



PM23 product photograph

Feature summary

- 3 channels, 2 A each
 - up to 6 A with 3 channels in parallel
- System voltages from 5 V to 50 V
- Applications
 - Redundancy
 - Output current increase
- Ultrathin case, 8.8 mm width
- Input reverse polarity protection
- No electrolytic capacitors
- Operating temperature -40°C to 50°C (derating above 30°C)
- Degree of protection IP20

Product description

The PM23 is an 8.8 mm wide paralleling module based on 100 V Schottky diodes. It provides redundancy and output current increase for system voltages from 5 V to 50 V. It is designed for operation with AC/DC and DC/DC converters.

The device tolerates two typical operating faults: input reverse polarity and open circuit operation. It does not contain a fuse and provides no short circuit or over-temperature protection.

The operating temperature range is -40°C to 50°C . Derating is required above 30°C .

Specification overview

Description	Value
General	
Voltage Range	5–50 V
Voltage Drop (typ.)	0.45 V
Max. Input Current	2 A
Max. Output Current	6 A
Protection	
Input Fuse	no
Input Reverse polarity protection	yes
Short circuit protection	no
Open circuit protection	yes
Input Overvoltage suppressor	none

Ordering information

Order code	Default Output
PM23	3ch@2A
Customisation available. Contact DPS.	

Engineering standards

Applied engineering standards	
EN 55032 / CISPR 32	EN 61000-4-2
EN 61000-4-3	EN 61000-4-4
EN 61000-4-5	EN 61000-4-6
EN 61000-4-7	EN 61000-4-8



1 Functional description

1.1 Overview

The PM23 is an 8.8 mm wide paralleling module based on 100 V Schottky diodes. It provides redundancy and output current increase for system voltages from 5 V to 50 V. It is designed for operation with AC/DC and DC/DC converters.

The device tolerates two typical operating faults: input reverse polarity and open circuit operation. It does not contain a fuse and provides no short circuit or over-temperature protection.

The operating temperature range is $-40\text{ }^{\circ}\text{C}$ to $50\text{ }^{\circ}\text{C}$. Derating is required above $30\text{ }^{\circ}\text{C}$.

1.2 Safety Information

Read this section before installing or operating the device.

- **Qualified personnel:** Only electrical personnel are allowed to install and operate the device. Wrong installation may lead to destruction of the device or devices connected to it, injury or death of persons.
- **Disconnect before work:** The device and all connected loads must be disconnected from power before any work on the device or its wiring is carried out.
- **Do not open:** The device must not be opened. It contains no user-serviceable parts.
- **External protection required:** The device contains no fuse and provides no short circuit and no over-temperature protection. An external short circuit protection must be provided by the system integrator. The derating above $30\text{ }^{\circ}\text{C}$ must be observed.
- **Operating environment:** The device has degree of protection IP20. It must only be operated in dry indoor environments, for example in a control cabinet or installation box, and must not be exposed to water or condensation.
- **Reverse polarity limit:** The negative input voltage limit of -50 V_{dc} must not be exceeded.

1.3 Protections

The following protections are implemented:

- **Input reverse polarity:** The input tolerates reverse polarity down to $U_{\text{in,max}} = -50\text{ V}_{\text{dc}}$. This limit must not be exceeded.
- **Open circuit:** The output can be operated in open circuit indefinitely.

The device is **not galvanically isolated**. The negative terminals of all inputs and of the output are connected internally, so all connected sources share a common reference potential. Isolation, where required, must be provided by the upstream converters.





1.4 Ordering Information

The following ordering options are available.

Ordercode	Description	EAN	Weight	HS-Code	Origin
PM23	Paralleling module, 3 channels, 2 A per channel, 6 A total	4262542250336	29 g	85044095	Germany
Customisation available. Contact DPS.					

Table 1: Ordering information of the PM23.



2 Pinout and Schematic

The pinout of the PM23 is depicted in Figure 1.

