



PDM-20-xx-y Series



CE EN62368-1

RoHS Reach



Features

- Ultra-wide 85 - 305VAC and 100 - 430VDC input voltage range
- Operating ambient temperature range: -40°C to +85°C
- High I/O isolation test voltage up to 4200VAC
- No-load power consumption as low as 0.1W
- EMI performance meets CISPR32/EN55032 CLASS B, EN55014
- 5000m altitude application
- Panel mounting and DIN Rail mounting option

Selection Guide

TYPE	Output			Efficiency (%) Typ. at 230Vac	Capacity Load (μ F) Max.
	POWER (W)	Voltage (VDC)	Current (mA)		
PDM-20-03-y	14.85	3.3	4500	81	8000
PDM-20-05-y	20	5	4000	85	8000
PDM-20-09-y		9	2200	84	5400
PDM-20-12-y		12	1670	86	4000
PDM-20-15-y		15	1330	87	3000
PDM-20-24-y		24	830	87	1000

Note: y = P – panel mounting option, y = D – din rail mounting option.



PDM-20-xx-y Series

Specifications

Characteristic	Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Input Specifications	Input Voltage Range	AC input	85		305	VAC	
		DC input	100		430	VDC	
	Input Frequency		47		63	HZ	
	Input Current	115VAC			0.5	A	
		230VAC			0.3		
	Inrush Current	115VAC		20			
		230VAC		45			
	Leakage Current	277VAC/50Hz		0.1mA RMS Max			
Built In Fuse	3.15A/300V, slow-blow						
Hot Plug	Unavailable						
Output Specifications	Voltage Accuracy		--	±1.5	--	%	
	Line Regulation	100% load	--	±0.5	--		
	Load Regulation	0-100% load	--	±1.0	--		
	Minimum Load		0	--	--		
	Ripple & Noise*	20MHz bandwidth (peak to peak value)		--	100	150	mV
	No-load Power Consumption	230Vac	3.3/5/9/12/15V	--	0.1	--	W
			24V	--	0.12	--	
	Temperature Coefficient			--	±0.02	--	%/°C
	Hold Up Time	115Vac		--	8	--	ms
		230Vac		--	50	--	
	Short-circuit Protection	Hiccup, continuous, self-recovery					
Over-current Protection	≥110%Io, self-recovery						
Over-voltage Protection	3.3/5.0V output		≤7.5VDC (Output voltage clamp or hiccup)				
	9V output		≤16VDC (Output voltage clamp or hiccup)				
	12V/15V output		≤20VDC (Output voltage clamp or hiccup)				
	24V output		≤30VDC (Output voltage clamp or hiccup)				
General Specifications	Operating Temperature		-40	--	+85	°C	
	Storage Temperature		-40	--	+85		
	Isolation (Input-Output)	Electric Strength Test for 1min., leakage current <5mA		4200	--	--	Vac
	Insulation Resistance (Input-Output)	Test voltage: 500VDC		100	--	--	MΩ
	Storage Humidity	Non-condensing		--	--	+95	%RH
	Switching Frequency			--	65	--	KHz
Mechanical Specification	Soldering Temperature	Wave-soldering		260 ± 5°C; time: 5 - 10s			
		Manual-welding		360 ± 10°C; time: 3 - 5s			
	Power Derating	-40°C to -25°C	85VAC-165VAC	2.0	--	--	%/%C
		+50°C to +70°C	3.3/5/9V	2.5	--	--	
		+55°C to +70°C	12/15/24V	3.33	--	--	
+70°C to +85°C		1.33	--	--			
85VAC - 100VAC		2.0	--	--	%/Vac		



PDM-20-xx-y Series

Power Derating (M version)	277VAC - 305VAC		0.71	--	--	
	2000m - 5000m		6.7	--	--	%/Km
	+50°C to +70°C		1.75	--	--	%/°C
	+70°C to +85°C		1.67	--	--	
	2000m - 5000m		0.67	--	--	%/Km
Safety Class	CLASS II					
MTBF	MIL-HDBK-217F/25°C		≥1 500kHrs			
Designed Life	230VAC	Ta: 25°C 100% load		>130 000Hrs		
		Ta: 55°C 100% load		>16 000Hrs		
		Ta: 55°C 80% load		>27 000Hrs		
Case Material	Black plastic, flame-retardant and heat-resistant (UL94V-0)					
Dimensions / Weight	Standard version		52.40 x 27.20 x 24.00 mm / 55.0g (typ.)			
	Panel Mounting version		76.00 x 31.50 x 32.80 mm / 75.0g (typ.)			
	Din Mounting version		76.00 x 31.50 x 37.40 mm / 95.0g (typ.)			
Cooling Method	Free air convection					

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 10μF electrolytic capacitor and 1μF ceramic capacitor.

