CriteriaB	Contact: $\pm 6\text{KV}$ / AIR: $\pm 8\text{KV}$, perf.CriteriaB
	Radiation Immunity (IEC/EN61000-4-3)	10V/m, perf.CriteriaB	10V/m, perf.CriteriaB
	EFT (IEC/EN61000-4-4)	$\pm 2\text{KV}$, perf.CriteriaB	$\pm 2\text{KV}$, perf.CriteriaB
	Surge immunity (IEC/EN61000-4-5)	L-N $\pm 1\text{KV}$, perf.CriteriaB	L-N $\pm 1\text{KV}$, perf.CriteriaB
	CS (IEC/EN61000-4-6)	10Vr.m.s, perf.CriteriaB	10Vr.m.s, perf.CriteriaB
	Voltage dip, sag and temporary interruption immunity (IEC/EN61000-4-11)	0%,70%, perf.CriteriaB	0%,70%, perf.CriteriaB
Others	MTBF	>1200K	>1200K
	Warranty	3 Years	3 Years
	Dimension (L×W×H)	52.4mm×27.2mm ×24.0mm	52.4mm×27.2mm ×24.0mm
	Packing	420mm×340mm× 200mm; 0.06Kg/pcs; 10.8Kg/180pcs	420mm×340mm× 200mm; 0.06Kg/pcs; 10.8Kg/180pcs

Note*

- ① Unless otherwise specified, all specifications are measured at 230Vac input, rated load, and 25℃ ambient temperature.
- ② Output derating is required under low input voltage conditions. Please refer to the input derating curve for details.
- ③ Accuracy includes design error, linear regulation rate, and load regulation rate.
- ④ Ripple and noise measurement method: Use twisted pair cables, connect 0.1μF and 47μF capacitors in parallel at the terminals, and measure at 20MHz bandwidth.
- ⑤ The power supply is regarded as a device used in conjunction with the terminal design, so EMC is affected by the entire device. The terminal equipment manufacturer needs to re-confirm the EMC of the entire device.
- ⑥ The startup time is measured in the cold start state. Continuous switching may prolong the startup time.
- ⑦ The input current and safety requirements have slightly different parameters due to different certifications.
- ⑧ When the altitude exceeds 2000 meters (6500FT), the operating ambient temperature decreases at a rate of 3.5℃/1000m.

Block Diagram



Typical Application Circuit

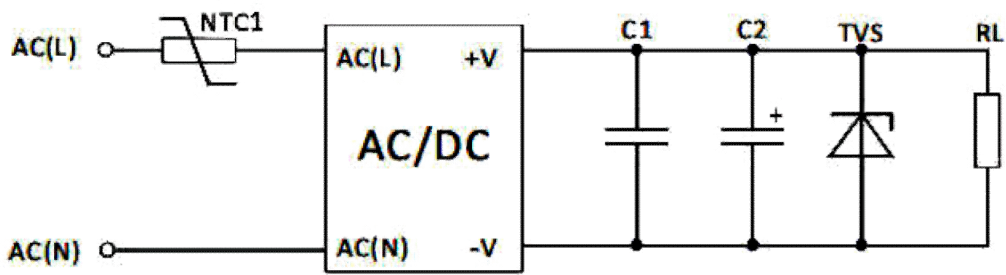


Figure 1: Typical circuit

Model	NTC1	C1	C2	TVS Tube
M12015A0782	6.8Ω/3W	1μF/50V (ceramic	100μF/25V (high- frequency low-	SMBJ20A

		capacitor)	resistance electrolytic capacitor)	
M24015A0782	6.8Ω/3W	1μF/50V (ceramic capacitor)	100μF/35V (high-frequency low-resistance electrolytic capacitor)	SMBJ30A

Note for Typical Application Circuit

C1 is a ceramic capacitor for filtering high-frequency noise.

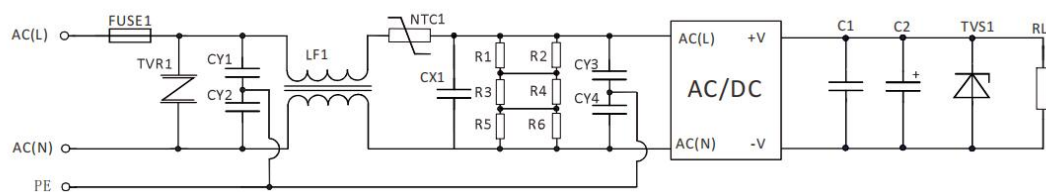
C2 is recommended to use a high-frequency low-resistance electrolytic capacitor; refer to the manufacturer's technical specifications for capacity and current.

