

Introduction

ZDA13 is a type-B residual current monitoring device that fully complies with the IEC62752 standard and specifically developed for EV charging applications. This sensor offers comprehensive all-current sensitivity, ensuring optimal safety during the charging process.

Product picture print for reference only, subject to the actual product



Product features

- Value optimized
- Built-in test and calibrate function
- Built-in three-phase conductors
- Operating supply voltage range: 3.0V – 5.5V
- Wide operating temperature range: -40°C ~ +85°C
- High insulation voltage
- Small size
- Low power consumption

Applications

- AC wallboxes
- ICCPD (charging cable)

Operating Conditions:

Maximum Primary Conductor Voltage	440V
Maximum Primary Current	48A RMS
Ambient Operation Temperature Range	-40 °C - 85 °C
Power Supply Voltage	Min.: 3.0V Typ.: 5V Max.: 5.5V
Input Pin Voltage Range	Min.: -0.3V Max.: 5.5V
Input Pin Low-Level Voltage	Max.: 0.8V
Input Pin High Level coltage	Min.: 2.5V
Supply Current	Typ.: 16mA

Specifications:

Type	DC6mA / AC20mA	DC6mA / AC30mA
DC Trip Threshold	Min.: 3.5mA Typ.: 4.5mA Max.: 5.5mA	Min.: 3.5mA Typ.: 4.5mA Max.: 5.5mA
AC Trip Threshold	Min: 12.5mA Typ.: 15mA Max: 17.5mA	Min: 18mA Typ.: 22.5mA Max: 27mA
DC Recovery Level	3mA	3mA
AC Recovery Level	10mA	15mA

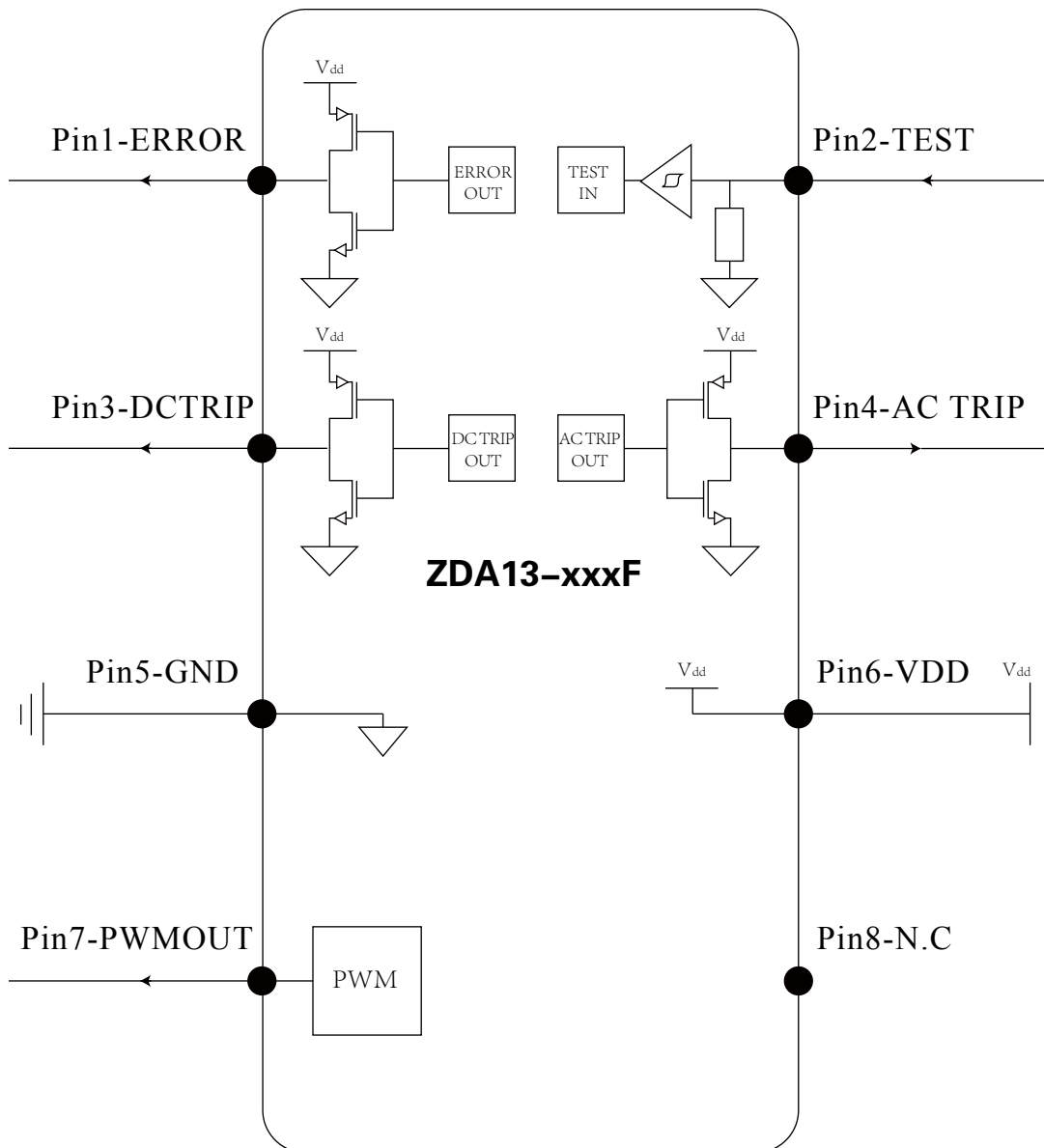
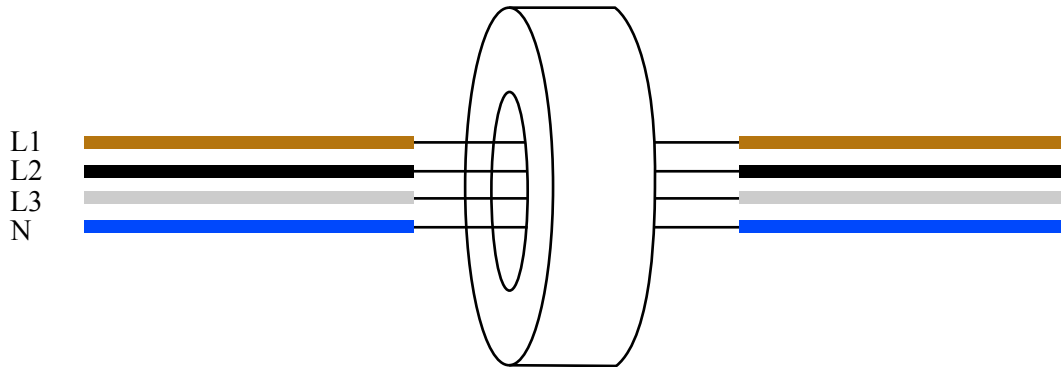
Specifications:

