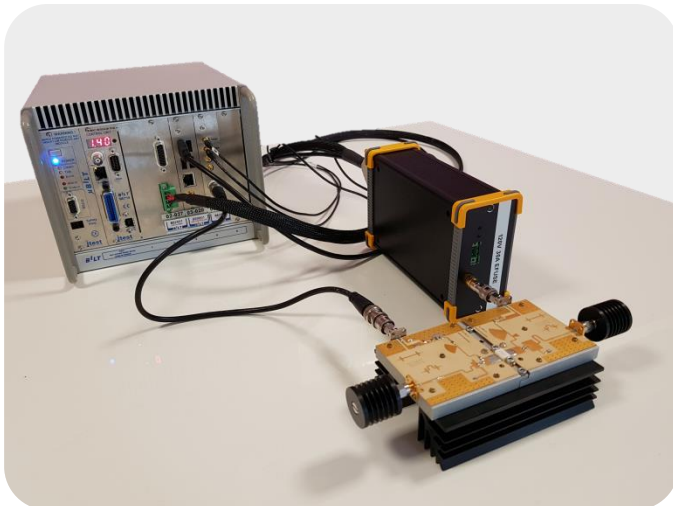


BILT[®] Pulsed RF & DC Burn-IN & Life Test Solutions

- ✓ *Highly integrated and cost effective*
- ✓ *Custom pulse conditions / 20ns resolution*
- ✓ *RF & DC signals*

Main Features

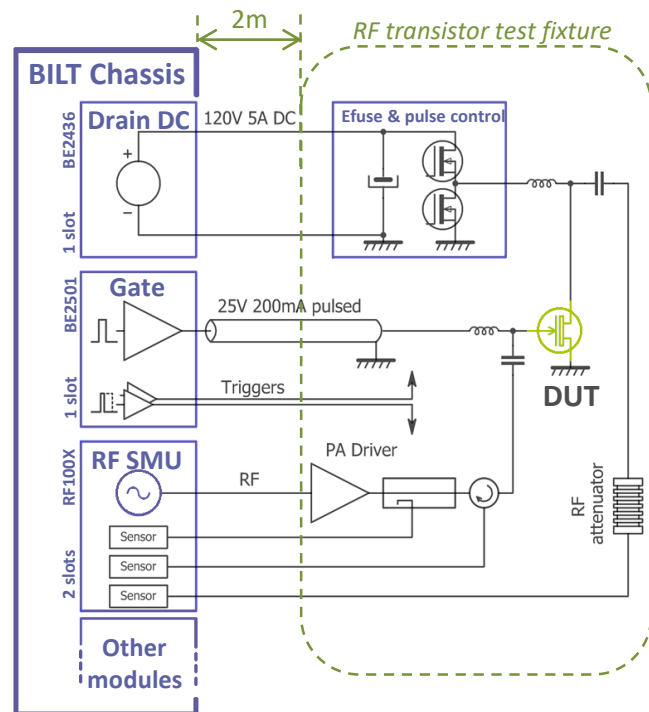
- **Up to 120 V, 30 A Pulsed, 5A DC Drain Source.**
- Very fast **Drain current breaker**, also called "Efuse" function.
- Up to **+25V, +200mA Gate pulser.**
- Up to **6 GHz** frequency operation.
- Power measurements using embedded receivers.
- **16 bits** measurement resolution.
- Independent source/measurement channels for more flexibility.
- Module slots available for additional functionalities:
 - RF control
 - Thermal Control
 - Auxiliary DC source...



System description

The system described in the schematic below represents 4 slots of the BILT chassis and Pulse control module with E-fuse.

Unitary Channel synoptic



One RF transistor requires 4 modules plugged inside the Bilt chassis, 2 for Biasing and 2 for RF Power control:

- BE2435 (240W) or BE2436 (120W) - The Drain power supply and USB driver for BA2531
- BE2501 - The Gate source, delivers both the pulsed signal and triggers for synchronization.

System Specifications

BE2431 Isolated DC Drain Voltage Source

- up to 120V or 5A
- 18 bit programming resolution
- stable for any load capacitor
- 240W source and 25W sink capability
- remote sense voltage read back
- programmable DC current compliance
- USB interface to the remote pulser

BA2531 Remote Drain Pulse Controller

- fast power switch, 2 levels: pulse & ground
- up to 120V 30A pulsed, 5A dc
- large storage capacitor rated 60V or 120V
- 100ns smart ultra fast current breaker
- 20ns resolution programmable timing
- 500ns pulse measurement settling time
- 16 bit voltage and current read-back sampler

BA2501 Gate Pulse Source

- Up to $\pm 25V \pm 200mA$
- Linear power amplifier, 50Ω output impedance
- 2 programmable levels: quiescent & pulsed
- 20 ns resolution programmable timing
- $0,5\mu s$ pulse measurement settling time
- 16 bit voltage and current read-back sampler
- 2 current ranges: $\pm 5mA$ and $\pm 200mA$
- triggers in/out for overall synchronization

