TECHNICAL DATA SHEET

VXI Instruments
the test solutions provider

AXV7607
High Voltage SMU



LAN
USB

Features

- Extremely low noise with linear output stage
- Output voltage from -1500 V up to 3000 V
- Very fast rise and fall times
- Output current in pulse mode max ±30 mA
- Output current in continuous mode maximum ±8 mA
- Integrated voltage measurement unit
- Integrated current measurement unit
- Integrated voltage monitor
- Integrated current monitor
- Integrated sampling function for voltage and current measurement unit
- Current measurement resolution down to the pA range
- Integrated LAN interface
- Further interfaces on request

Product Information

The AXV7607 high voltage SMU is developed for fast semiconductor and cable testing. The AXV7607 can be used as a voltage or current source.
To maximize the test throughput the AXV7607 provides a linear MOSFET power amplifier with bipolar output and a programmable slew rate of up to 1000 V/ms.

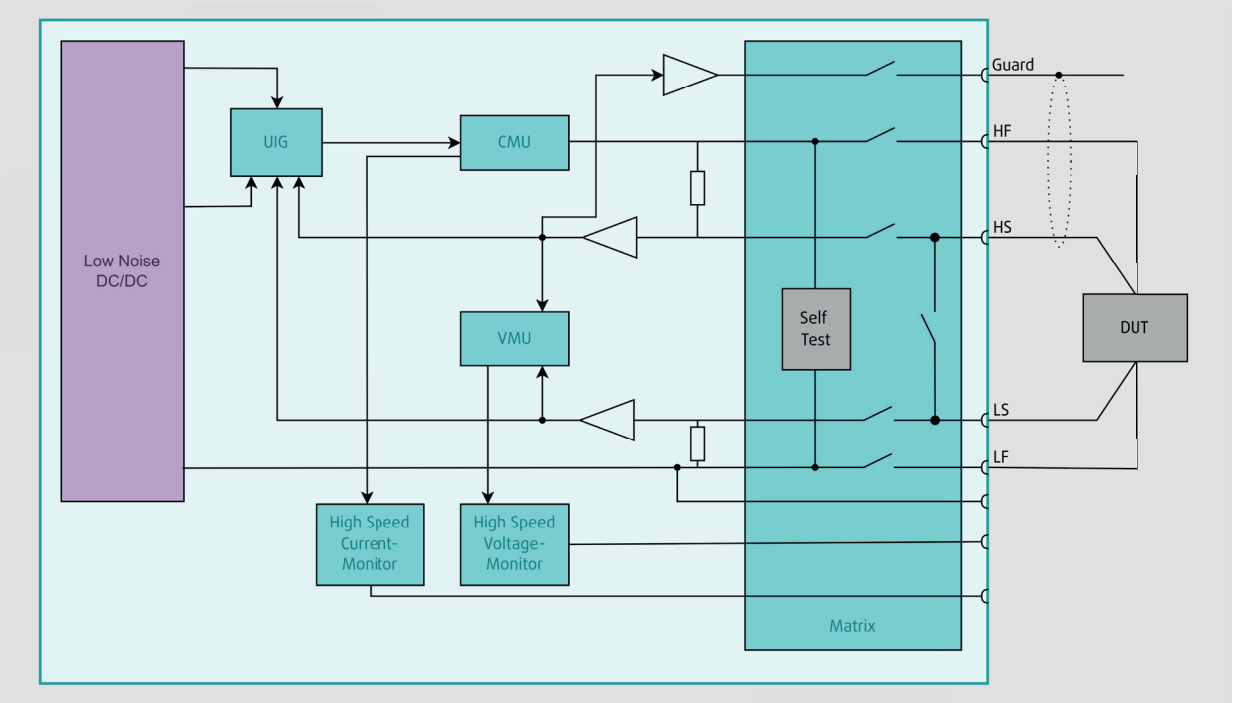
The AXV7607 provides five current ranges and is able to generate currents down to the nA range. In conjunction with the integrated Voltage Measurement Unit (VMU) all requirements of high voltage semiconductor testing can be met. The integrated guard amplifier can be used to drive the cable shielding and reduce the leakage current in the DUT cabling.

The integrated Current Measurement Unit (CMU) is extremely fast and is equipped with seven measurement ranges. This allows current measurement down to the pA range. With parallel trigger signals VMU and CMU can do synchronous measurements.

