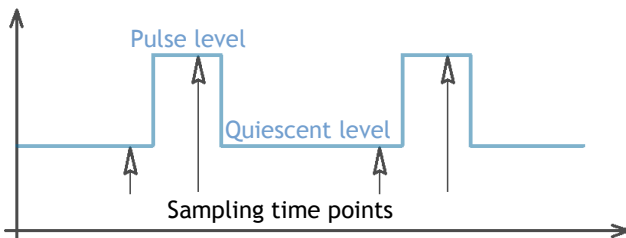


Pulsed Voltage Source $\pm 25V \pm 200mA$

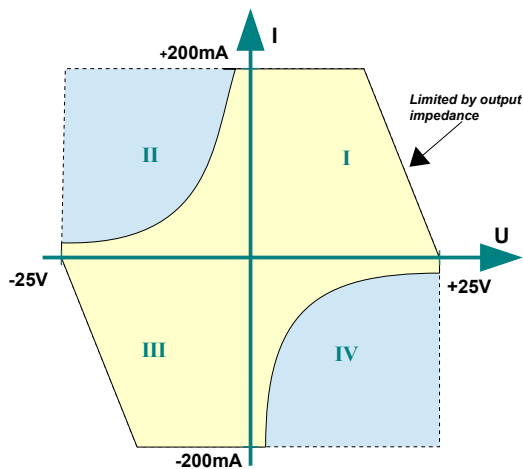
- ✓ Pulse between two programmable levels
- ✓ Voltage and current measurement for both levels
- ✓ Ideal for RF transistor Operating Life Test, used with iTest BE2430 Power Supply and BA2431 Drain Pulse Unit

Main features

- 4-quadrant DC or Pulse voltage source
- Down to 1 μ s pulse width, 20ns time resolution
- Simultaneous voltage and current sampling
- Pulse and Quiescent level sampling time points can be chosen automatically by the source or manually by the user



- 1 voltage range: $\pm 25V$
- 2 current ranges: $\pm 5mA$ and $\pm 200mA$
- No transient when powering on/off or switching on/off
- Output on isolated BNC connector
- Input and Output triggers on SMB connectors
- Operating range:
DC: yellow area, Pulse: yellow + blue areas



Bilt system features

- Host connections at chassis level including Ethernet and USB.
- Complete free software package provided, including a turnkey PC software and NI Labview[®] drivers

Application examples

- General purpose laboratory programmable pulse or DC source
- Transistor's Gate or Base biasing in pulsed applications
- Reliability Test /operating Burn-In & Life-Test

BE2501 Module

Operating Area

Parameters	Conditions/Comments	Min	Max
Voltage programming range		-25V	+25V
Pulse amplitude	Difference between pulse and quiescent levels	-30V	30V
Output current	Guaranteed ; source stops if $\pm 260\text{mA}$ is exceeded	-200mA	+200mA
Output power	Source, DC		3W
	Sink, DC		0,5W
Pulse	Width	1 μs	10s
	Frequency	0,1Hz	100kHz
	Duty cycle	0%	100%
Temperature	Ambient temperature in front of the chassis rear openings	10 °C	30 °C

Electrical Specification

Parameters	Conditions/Comments	Value
Voltage programming resolution	16-bit	1mV
Voltage programming accuracy	2-year accuracy, no load, 30-minute warm-up - DC operation (same quiescent and pulse levels) - Pulse (different quiescent and pulse levels)	20mV+0,1% 40mV+0,1%
Voltage noise	10Hz-10kHz, no load, at 0V, peak-to-peak DC-1MHz, no load, at 0V, peak-to-peak	0,3mV 3,5mV
Voltage settling time	Pulse, 0% to 95%, no load	100ns
	DC, Pulsed and Quiescent voltage levels, 0 to 95%	30ms
Time resolution	Pulse and measurement time resolution	20ns
Overload response time	Source stops if $\pm 260\text{mA}$ is exceeded	60ns
Output impedance	Source ON Source OFF, between both outputs ; max. allowed current: 1A	50 Ω \pm 1% 50m Ω
Output capacitance	Internal output capacitance	20pF
Earth Isolation	Isolation Voltage	$\pm 50\text{V}$ max.
	Isolation resistance	$\approx 50\text{k}\Omega$
	Capacitance between any output terminal and the earth	100nF

Measurement

Parameters	Conditions/Comments	25V range	200mA range	5mA range
ADC resolution	16-bit	0,9mV	7 μA	170nA
Noise	Typical value	$\pm 2,7\text{mV}^2$	$\pm 21\mu\text{A}^3$	$\pm 1,8\mu\text{A}^{3,5}$
Settling time ¹	To 99,9% of value	0,35 μs	0,35 μs	0,75 μs
	To full ADC resolution	0,45 μs	0,45 μs	1 μs
Absolute accuracy ⁴	Offset + % of reading, 2-year	10mV + 0,1%	150 μA + 0,1%	10 μA + 0,1% ⁵