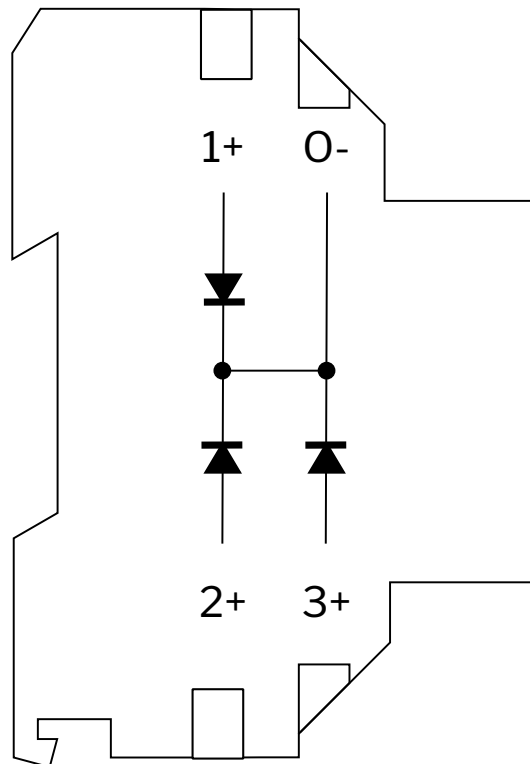


Figure 1: Connection diagram of the PM23.

2.1 Pin description

Pin	Functional description
Output	
0-	Voltage output (diode -)
Inputs	
1+	Voltage input channel 1 (diode 1 +)
2+	Voltage input channel 2 (diode 2 +)
3+	Voltage input channel 3 (diode 3 +)

Table 2: Pin description of the PM23.

The wiring requirements are specified in Section 4.



3 Application examples

3.1 Redundancy

A redundancy module is used for increased reliability or increased output power of power supplies. The PM23 implements 3 channels.

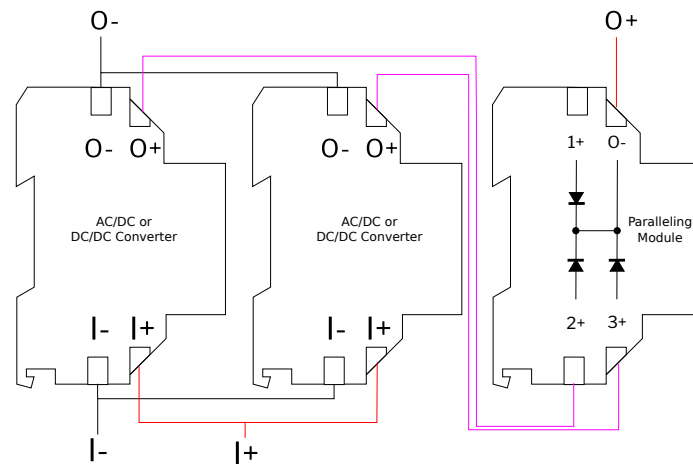


Figure 2: AC/DC or DC/DC power supplies are paralleled using the PM23.

3.2 Increased output power

The output power can be increased by paralleling up to 3 channels. The current per channel and the total current must not be exceeded. Several paralleling modules may be used in parallel.