Monitoring of high output voltages with external equipment is a great safety problem. Therefore the AXV7607 is equipped with a fast voltage monitor, which provides a divided output voltage for safe monitoring. Precise monitoring of very low currents down to pA with external equipment is usually very difficult and special equipment is needed. To simplify this task, the AXV7607 provides a fast current monitor.

In the integrated relay matrix all high voltage signals (FORCE, SENSE, GUARD) are connected via relays to the output. Additional relays and switchable resistors provide self-test capabilities.

All AXV7607 high voltage outputs (FORCE, SENSE, GUARD) and the monitor outputs are short-circuit protected.



General Specification

General	Specification
AC line voltage	230 V_{RMS} ± 10 %
AC line frequency	47 Hz ... 63 Hz
Power consumption	<100 W
Operating temperature	0 ... 50 °C
Operating altitude	<2 000 m
Relative humidity	Up to 85 % at 35 °C
Storage temperature range	-25 ... 70 °C
Remote interface	LAN (Ethernet), USB (on request)
Size (W x H x L)	19 " x 3 U x 660 mm
Weight	typ. 15 kg
Electrical safety	According to EN61010-1
Isolation output LF to PE	Direct connection of LF to PE

Generator Voltage Source

Voltage Source, Generator	Specification	Comment
Resolution	16 Bit	In all ranges
Compensation stages	7	3 standard, 4 optional on request
DC Accuracy	0.05 % + 0.05 %	± (of programmed value + of range)
Maximum capacitive load	20 nF	
Guard buffer	2 mA	
Slew rate	10 ... 1000 V/ms	Programmable

Generator Current Source

Current Source, Generator	Specification	Comment
Resolution	16 Bit	In all ranges
Compensation stages	7	3 standard, 4 optional on request
Range 1 DC accuracy	-10 µA ... +10 µA 0.2 % + 0.2 %	± (of programmed value + of range)
Range 2 DC accuracy	-100 µA ... +100 µA 0.1 % + 0.1 %	± (of programmed value + of range)
Range 3 DC accuracy	-1 mA ... +1 mA 0.1 % + 0.1 %	± (of programmed value + of range)
Range 4 DC accuracy	-10 mA ... +10 mA 0.1 % + 0.1 %	± (of programmed value + of range)
Range 5 DC accuracy	-30 mA ... +30 mA 0.1 % + 0.1 %	± (of programmed value + of range)

Notes: All product data are specified for an ambient temperature of 23 °C ± 5 K, after 60 min warm-up, within 1 year after calibration. Product specification and description in this document are subject to change without notice.

Voltage and Current Measurement Unit

Voltage Measurement Unit	Specification
Resolution	16 Bit
Overrange	±15 %
Maximum input voltage	2500 V
Filter frequencies	100 Hz, 1 kHz, 10 kHz, 100 kHz
DC accuracy[1]	±(% of reading + % of range)
Range 100 mV	1.0 % + 2.0 %
Range 1 V	0.1 % + 0.2 %
Range 10 V	0.1 % + 0.1 %
Range 100 V	0.1 % + 0.1 %
Range 1 kV	0.1 % + 0.1 %
Range 10 kV	0.1 % + 0.1 %

Current Measurement Unit	Specification
Resolution	16 Bit
Overrange	±15 %
Overload protection	180 mA in all ranges
Filter frequencies	100 Hz, 1 kHz, 10 kHz, 100 kHz
DC accuracy[1]	±(% of reading + % of range)
Range 100 nA	0.5 % + 0.5 %
Range 1 µA	0.2 % + 0.2 %
Range 10 µA	0.1 % + 0.1 %
Range 100 µA	0.1 % + 0.1 %
Range 1 mA	0.1 % + 0.1 %
Range 10 mA	0.1 % + 0.1 %
Range 100 mA	0.1 % + 0.1 %

[1] Specification applies after 60 min warm-up at 23 °C ± 5 K, 100 Hz filter frequency, average of 20 measurements at 1 kS/s, within 1 year after calibration.

Voltage and Current Monitor

Voltage Monitor	Specification
Output voltage	-5 V corresponds to the positive full scale of the selected VMU range
Internal resistance	10 kΩ
Accuracy	±5 % of range

Ordering Information

Device	Order number	Comment
AXV7607-1500	VP1057-3	Range: -1500 V ... +1500 V
AXV7607-2500	VP1058-3	Range: 0 V ... +2500 V
AXV7607-3000	VP1407-0	Range: 0 V ... +3000 V

On Request
USB Interface

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