(1) time for the measurement to reach the actual value, starting from the pulse edge, simulation results, half range step

(2) voltage settings at 0V, output shorted

(3) voltage settings at 0V, output open-circuit, in DC or continuous pulse mode only; $\pm 2,5\mu\text{A}$ otherwise

(4) valid after measurement has settled to the full ADC resolution

(5) 5mA range is digitally filtered, leave at least 33 pulse periods for rated noise and absolute accuracy

BE2501 Module

Application Example

RF transistor Operating Life Test up to 60V 30A

The BE2501 low noise pulsed source module is used for biasing the transistor's Gate in a RF device Operating Life Test application, in combination with a remote Pulse Source and Measurement Unit (PSMU) to supply the transistor's drain.

The BE2501 integrates a digital pulse generator and input/output trigger signals for the overall synchronization of the test bench.

The Bilt system offers a highly integrated and low cost solution for biasing RF transistors in single or multi-channel applications. The pulse can be performed by switching either the Gate, the Drain or/and the RF signal.

The pulse sequence is fully programmable using a time resolution of 20ns. Drain and Gate voltage and current are synchronously and simultaneously sampled.

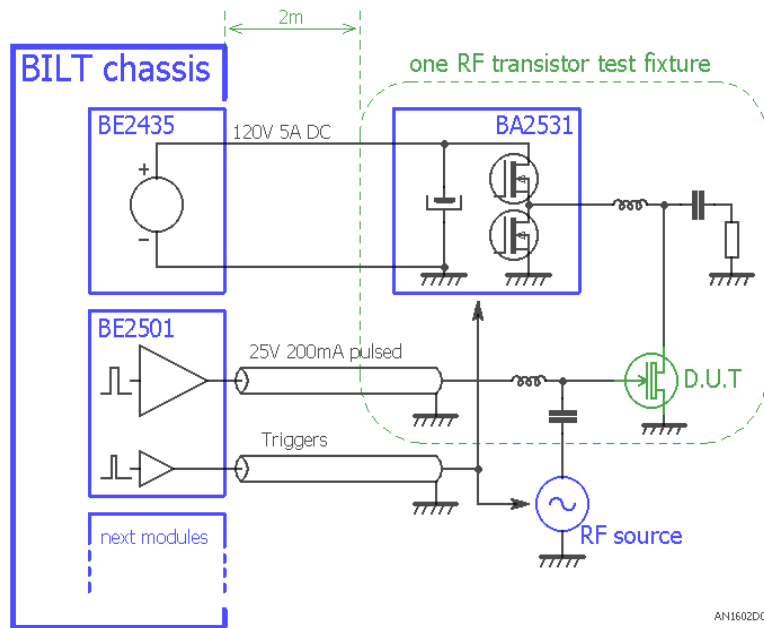
The BA2531 PSMU, located close to the device, integrates a very large capacitor to deliver large current pulses at low frequency while maintaining very small voltage drops.

Safe operation is guaranteed by:

- A very fast programmable current breaker in the PSMU, also called "Efuse" function
- A Drain DC power supply designed to drive safely very large capacitor values and switching loads
- A fast trigger prevents the PSMU to operate if the Gate Pulse Source is off or shuts down



A very small 5-slot BILT chassis hosts the BE2501 and BE2435 modules (photo is not contractual)



AN1602D01

[Read the AN1602 application note for further details.](#)

BE2501 Module

Related products

BE2430	120V 5A isolated Voltage DC Source, high capacitive load
BA2431	30A remote Pulse Source and Measurement Unit (PMSU)

Documentation

BE2501 Brochure	Rev 1.5	29 Sept. 2021	module data sheet / specifications and main features
BE2501 User Manual			module user manual including chassis, network, software, connections description
http://www.bilt-system.com/			bilt user manual and any other Bilt modules specification

Standards, Calibration, Warranty and Maintenance

Bilt system is compliant with the applicable European Directives and holds the CE mark.

Any iTest product comes with a two-year parts and labour guarantee and a calibration certificate if applicable. A telephone support service is also available for the same period.

Our calibration laboratory performs according to ISO/CEI 17025 “*General requirements for the competence of testing and calibration laboratories*”. All measurements are traceable to the International System of Unit.

The recommended calibration interval of this product is 2 years.

On request, Itest can proceed to scheduled calibration (in our workshop or at the customer's site).

Maintenance can also be performed on-site or in our workshop.



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