Electromagnetic Compatibility (EMC)

Emissions (EMI)	CE	CISPR32/EN55032	CLASS B	
		CISPR11/EN55011	CLASS B	
		EN55014-1		
RE		CISPR32/EN55032	CLASS B	
		CISPR11/EN55011	CLASS B	
		EN55014-1		
Immunity (EMS)	Flicker	IEC/EN6100-3-3		
		EN55014-1		
	ESD	IEC/EN 61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
		EN55014-2		perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
		EN55014-2		perf. Criteria A
	EFT	IEC/EN 61000-4-4	±2KV	perf. Criteria A
		IEC/EN 61000-4-4	±4KV (See Fig. 2, Fig. 3 for recommended circuit)	perf. Criteria A
		EN55014-2		perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±1KV	perf. Criteria A
		IEC/EN 61000-4-5	line to line ±2KV (See Fig. 2 for recommended circuit)	perf. Criteria A
		IEC/EN 61000-4-5	line to line ±2KV/ line to PE ±4KV (See Fig. 3 for recommended circuit)	perf. Criteria A
EN55014-2		perf. Criteria A		
CS	IEC/EN 61000-4-6	10V r.m.s	perf. Criteria A	
	EN55014-2		perf. Criteria A	
PFMF	IEC/EN6100-4-8	10A/m	perf. Criteria A	
	EN55014-2		perf. Criteria A	
Voltage dip, short interruption and voltage variation	IEC/EN 61000-4-11	0%, 70%	perf. Criteria B	
	EN55014-2		perf. Criteria B	



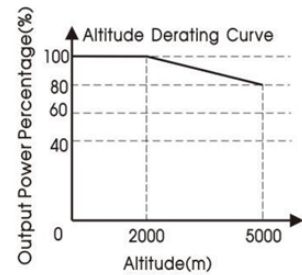
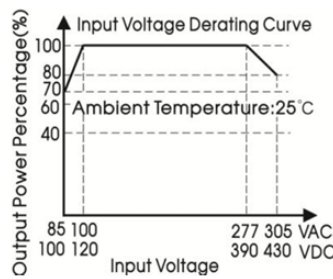
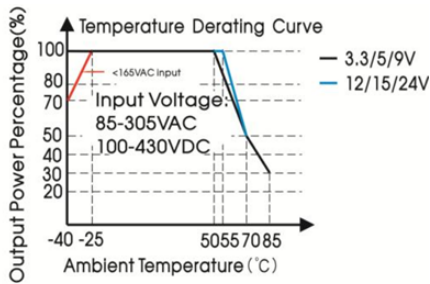
PDM-20-xx-y Series

Note:

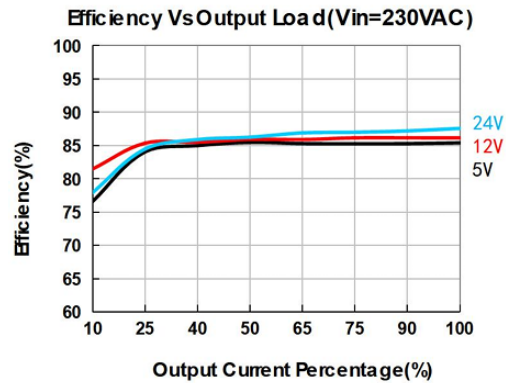
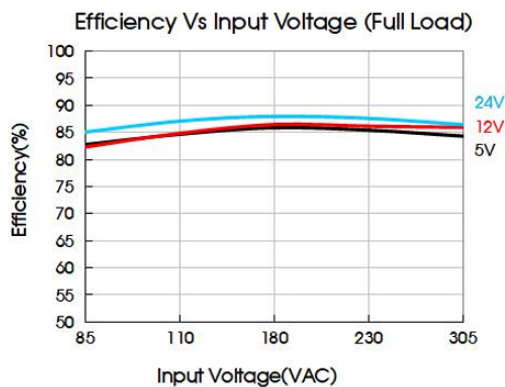
1. When the output terminal of the product needs to be connected to PE through a Y capacitor or close to the metal frame, please refer to the Fig. 3 for recommended circuit.
2. Unless otherwise specified, EMC performance indicators are tested according to typical application circuits (Fig.1)

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

Characteristic 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.