The capacitor withstand voltage should be derated by at least 80%.

The TVS tube protects the subsequent circuit when the module fails.

EMC Recommended Circuit

1. High-demand Recommended Circuit

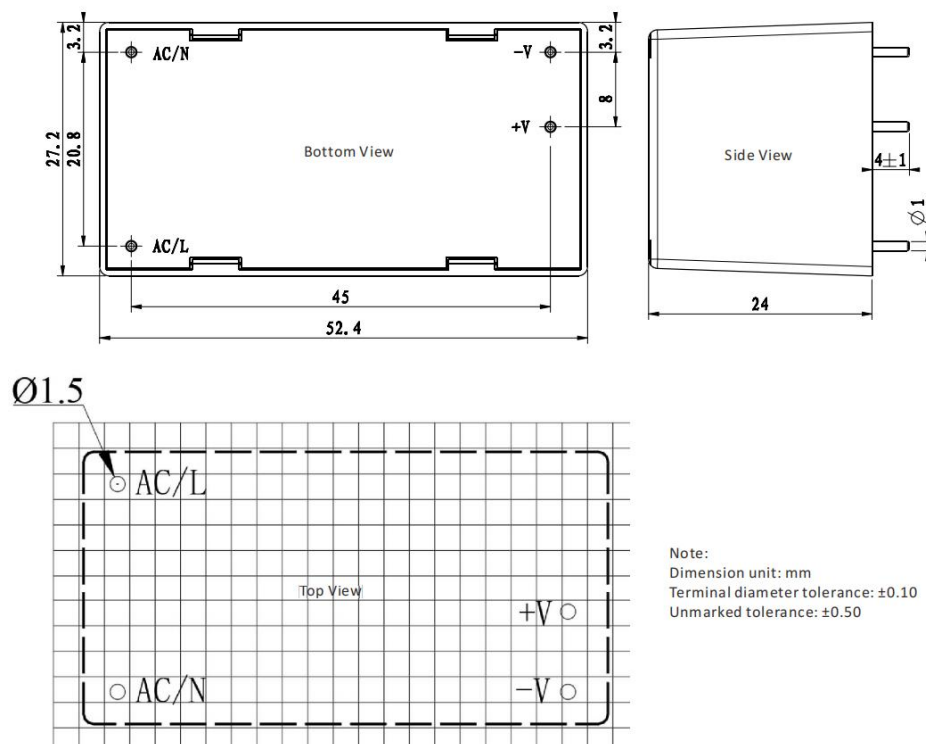


Component	Recommended Value
FUSE1	3.15A/350V
TVR1	14D561K
NTC1	6.8Ω/3W

Component	Recommended Value
FUSE1	3.15A/350V
TVR	14D561K
CY1~CY4	2.2nF/400V

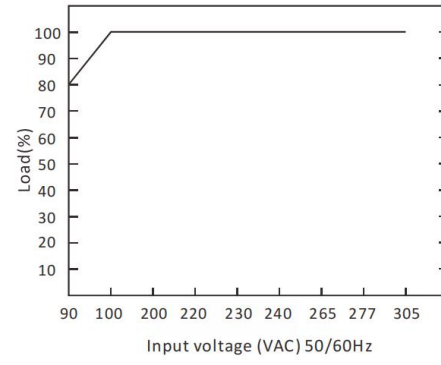
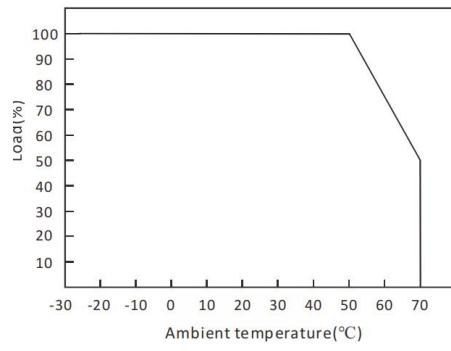
F1	FL2D-10-203
CX1	224/310V
R1~R6	1.5M Ω /150VDC
Additional Resistor	12 Ω /5W

Case Size



View	Dimension Details
Bottom View	AC/L, AC/N, +V, -V terminals; Unmarked tolerance: ± 0.50 mm; Terminal diameter tolerance: ± 0.10 mm
Side View	Height: 24mm; Key dimensions: 52.4mm (L) $\times$ 27.2mm (W)
Unit	All dimensions are in mm

Temperature Derating Curve Input Derating Curve



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