Frequency Range	DC ~ 2kHz	DC ~ 2kHz
PWMOUT vs DC differential current ratio	3.33%/mA	3.33%/mA
Response Times	According to IEC62752:2016	According to IEC62752:2016
Weight	30g	30g

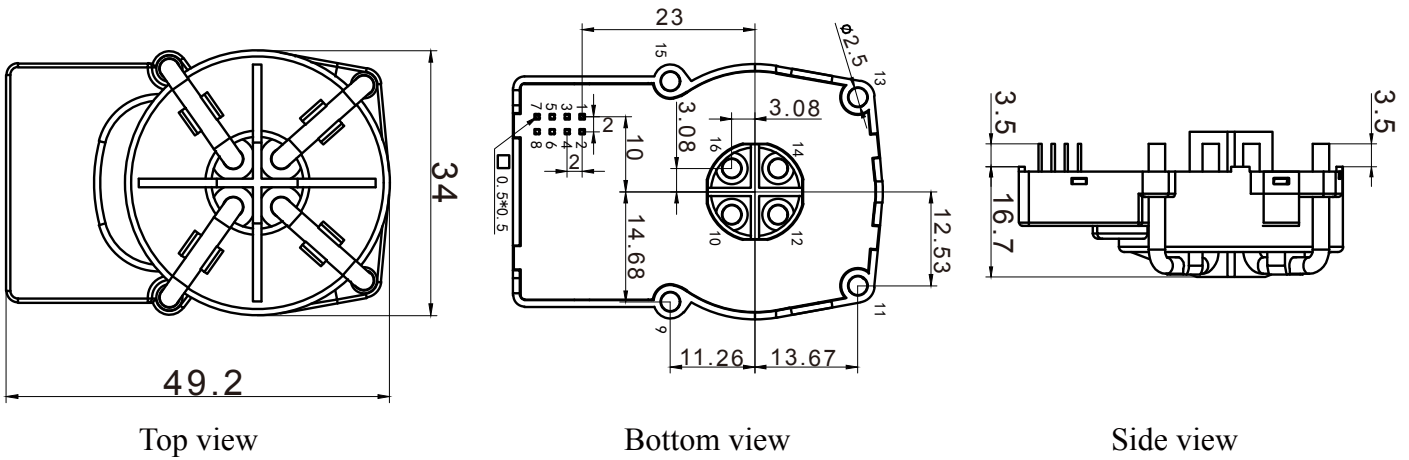
Pin descriptions:

Pin	Description
Pin1 – ERROR	When the device is operating normally, this pin is at low-level (GND). If an error is detected, the pin is set to High-Z.
Pin 2 – TEST	<p>Input pin for signal to start the test function.</p> <p>During the test function, the system’s tripping threshold is calibrated, then a test current is applied. The device then should trip within the response time limits, indicating that it is functioning normally.</p> <p>During the test function, the charging must be stopped to ensure that there is no differential current present, other than the test currents applied by the device itself.</p> <p>The test function should be activated whenever possible (e.g. before initiating charging or whenever charging is not ongoing) to ensure good accuracy.</p>
Pin 3 – DCTRIP	Output pin for signal indicating a DC trip. When DC differential currents magnitude is under the threshold values, the pin is at low-level (GND). Otherwise, the pin is set to High-Z.
Pin 4 - ACTRIP	Output pin for signal indicating a AC trip. When AC differential currents magnitude is under the threshold value, the pin is at low-level (GND). Otherwise, the pin is set to High-Z.
Pin 5 - GND	Ground
Pin 6 - VDD	Power Supply
Pin 7 - PWMOUT	PWM output signal with $f = 8\text{kHz}$, representing the DC differential current level. This signal shall only be used for monitoring purposes.
Pin 8 – N.C.	-

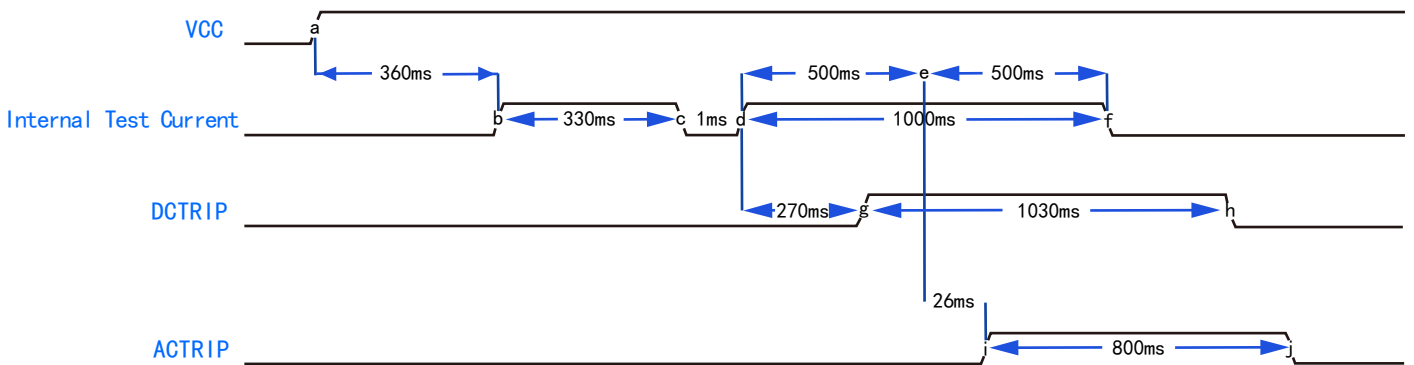
Typical application diagram:



Dimensions: (in:mm±0.5)



Timing graph:



a:	VCC is supplied
b:	Internal calibration current is started
c:	Internal calibration current is stopped
d:	DC test current is started
e:	DC test current is stopped, and AC test current is started
f:	AC test current is stopped
g:	DCTRIP becomes high(tripped)
h:	DCTRIP becomes low(recovered)
i:	ACTRIP becomes high(tripped)
j:	ACTRIP becomes low(recovered)