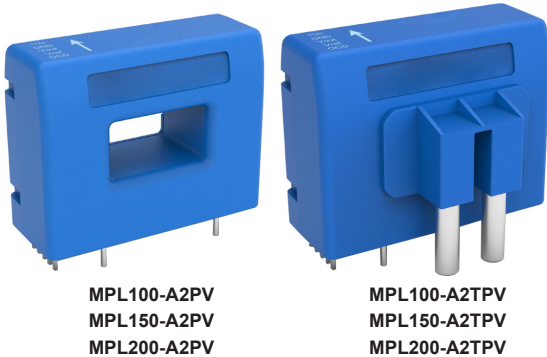


RoHS  
Compliant



MPL100-A2PV  
MPL150-A2PV  
MPL200-A2PV

MPL100-A2TPV  
MPL150-A2TPV  
MPL200-A2TPV

## Description

The products are used for DC, AC and pulse current measurement under the condition of primary and secondary side isolation. Hall effect and zero flux closed-loop control principle are adopted to achieve high measurement accuracy in the full bandwidth range of the sensor.

The application areas are photovoltaic, motor drive, welding power supply, power supply equipment, power heating equipment, large UPS equipment, etc.

## Features

- Accuracy up to  $\pm 0.5\%$
- Linearity up to  $\pm 0.1\%$
- Low temperature drift 70ppm/K
- Wide frequency bandwidth 200kHz
- Low response time
- No insertion losses
- High immunity to external interference
- Withstand symmetrical voltage change  $\pm 5\%$
- UL94V-0/IEC61010-1 approval

## Selection Guide

Part Number	Input Voltage (V DC)	Primary Current Effective Range (A)	Primary Current Measurement Range (A)	Rated Output Voltage (V)	Turns Ratio
MPL100-A2PV	5	100	-300~+300	1.875~3.125	1:1800
MPL150-A2PV		150	-450~+450*	1.875~3.125	
MPL200-A2PV		200	-500~+500*	1.875~3.125	
MPL100-A2TPV		100	-300~+300	1.875~3.125	
MPL150-A2TPV		150	-300~+300	1.875~3.125	
MPL200-A2TPV		200	-300~+300	1.875~3.125	

\*The measurement range of primary current IPM gradually decreases to -375~375A when  $T_A=25^\circ\text{C}$  changes to  $105^\circ\text{C}$ .

## Electrical Characteristics

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Primary Current Effective Range IPN	TA=25°C	MPL100-A2TPV	-	100	-	A
		MPL150-A2TPV	-	150	-	
		MPL200-A2TPV	-	200	-	
Primary Current Measurement Range IPM	TA=25°C	MPL100-A2TPV	-300	-	300	A
		MPL150-A2PV	-450	-	450	
		MPL200-A2PV	-500	-	500	
		MPL150-A2TPV	-300	-	300	
		MPL200-A2TPV	-300	-	300	
Over-current Pin Detection Current IocD	TA=25°C	MPL100-A2TPV	-	±200	-	A
		MPL150-A2TPV	-	±300	-	
		MPL200-A2TPV	-	±400	-	
Supply Voltage Vcc	TA=25°C		4.75	5	5.25	V
Reference Voltage Vref	TA=25°C		2.495	2.5	2.505	
Over-current Detection Pin Output Voltage UocD	Primary current ≥2IPM, RL=10kΩ	Output Voltage (High)	Vcc-0.5	-	Vcc	V
	Primary current <2IPM, RL=10kΩ	Output Voltage (Low)	0	-	0.5	
Turns Ratio KN	Primary Turns=1		1:1800			-
Max. consumption Current Ic	IP indicates the actual input current, NS=1800 circle		14+IP/NS*1000			mA

## Dynamic Characteristics

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Range Vout	TA=25°C		1.875	-	3.125	V
Full Scale Voltage	TA=25°C, (Vout-Vref) @ IPN		-	±0.625	-	
Output Accuracy ε	TA=25°C		-0.5	±0.2	0.5	%
Sensitivity G	TA=25°C, @ IPN	MPL100-A2TPV	-	6.25	-	mV/A
		MPL150-A2TPV	-	4.167	-	
		MPL200-A2TPV	-	3.125	-	
Sensitivity Error GERR	TA=25°C, @ IPN		-	±0.4	-	%
Linearity Error εL	TA=25°C		-	0.05	0.1	
Current Response Time tr	Up to 10% of IPN		-	0.3	-	μs
	di/dt=100A/μs, up to 90% of IPN		-	0.3	-	
Frequency Bandwidth (-3dB) BW			-	-	200	kHz
Temperature Drift	TA=25°C, @IPN		-	45	70	ppm/K