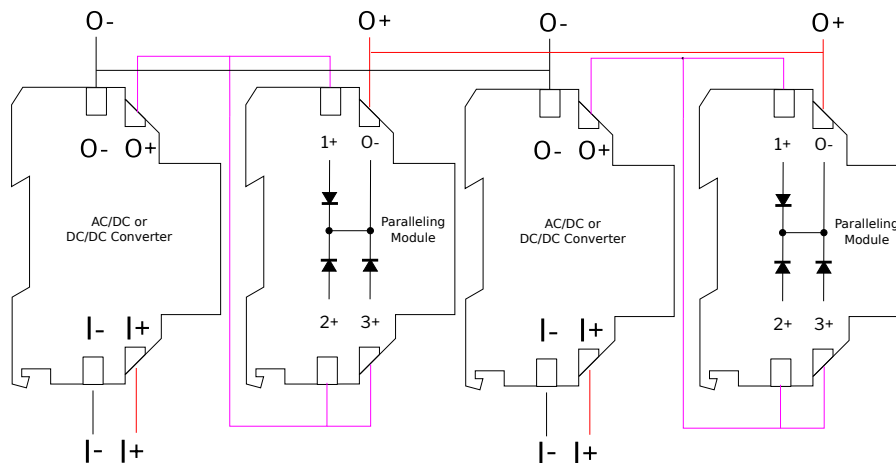


Figure 3: Redundancy operation with a maximum output current of 6 A per PM23.

3.3 Paralleling of PM23

Several PM23 modules may only be paralleled with derating. The derating must be clarified with the manufacturer.



4 Specification

The specification is shown in the following table. If not otherwise specified, the following parameters have been used: $T_{amb} = 25\text{ °C}$ and $U_{in} = 30\text{ V}_{dc}$.

	Min	Typ	Max	Unit
Elektrische Eigenschaften Electrical Properties				
Eingangsspannung Input Voltage	5		50	V _{dc}
Eingangsstrom Input Current			2	A _{dc}
Eingangs-Ausgangs-Spannungsdifferenz Input Output Voltage Drop		0.45	0.55	V _{dc}
Ausgangsstrom Output Current			6	A _{dc}
Ausgangsspannung Output Voltage	U _{in} – 0.45 V _{dc} (typ.)			
Gehäuse Case				
Montageform Mounting Type	DIN Rail			
Breiteneinheiten Mounting Width	8.8			mm
Montagehöhe Mounting Height	88.4			mm
Montagetiefe Mounting Depth	58			mm
Bauform Form Factor	Household installation box			
Schutzart Degree of Protection	IP20			
Programmierbarkeit Programmability				
Interface Interface	Factory			



	Min	Typ	Max	Unit
Sicherheitsfeatures				
Safety Features				
Eingangssicherung Input Fuse	none			
Verpolungsschutz Reverse polarity protection	yes			
Neg. Eingangsspannung Negative Input Voltage			−50	V _{dc}
Kurzschlusschutz Short circuit protection	no			
Übertemperaturschutz Over-temperature protection	no			
Leerlaufschutz Open circuit protection	yes			
Verdrahtung				
Wiring				
Norm Standard	DIN VDE 0298-4			
Leiterquerschnitt, Kupfer Copper Cross-Section	1.5			mm ²
Belastbarkeit, Verlegeart B1 Capacity, Type B1		17.5		A
Derating-Faktor bei 50 °C Derating Factor at 50 °C		0.61		
Belastbarkeit bei 50 °C Capacity at 50 °C	10.7			A
Betriebsbedingungen				
Operating Conditions				
Temperaturbereich Temperature Range	−40		50	°C
Technische Merkmale				
Technical Characteristics				
Elektrolytkondensatoren Electrolytic Capacitors	No electrolytic capacitors			
Galvanische Trennung Galvanic Isolation	none			
Schutzlack Conformal Coating	none			

Table 3: Specification of the PM23.

The wiring values above are the derivation for the rated currents of the PM23 (2 A per channel, 6 A total) at the maximum specified ambient temperature. Selecting the conductor cross-section according to DIN VDE 0298-4 for the actual installation, wiring method and cable bundling remains the responsibility of the system integrator.



5 Measurements

5.1 Measurement Conditions

The following conditions apply to all measurements unless otherwise noted in the specific section.

	Min	Typ	Max	Unit
Eingang Input				
Eingangsspannung Input Voltage		30		V _{dc}
Umgebungsbedingungen Environment Conditions				
Temperatur Temperature		25		°C
Last Load				
Kanalstrom Channel Current	Swept per plot			
Kanäle unter Last Channels Loaded	Single channel			

Table 4: Measurement conditions for all measurements of the PM23.

