第 1 章 简介

TESC7080 Series

Electrostatic chuck power supply | ±5kV，20W，1s polarity switching time

- Bi-polar output, 20ms polarity switchable
- +24V DC input
- Analog/RS-485/Ethernet
- 100nf-10nF/10nF-1nF load detection
- Load detection frequency 10Hz

Information：

Teslaman TESC7080 series electrostatic chuck power supply is suitable for electrostatic chuck semiconductor processing applications. It can provide the required accurate voltage within 10ms and switch polarity within 1s. These customized designs provide protection during the semiconducting process. It can provide ground reference reversible output polarity, as well as floating ground bipolar output with related floating interface. Integrated troubleshooting circuits monitor power functions and transfer state data to the user interface. It adopts a compact and lightweight package and can be OEM.

Application：

E-Chuck.

Specifications：

Input	+24VDC±5%，5A.
Output Polarity	Floating, bi-polar, polarity switchable.
Output Voltage	-5kV ~ +5kV each channel continuous adjustable.
Voltage Accuracy	±1% of rated value.
Ripple	Typical < 100mVp-p.
Pass zero	Yes.
Over-shoot	Typical < 2V (when load of 10nf, from -5kV to +5kV)..
Response delay	<3ms.
Frequency	0.5Hz.
Switching time	Typical 20ms (when load of 10nf, from -5kV to +5kV).
Frequency	Typical 50Hz (when load of 10nf, from -5kV to +5kV).
Output Impedance	>20kΩ.
Voltage Display	Resolution = 1V. Accuracy better than ±50V.
Current Display	Resolution = 10μA. Accuracy = Actual value ±100μA Bias±2%.
Stability	Better than 0.01%.
Line regulation	<0.1% when input change within 10%.
Load regulation	<1.3% when load from 0 to full load.
Protection	Input over/less-voltage protection, input over-current protection. Output over-voltage over current and over temperature protection.
Interface	DB25 analog(standard), RS-485 series port, USB and Ethernet.

Control signal	0 corresponds to -5kV, 5V corresponds to 0V, 10V corresponds to +5kV (customizable).
Typical load capacitance	<10nF(For other capacitance, please contact Teslaman).
Load detection	<100nF
Temperature coefficient	Better than 300ppm/℃. Full load <0.1%p-p at maximum output.
Environmental	Operational：0˚C to 45˚C; Storage：-20˚C to 70˚C.
Humidity	0 to 85%RH, non-condensing.
Cooling	Convection.

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

TESC7080 PN 5 - 175

Model	Polarity	Maximum Voltage	Maximum power

TESC7080 Series model selection table

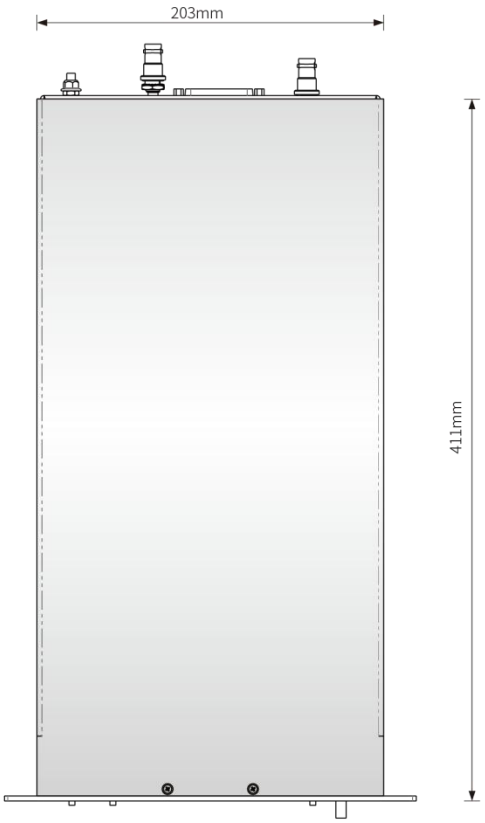
Rated output		Model
kV	mA	
3	4	TECS7080PN3-12
5	2	TECS7080PN5-10
10	3	TECS7080PN10-30

DB25 interface signal description

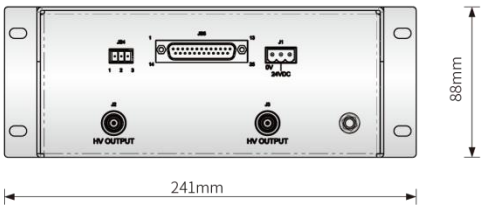
PIN	Signal	Signal parameters
1	kV set1	0 to 10VDC = -100% to +100% of rated output voltage，Zout =10kΩ
2	kV set2	0 to 10VDC = -100% ot +100% of rated output voltage，Zout =10kΩ
3	GND	Ground（Pin 4） = HV ON Open = Disable
4	mA mon1	0 to 10VDC = 0 to +100% of rated current，Zout =10kΩ.
5	mA mon2	0 to 10VDC = 0 to +100% of rated current，Zout =10kΩ.
6	Centre mon	Origin testing
7	HV status	+5V=HV ON， GND=No output
8	+5V	+5V reference
9	ov2 status	+5V=HV2 over-voltage, GND=Normal
10	oc2 status	+5V=HV2 over-current（value could be set at front panel）; GND=Normal
11	Wafer status	TBD
12	Force discharge	Connect to GND=Run D-chuck operation，input +5V= no action
13	+10V	+10V reference
14	kV mon1	0 to 10VDC = -100% to +100% of rated voltage, Zout =10kΩ.
15	kV mon2	0 to 10VDC = -100% to +100% of rated current, Zout =10kΩ.
16	mA set1	0 to 10VDC = -100% to +100% of rated current, Zout =10kΩ.
17	mA set2	0 to 10VDC = -100% to +100% of rated current, Zout =10kΩ.
18	GND	Analog ground
19	Cap mon	TBD
20	Temp status	+5V=Power supply over-temperature, GND=Normal
21	ov1 status	+5V=HV1 over-voltage, GND=Normal
22	oc1 status	+5V=HV1 over-current（value could be set at front panel）; GND=Normal
23	GND	Signal ground
24	Wafer detect	TBD
25	HV on	GND= HV ON，+5V=No action

Dimensions：mm

Front View



Top View



Rear View