Chapter 1 Introduction

TMO7036 Series

Electrostatic Chuck Power Supply | ±5kV,200W, 20ms switching time, 6 channels independent output, compact design



Introduction:

The TMO7036 series high-voltage power supply from Teslaman is specially designed for the application of electrostatic chucks, of outputting precise voltages within 10ms and switching polarity within 1s, thus providing protection for semiconductor processes. It features reversible ground-referenced polarity and can also output floating-ground bipolar voltages with corresponding floating-ground interfaces. It also has comprehensive fault diagnosis and status monitoring functions, which can transmit data to the interface. Its packaging design is compact and lightweight, suitable for OEM.

Specification:

- +24V DC Input
- Switchable polarity, 20ms switching time
- 6 channels output
- Polarity hot switchable
- Analog/RS485 digital interface
- 100nf load detection

Application:

E-Chuck.

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Input	+24VDC±5%, 5A		
Input port	125 pins		
Output channels	Independent 6 channels		
Output voltage range	$-5kV \sim +5kV.$		
Output current	Setting range 0-35mA (load<1µF)		
Voltage accuracy	$\pm 1\%$ of rated value		
Ripple	Typical <100mV p-p (load<10nf, 0-1MHz)		
Pass origin	Yes		
Over-shoot	Typical< 2V (load<10nf, from -5kV to +5kV)		
Output delay	<3ms		
Switching period	Typical 20ms (load <10nf, from -5kV to +5kV)		
Frequency	Typical 50Hz (load<10nf, from -5kV to +5kV)		
Output impendence	$>20k\Omega$ (each channel)		
Voltage display	Resolution=1V, Accuracy better than ± 50 V		
Current display	Resolution=10 μ A, Accuracy=actual output ±100 μ A, bias ±2%		
Stability	2V/s		
Line regulation	<0.1% when input change within 10%		
Load regulation	<1.3% from 0 to full load		
Protection	Input over/under voltage, over current; output over-voltage, over-current and		
	over-temperature protection		
Function	Voltage and current setting, d-chuck, etc.		
Interface	DB25 analog, or RS-485 series port or other customizable		

Control signal	0 corresponds to -5kV, 5 corresponds to 0kV, 10V corresponds to +5kV		
	(customizable)		
Typical load capacitance	<10nf (Please contact Teslaman for other load information)		
Position detection	<100nF (need external detection module)		
Temperature coefficient	<300ppm/°C for current and voltage.		
	At full load<0.1%p-p		
Environmental	Operational: 0°C to 45°C; Storage: -20°C to 70°C		
Humidity	0 to 85%RH, non condensing		
Cooling	Convection		
Dimensions	W 355mm, H44.25mm, D 243mm		

Description of Model Code

The model code represents the performance and parameters of the power supply, which are:

Maximum output voltage in kV;

Maximum output power in W;

Output polarity, PN for bipolar;



TMO7036 Model Selection Table

Rated Output		Madal
kV	mA	Model
1	35	TMO7036PN1-105
3	35	TMO7036PN3-105
5	35	TMO7036PN5-175

Dimensions: mm



Front View



Rear View