## General Characteristics

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Operating Temperature TA	-	-40	-	+105	°C
Storage Temperature Ts	-	-55	-	+115	
Weight	MPL100-A2PV, MPL150-A2PV & MPL200-A2PV	32	40	48	g
	MPL100-A2TPV, MPL150-A2TPV & MPL200-A2TPV	56	68	80	

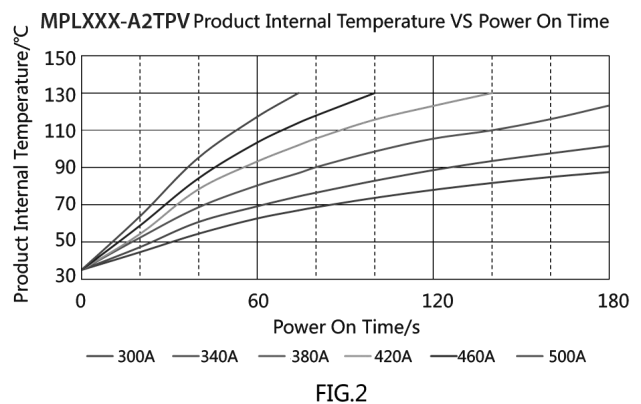
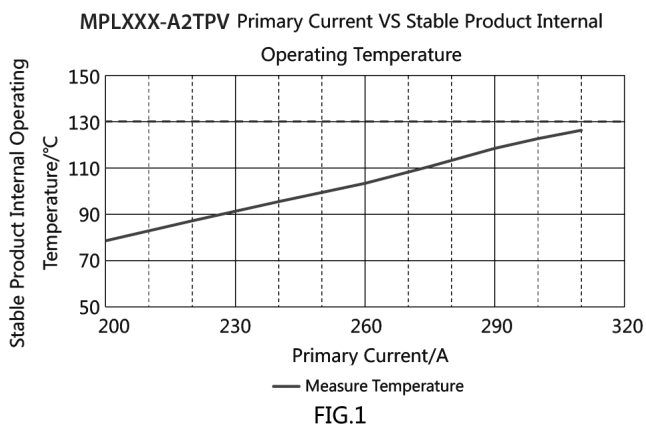
## Isolation Characteristics

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Power Frequency Withstand Voltage Vd	Primary edge input, secondary output; 50Hz, 1min; Leakage current < 0.1mA	-	4.5	-	kV AC
Pulse Tolerance Voltage Vw	1.2/50µs	-	8	-	kV
Comparative Tracking Index CTI	-	-	600	-	V

## Pin Function

Pin	Symbol	Function Description
1	OCD	Over-current detection pin, when the primary current $\geq 2IPM$ , the pin is high; when the primary current $< 2IPM$ , the pin is low.
2	Vref	Reference pin, provides reference voltage of 2.5V.
3	Vout	Output voltage pin, $V_{out} = V_{ref} + G \cdot I_p$ .
4	GND	Power supply ground.
5	+Uc	Power supply (Vcc).
6	NC	No functional pin.
7	NC	No functional pin.
8	NC	No functional pin.
9	NC	No functional pin.