PDM-20-xx-y Series

Design Reference PDM-20-xx-y

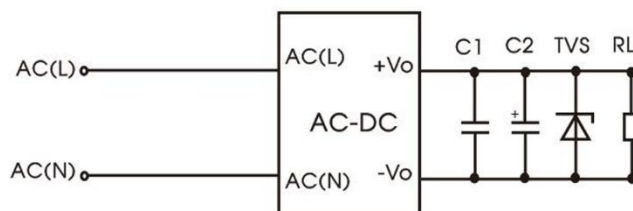


Fig. 1: Typical circuit diagram

Part No.	C1	C2	TVS
PDM-20-03-y	1 μ F / 50V	10 μ F / 16V	SMBJ7.0A
PDM-20-05-y		10 μ F / 16V	SMBJ7.0A
PDM-20-09-y		10 μ F / 25V	SMBJ12A
PDM-20-12-y		10 μ F / 25V	SMBJ20A
PDM-20-15-y		10 μ F / 25V	SMBJ20A
PDM-20-24-y		10 μ F / 35V	SMBJ30A

Output Filter Components:

C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

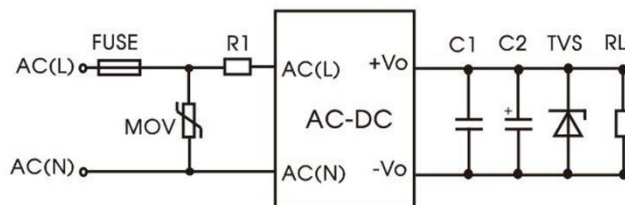


Fig. 2: EMC application circuit with higher requirements

Component	Recommended value
FUSE	3.15A/300V, slow-blow, required
NOV	S14K350
R1	3 Ω /3W (wire-wound resistor)

PDM-20-xx-y Series

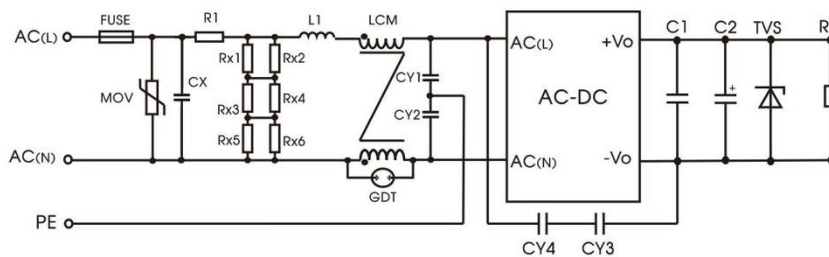


Fig. 3: Recommended circuit for class I equipment

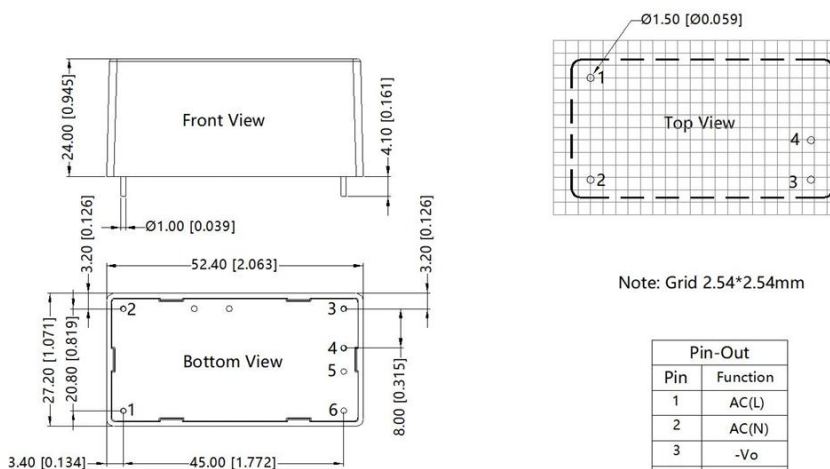
(Recommended when the output terminal of the product needs to be connected to PE or connected to PE through a Y capacitor)