5.2 Voltage Drop

The diode voltage drop of a single channel of PM23 is depicted in Figure 4. The PM23 has a forward voltage of 508 mV at 2 A output current.

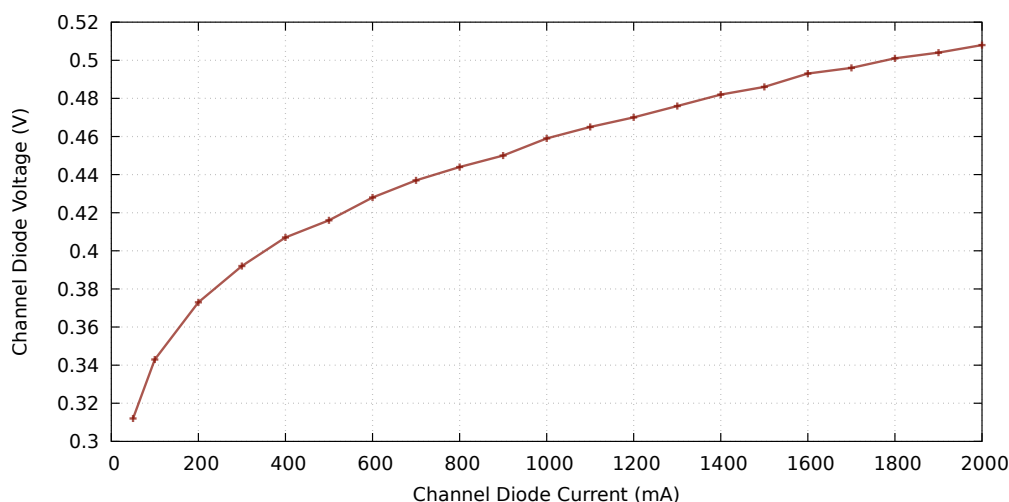


Figure 4: Voltage (V) over Current (mA) of a single channel of PM23.



5.3 Power Dissipation

The power dissipation of a single channel of PM23 is depicted in Figure 5. The PM23 has a power loss of less than 1.1 W at 2 A output current.

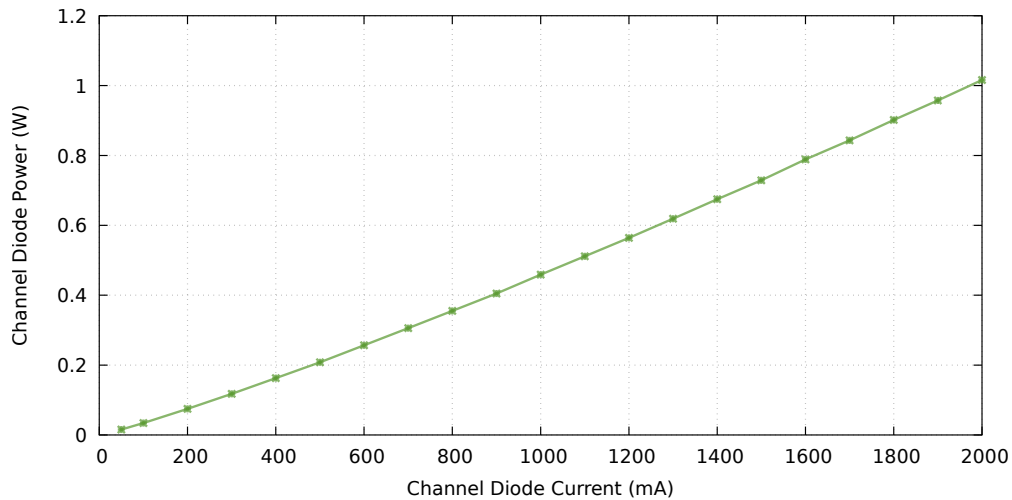


Figure 5: Power (W) over Current (mA) of a single channel of PM23.





