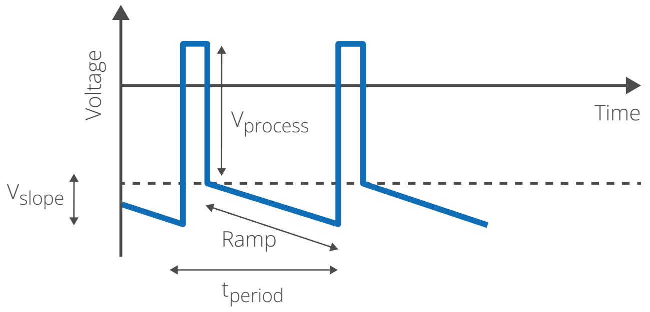
Tailored Waveform Generator

Precise ion energy and plasma density control for ALD, ALE and advanced etch

The Tailored Waveform Generator gives process and equipment teams a more deliberate way to control ion energy in plasma-based semiconductor processes. It supports narrower ion energy distributions, more flexible tuning and better control in demanding ALD and ALE applications. Designed for OEMs, process engineers and R&D teams, it helps extend process capability, improve repeatability and explore process windows beyond the limits of conventional RF biasing.

ELECTRODE VOLTAGE



Application	Plasma etching (ALE or conductor) and Plasma deposition (PVD, PECVD, PEALD)
Ion energy	Up to 1500eV
Ion energy spread	<8eV FWHM
AC input	85Vac – 265Vac
$V_{process}$	20 - 1500V
$V_{p\text{-}p}$ $V_{process}$ + V_{slope}	20 - 2000V
I_{slope}	>3A
t_{period}	2.5 - 10 us (100kHz to 400kHz)
Configurable parameters	Frequency, rise time, fall time, slope/current, process voltage, duty cycle
Cooling	Air cooled or water cooled
Communication interfaces	Synchronization (CEX), EtherCAT, DeviceNet, Interlock, I/O
Configuration / Monitoring	Ethernet (GUI), EtherCAT, DeviceNet
Advanced features	Integrated voltage and current sensors, high speed oscilloscope, modulation, integrated DC blocking and multiple control modes
Customization	Customization possible. Please contact us for further discussion.

Why it matters

In advanced plasma etch and deposition, ion energy is a critical process lever. Conventional RF biasing can create broad ion energy distributions, making tight control more difficult in narrow process windows. Tailored waveform biasing offers a more deliberate alternative for teams that need more precise control over process behavior.

What it enables

The Tailored Waveform Generator supports independent adjustment of waveform characteristics such as ramp rate, pulse amplitude, duty cycle and repetition frequency. This gives process engineers more flexibility to shape ion energy around the needs of the application and helps simplify process development when compared with more tightly coupled conventional biasing approaches.

PRODUCT FEATURES

- Precise ion energy control
- Flexible waveform shaping
- No matchbox required
- Built for OEM process development

Looking to improve plasma control or simplify RF system design?
Talk to our experts. Contact us for more information.

Information subject to change, contact us for more details:

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