Component	Recommended value
FUSE	3.15A/300V, slow-blow, required
MOV	S14K350
CX	334K / 305VAC
R1	6.8Ω / 3W (wire-wound resistor)
L1	1.2mH / 0.5A
CY1/CY2	2.2nF/400VAC
CY3/CY4	1nF/400VAC
GDT	300V / 1kA
LCM	20mH

Note: Rx1 / Rx2 / Rx3 / Rx4 / Rx5 / Rx6 is the bleeder resistance of Cx and the recommended resistance is 1.5MΩ / 150VDC

Dimensions and Recommended Layout PDM-20-xx-y

THIRD ANGLE PROJECTION



Note: Grid 2.54*2.54mm

Pin	Function
1	AC(L)
2	AC(N)
3	-Vo
4	+Vo
5	No Pin
6	No Pin

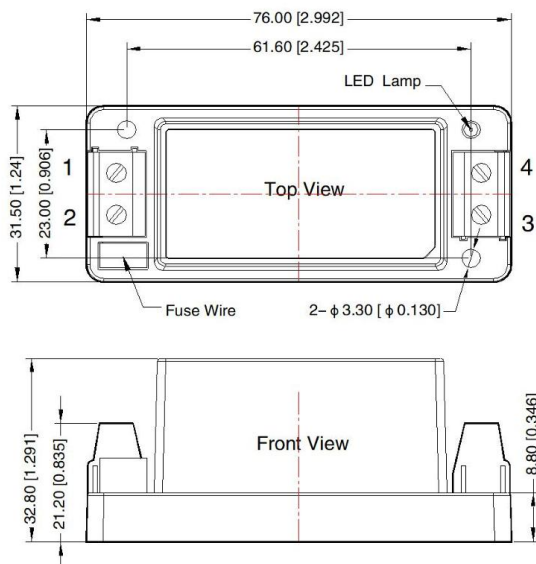
Note:
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

PDM-20-xx-y Series

Dimensions of mechanical option PDM-20-xx-y

PANEL MOUNT OPTION (y = P)

THIRD ANGLE PROJECTION 

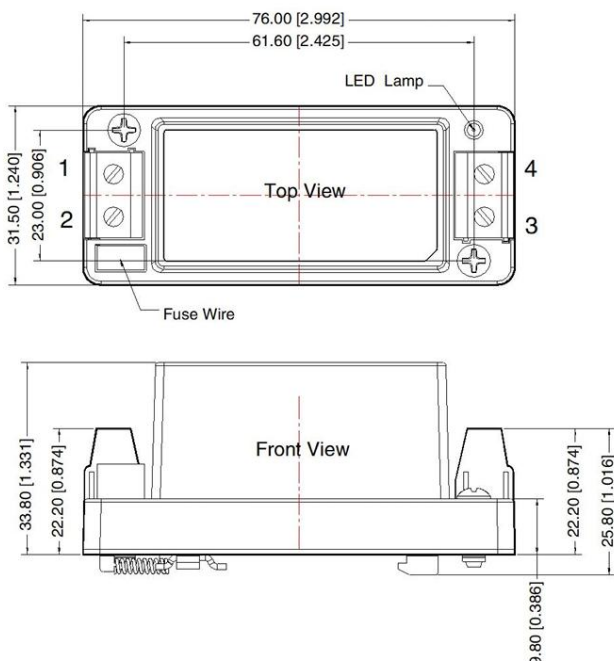


Pin-Out	
Pin	Function
1	AC(N)
2	AC(L)
3	-Vo
4	+Vo

Note:
 Unit: mm[inch]
 Wire range: 24–12 AWG
 Tightening torque: Max 0.4 N·m
 General tolerances: ± 1.00 [± 0.039]

DIN OPTION (y = D)

THIRD ANGLE PROJECTION 



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

Note:
 Unit: mm[inch]
 Wire range: 24–12 AWG
 Tightening torque: Max 0.4 N·m
 Mounting rail: TS35, rail needs to connect safety ground
 General tolerances: ± 1.00 [± 0.039]