Specification: RCMB-SP10

Revision: Rev. 1.0

Date: March 18, 2025

1. General Product Information

Product Name	RCMB-SP10
Model Type	Type B RCM (Residual Current Module)
Applicable Models	In-Cable Control and Protection Devices (IC-CPD), Solar Inverters
Applicable Standards	IEC 62752

2. Key Features

- Fluxgate-based current sensor technology
- Open-collector output for signaling system faults
- Composed of AEC-Q certified parts

3. Electrical Specifications

CHARACTERISTICS	Symbol	VALUE
Supply Voltage	Vcc	4.8 - 5.2 V
Rated Residual Operating Current	IΔN1	6 mA DC
	IΔN2	30 mA rms
Current Consumption	Icc	50 - 60 mA
Measuring Range (Peak)		30 mA
Primary nominal RMS current (1 Phase)	IP	32 A
Measuring Range(Peak)	IΔN	30 mA
Resolution (IΔN 25℃)	X	0.5 mA

CHARACTERISTICS	Symbol	VALUE
Trip Tolerance 1	IΔN1,tolerance	4 - 6 mA DC
Trip Tolerance 2	IΔN2,tolerance	15 - 19 mA rms
Recovery current level 1	IΔno1	1.8 - 2.8mA Dc
Recovery current level 2	IΔno2	9 - 14mA rms
Rated frequency	Hz	50Hz / 60Hz
Frequency Range	Hz	DC ~ 1.0 kHz
Response Time (AC 150mA / DC 300mA)	Tr	40 ms
Limit values of break time 6mA DC	LV1	Max 700 ms
Limit values of break time 30mA AC	LV2	Max 1,000 ms
Scaling Factor For 30mA DC	Spwm-DC	3.3/1 %/mA
Booting Time		100 ms

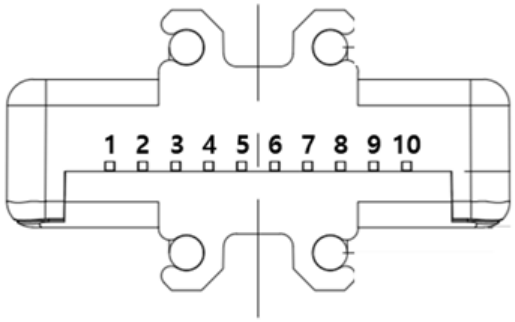
4. Environmental Specifications

Operating Temperature Range	-40 ~ 105°C
Storage Temperature Range	-55 ~ 150°C
Weight	30 g

5. Mechanical and Material Specifications

Case Material	Polyamide Epoxy
Lead Pin Material	Tin-plated Copper

6. Pin Configuration and Functions



Pin No.	FUNCTION	DESCRIPTION
Pin 1	ERROR	If no system fault is detected, the PIN1 is a low level(GND). If a system fault is detected, PIN1 is high impedance.
Pin 2	Test IN	A function is activated if this PIN is connected to GND for a period of 300 ms to 1.2 s. If the PIN is set to GND less than 30 ms or more than 1.2 s, no function test will be performed.
Pin 3	DC FAULT (LOW / Open Collector)	If the residual current is below DC 6 mA the output on PIN 3 is a low level (GND). In any other case output PIN 3 is in a high impedance state.
Pin 4	AC FAULT (LOW / Open Collector)	If the residual current is below 30 mA rms the output on PIN 4 is a low level (GND). In any other case output PIN 4 is in a high impedance state.
Pin 5	GND (0V Ground connection)	Ground connection
Pin 6	VCC (5V Power)	Positive supply voltage : +5V DC
Pin 7	DC-PWM (FS 30mA)	Acc. to the DC component of residual current a duty-cycle is generated. This is for monitoring purposes only and is not safety function.
Pin 8	NC (No Connection)	
Pin 9	NC (No Connection)	
Pin 10	NC (No Connection)	