## Product Characteristic Curve



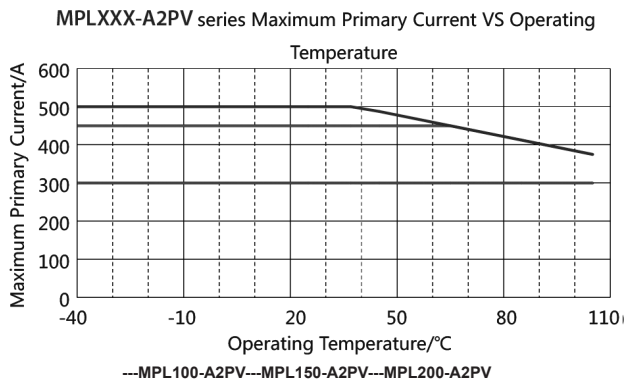


FIG.3

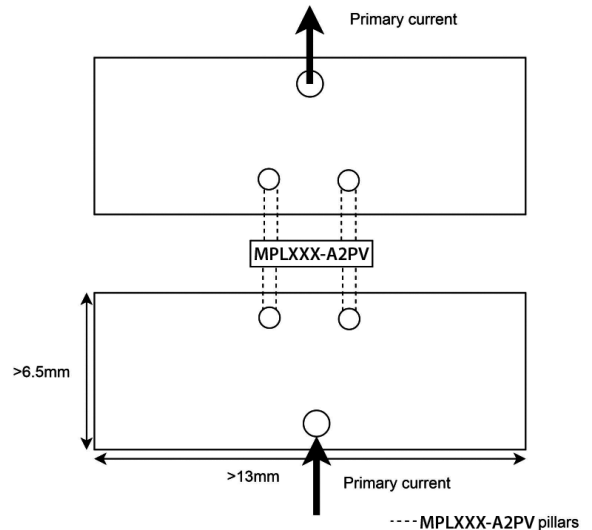
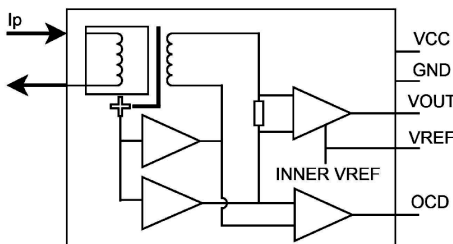


FIG.4

## Note:

1. The outer four copper columns of MPLxxx-A2TPV product are used to pass the measured current. When working through the primary current, the internal operating temperature of the product should not be higher than 130°C. When MPLxxx-A2TPV series products are used, a piece of copper not less than 6.5mm×6.5mm area 4oz thick should be added to the welded PCB on each flow copper column, or two flow copper columns should share a piece of copper not less than 6.5mm×13mm area 4oz thick for product heat dissipation. Attention should be paid to the heat dissipation problem during continuous operation. Attention should be paid to the heat dissipation time when intermittent high current is applied. If necessary, MPLxxx-A2PV products should be selected.
2. The internal working temperature of the stable product is the test result after 10min of power-on at 35°C.
3. Internal temperature VS power-on time is the result of a maximum of 3 minutes after power-on from 35°C or a maximum temperature of 130°C.
4. FIG. 3: With the increase of operating temperature, the maximum operating current of MPLxxx-A2PV series which can maintain stable linear output gradually decreases.

