Semight

S3023P

High Voltage Semiconductor Pulse Generator Unit

Version 1.0

Semight

Product description

Semight Instruments S3023P Its compact and cost-efficient high-voltage semiconductor pulse test unit can output high-voltage pulse source at ±40V, can provide a fastest edge time of 25ns (Vamp≤ 10V), support traditional SMU SCPI command, enable easy and fast transfer of test codes, support PXIe case in existing big factories, and can support multi-card synchronization, and can be integrated into the production test system for use, so as to improve test efficiency of the system and reduce the cost.

Product characteristics and advantages

Product characteristics	Parameter	Advantage
High-voltage change rate	1000V/us	It can produce high-voltage pulse source with relatively fast edge
High-voltage scope	±40V	It meets technical conditions for NVM test
Free PC-end GUI control software	TBD	It can make remote measurement and control from PC without programming
It is applicable to PXIe case	Size of PXIE slot	It can realize multi-channel expansion with ease, and be integrated into rack and stack systems

Product functions and features

Function	Feature	Unit
Number of channels	1	channel
Signal output mode	1、 Pulse: 2、 Continuous signal 3、 Free-running operation	
Standard pulse mode	1、 Double-level pulse: 2、 Three-level pulse (single-channel): 3、 Pulse cycle: 40ns-10s	
Adjustable delay time	0~9.999	s
Delay resolution	5	ns
Adjustable scope of pulses	1~1000000	pulse
Minimum sampling cycle for voltage monitoring	5	us
Trigger output	level trigger: TTL level	
	Timing trigger: pulse cycle synchronization	
	Pulse width trigger: pulse width; 1. 1/2 pulse cycle(pulse width 10≤us); 2. Maximum 5uS (pulse width 10>us)	

Technical indicators

Operating conditions:

Temperature: 23°C±5°C;

Humidity: relative humidity at 30%-70%;

It shall be measured after 60 minutes of preheating, and the change in the environmental temperature at the time of measurement shall <±3°C;

Calibration cycle: 1 year

Measurement speed: 1PLC;

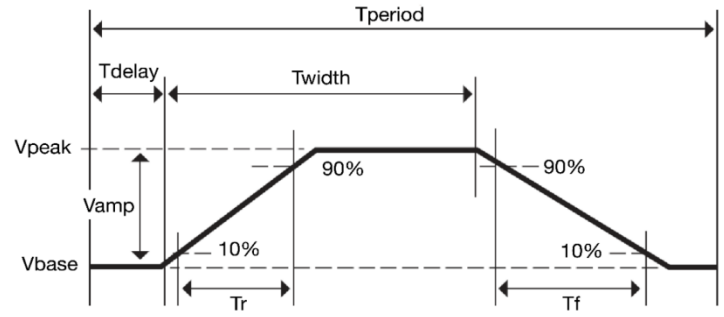
Pulse or DC output voltage indicator

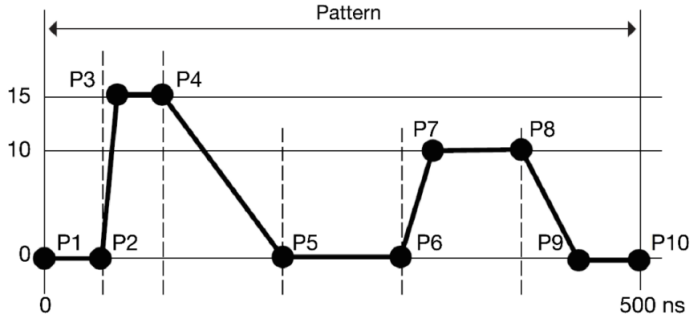
Item	Test conditions	Technical indicators	Remark
Voltage magnitude	50Ωload	-20V ~ +20V	
	Open circuit	-40V ~ +40V	
Output voltage precision	Open circuit	± (0.5%+50mV)	
Voltage magnitude resolution	50Ω load	0.2mV	|Vout| ⩽ 5V
		0.8mV	5V ⩽|Vout| ⩽ 20V
	Open circuit	0.4mV	|Vout| ⩽ 10V
		1.6mV	10V ⩽|Vout| ⩽ 40V
Output interface		SMA	
Internal resistance		50Ω ± 1%	
Output short-circuit current		800mA peak value (400mA mean value)	
Output overshoot (ring)	50Ω load	± (5%+20mV)	

Pulse parameter and scope (both have 50Ω terminal load, and shall be of open-loop control indicator, and high-speed pulse)

Item	Sub-item	Technical indicators	Remark
Frequency scope		0.1 ~ 33MHz	
Pulse cycle	Programmable scope	40ns ~ 10s	
	Resolution	10ns	
	Minimum cycle	100ns	(Vout ⩽ 10V)
	Precision	±1% (0.01%+200ps)	
Pulse width	Programmable scope	20nS ~ (pulse cycle -10ns)	
	Resolution	2.5ns	Vamp<10V
		20ns	Vamp>10V

	Minimum value(10%~90% edge)	120nS (60ns typical value)	
	Precision	± (3%+2ns)	
Pulse process time (Tr and Tf)	Programmable scope	20ns ~ 400ms	
	Resolution	2ns	Tr+Tf≤10us
		20ns	Tr+Tf>10us
	Minimum value (10%~90% edge)	30ns	Vamp≤ 5V
		35ns	Vamp≤ 10V
		40ns	Vamp≤ 20V
		60ns	Vamp≤ 20V
	Precision	-5%~+5%+25ns	Vamp≤ 10V
		-5%~+5%+40ns	Vamp≤ 20V





Point	Time	Voltage
1	0	0.0 V
2	50 ns	0.0 V
3	70 ns	15.0 V
4	100 ns	15.0 V
5	200 ns	0.0 V
6	300 ns	0.0 V
7	320 ns	10.0 V
8	400 ns	10.0 V
9	450 ns	0.0 V
10	500 ns	0.0 V

1. Specified at 1 PLC (20 ms = (5 µs sample + 5 µs interval) x 2,000 samples)

Supplementary indicators

Item	Technical indicators	Test conditions
Pulse width jitter	0.001%+150ps	
Pulse cycle jitter	0.001%+150ps	
Maximum voltage slew	1000V/us	Vamp=40V(50Ω Load)

rate		
Output noise	20mVrms	
Advanced function		
Voltage monitoring	Terminal voltage of SPGU monitoring test unit	
Measurement precision	± (0.1%+25mV)	
Measurement resolution	50uV	
Voltage compensation	HV-SPGU can measure impedance of the tested unit, and then adjusts the output voltage in accordance with impedance of the tested unit.	

Purchasing information

Output connector (LO end), quick reference, USB flash disk (including PDF manual, fast I/V measurement software and driver).

Product model	
S3023P	High Voltage Semiconductor Pulse Generator Unit

Environmental indicators

Environment	It shall be used in indoor facilities
Operating	0 °C ~ +50°C, 30 % ~ 70 % Relative Humidity with no condensation
Storage	-30 °C ~ 70°C, 10 % ~ 90 % Relative Humidity with no condensation
Altitude	Operating altitude: 0 m to 2000 m, storage altitude: 0 m to 4600 m
Preheating	1 hour

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*This information is subject to change without notice.