Be2601 RF Control Module

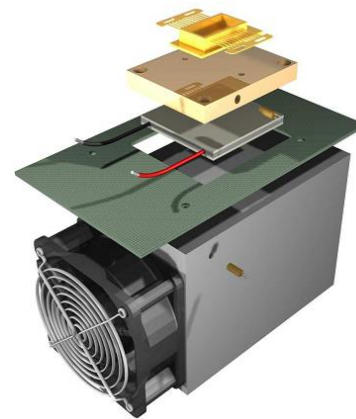
- 2-6 GHz RF control module
- 20 dBm typical signal generator power
- Power resolution of 0.05 dBm
- 40 dB pulse switching isolation
- 1 us switching time
- 40dB Dynamic range
- Measurement precision of $\pm 0.25dB$

Bilt Chassis

- Driver for EasyStress software, to perform any multichannel and user configurable test bench.
- Complete free software package provided, including BiltLab, a turnkey PC software and NI Labview® drivers

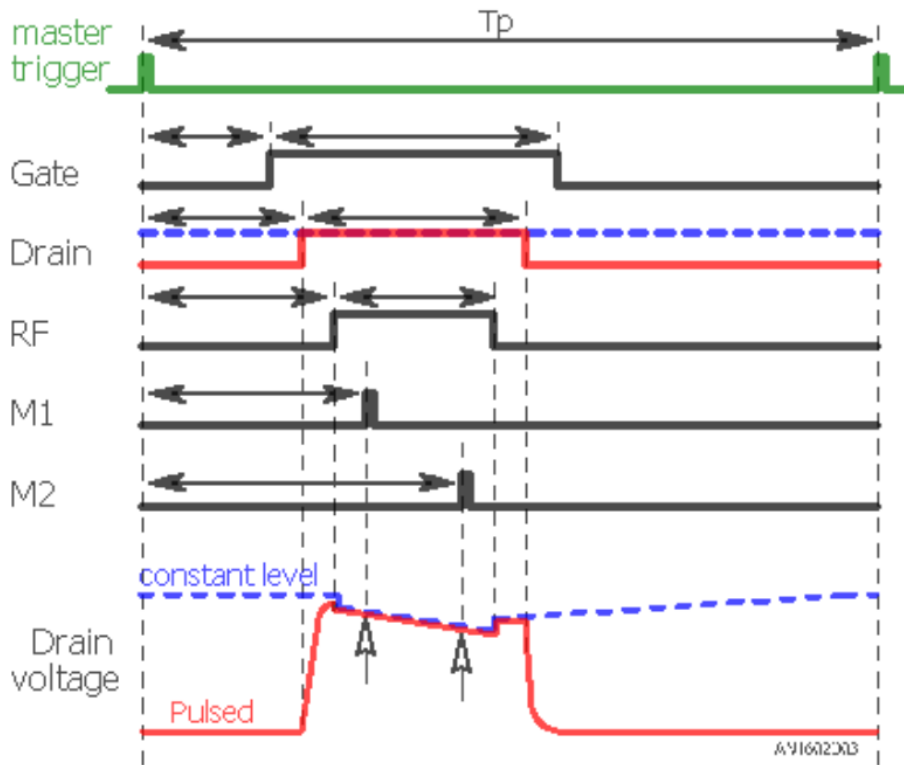
Test fixture

- RF Test Fixture with DC Bias network and RF path.
- Customized insert to accommodate different packages
- Hermetic sealing for Temperature control.





System Specifications



Pulse control and Monitoring

The switching operation is defined by programming for each signal:

- pulse enable or constant level
- pulse position
- pulse length

Then, according to the 2 sampling time positions M1 & M2, measurements are proceeded continuously for both current & voltage, Drain & gate.

These 8 channel measurements are both available for displaying at run-time and memorization of the drift throughout the test.

The example shows sampling M1 & M2 inside the current pulse for voltage drop monitoring, using either constant level or pulsed mode.

Working point area

Working point area The following table shows the relationship between several limiting parameters:

- **F** the Switching frequency, and **D** the duty cycle, defines **Ton** the pulse length
- **Ip** the pulse drain current level
- **Vd** the drain voltage level
- **Pdc** the average drain power.
- **Vdrop** the resulting drain voltage drop during the pulse

System Specifications

	Timing F, D, Ton	I _p	V _d ⁽²⁾	P _{dc}	V _{drop} ⁽¹⁾
Largest current and power pulse	1 / 120Hz * 12% = 1ms	30A	60V	220W	1.8V
High voltage & high current	1 / 600Hz * 6% = 100us	30A	120V	220W	1.8V
Largest DC & RMS current	1 / 250Hz * 25% = 1ms	20 A	45V	220W	1.2V
Shortest pulse, Highest frequency	1 / 100KHz * 20% = 2us	9A	120V	220W	0.5V
Min. current level for Efuse protection	1 / 10KHz * 10% = 10us	0.3A	120V	3.6W	0

(1) V_{drop} is a maximum value, calculated for constant drain voltage mode.

(2) When using a voltage greater than 60V, the storage capacitor value is divided by 4

Product summary

<u>BN103</u>	5-slot chassis, USB, Ethernet, 100-230V power line, 250Watts
<u>BE2501</u>	+25V 200mA pulsed voltage source module
<u>BA2531</u>	120V 30A remote pulse controller
<u>BE2430</u>	120V 5A DC source module and USB driver for BA2531
<u>RF100X</u>	2-6 GHz RF control module

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