## Connection and Description

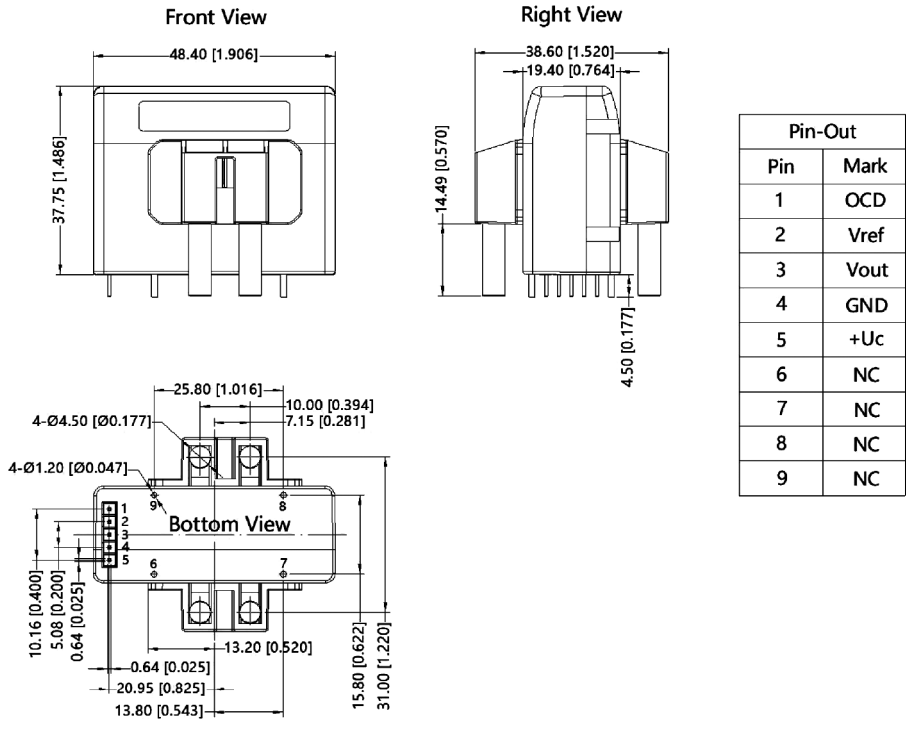


## Test instructions:

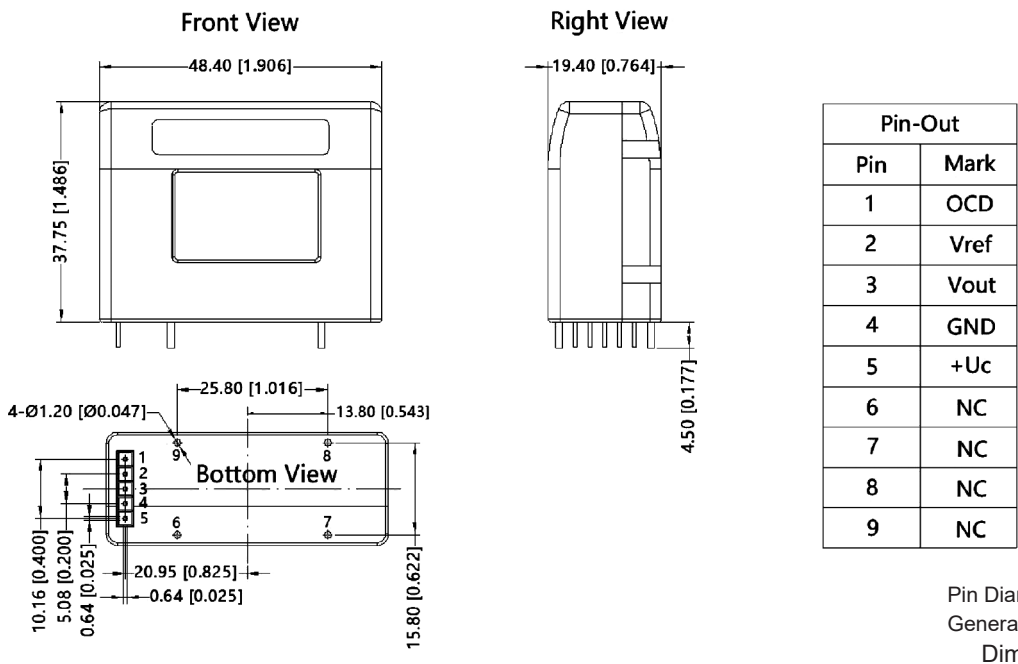
1.  $I_p$  is measured current,  $V_{out}$  is the output voltage;
2. The relationship between the output voltage  $V_{out}$  and the measured current  $I_p$  is:  $V_{out} = V_{ref} \pm G \times I_p$
3. The module has a built-in  $V_{ref}$  of 2.500V, and the reference output can be adjusted using an external reference pin
4. Hot swap is unavailable
5. The temperature of the primary winding coil should be lower than 125°C
6. It is recommended to use a power supply with 3W output power and output voltage of 5V.

## Diagram

For MPL100-A2TPV, MPL150-A2TPV & MPL200-A2TPV



For MPL100-A2PV, MPL150-A2PV & MPL200-A2PV



Pin Diameter Tolerances : ±0.1 (±0.004)  
 General Tolerances : ±1 (±0.039)  
 Dimensions : Millimetres (Inches)

## Part Number Table

Description	Part Number
Current Transducer, 100A	MPL100-A2TPV
Current Transducer, 150A	MPL150-A2TPV
Current Transducer, 200A	MPL200-A2TPV
Current Transducer, 100A	MPL100-A2PV
Current Transducer, 150A	MPL150-A2PV
Current Transducer, 200A	MPL200-A2PV

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