6 EMC Measurements

6.1 Emissions

Notable conducted line emissions were not measurable. The device contains only non-switching diodes and therefore has no switching stage that could act as a source of conducted or radiated emissions.

6.2 Immunity

The diodes of the PM23 were tested for immunity against the standards listed under Applied engineering standards on the first page. No malfunction was observed during any of these tests.

The declaration of conformity for the PM23 is a separate document, [DPS-PM23-CE.pdf](#). It lists the applied EU directives and the harmonized standards in full.



7 Case

The case drawing is shown in Figure 6.

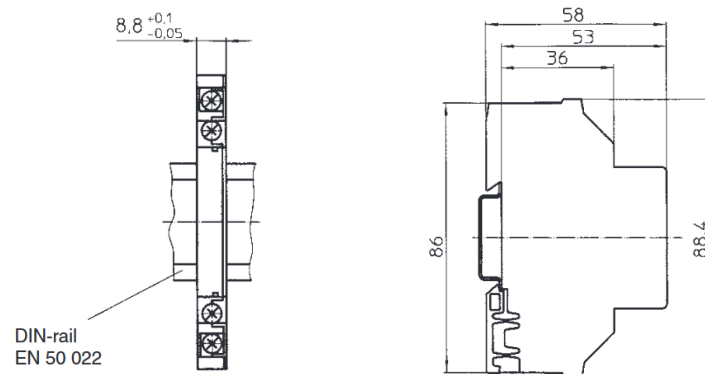


Figure 6: Case drawing of the PM23. All dimensions in mm.

8 Product label

The label for the PM23 is depicted in the following Figure 7.

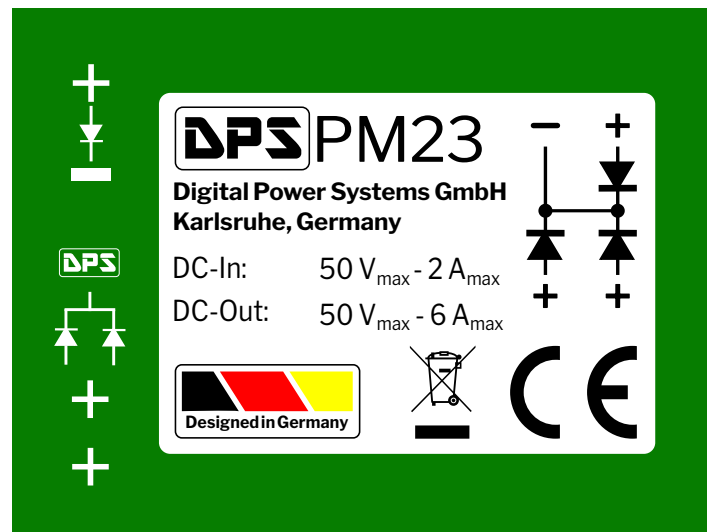


Figure 7: The product label of the PM23.





9 Document

9.1 Datasheet Quality

Feedback on this document is welcome. Reports of errors, omissions or unclear content can be sent to:

`datasheet (at) digitalpowersystems (dot) eu`

9.2 Revision History

The revision history is depicted in the following table.

Date	Changes in Revision
05.04.2024	Datasheet released.
17.07.2026	Galvanic isolation and conformal coating stated as not present. Feature summary extended. Wiring section added (DIN VDE 0298-4). Output voltage, mounting height and mounting depth added. Table captions added. Safety information section added. Degree of protection IP20 added. Weight, HS code and country of origin added. EAN corrected. Input voltage range, typical voltage drop and negative input voltage limit corrected. Ordering information description corrected. Over-temperature protection stated as not present. Language and unit formatting revised.

Table 5: Revision history of this document.

9.3 Contact Information

This is a product of the Digital Power Systems GmbH (DPS).

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The latest version of this document is available on the PM23 product page.