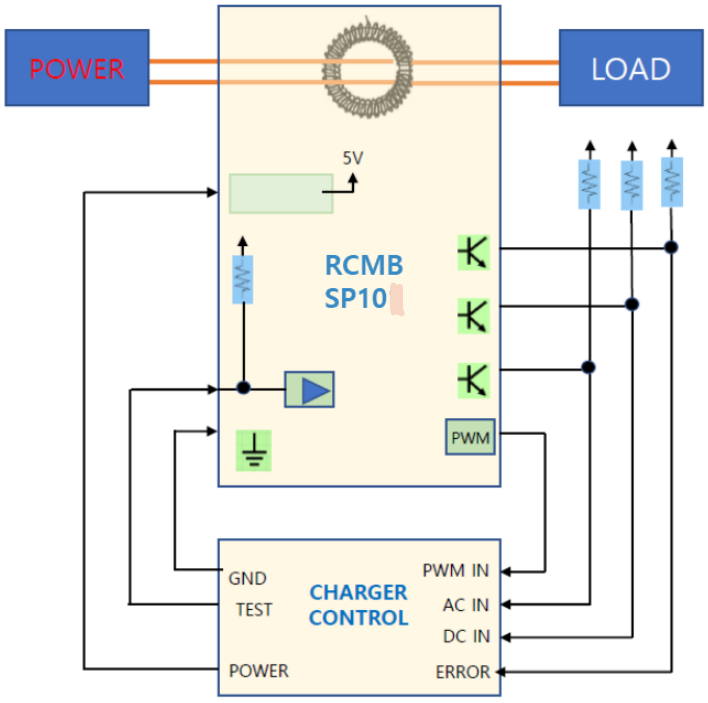
7. Certifications and Test Results

Applicable Standards	IEC 62752
EMC Test	IEC 61000-4-3, ISO 11452-2 - PASS
ESD Test	IEC 61000-4-2 - PASS

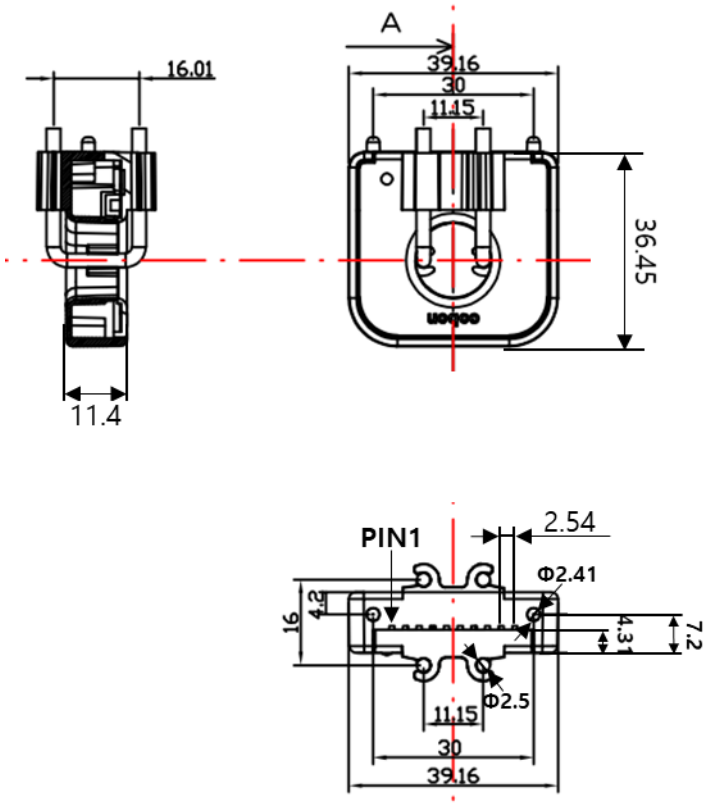
8. Performance and Test Results

Response Time	AC 150 mA: 40 ms, DC 300 mA: 40 ms
Trip Interruption Time Limit	6 mA DC: Max 700 ms, 30 mA AC: Max 1,000 ms
Power Consumption	320 mW during normal operation

9. Application Circuit Diagram



10. Dimensions



11. Packaging