

Systems category: Standard

- ✓ Compact and efficient design
- ✓ Embedded power supplies
- ✓ Flexible and upgradable
- ✓ Unrivaled measurement resolution and accuracy
- ✓ High reliability pulse generators
- ✓ Driven by IVCAD and IQSTAR Software

MAIN FEATURES

- Reliable pulsers with long lasting performances (thermal, SOA and DUT breakdown protections)
- Pulse or DC operation with pulse width down to 200ns from the generators
- Internal or external synchronization
- Extended stop conditions and built-in protection
- Mix-and-match input and output pulsers
- Connect systems in series for synchronizing 3+ pulsed channels
- Long pulses into the tens of seconds for trapping and thermal characterization
- Direct hardware programmability



SYSTEM DESCRIPTION

This Pulse IV system is used to bias transistors in quasi-isothermal conditions, it enables accurate compact modeling activities.



Pulser Safe Operating Area

Emergency stop when the operating point exceeds design limits: I_p , I_{rms} , I_{dc} (pulsed, RMS and DC current), V_{dc} (pulser input voltage, drain pulser only), P_{max} (DC power), F_{max} (switching frequency), Temperature

Current Breaker

Programmable thresholds: pulse current and power, quiescent current and power, transient current

Measurement Sampling Time

Fully programmable, 20ns resolution, External synchronization Mtrig & Rfpulse

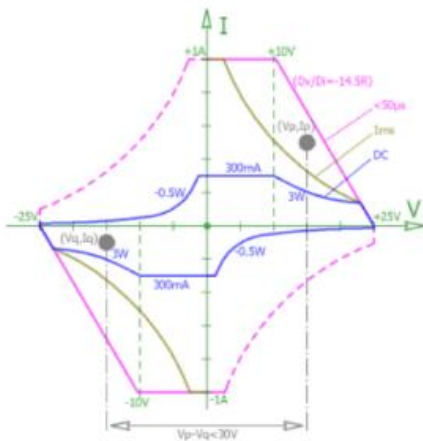
Modularity

The standard system works with two pulse generators and one control box. External signals permit to combine and synchronize several control boxes (4, 6, 8...).

SYSTEM SPECIFICATIONS

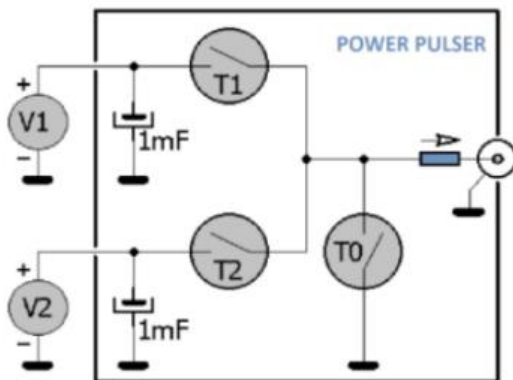
AM3211 Bipolar Probe +/-25V +/-1A

The AM3211 is a low noise floating pulse generator dedicated to bias the transistor gate, optimized to drive quickly and safely all the transistors (RF Devices, MOSFET).



AM3221 Probe +250V +30A

The AM3221 probe is a power probe dedicated to bias the transistor drain, optimized for high power pulsed measurements.



SYSTEM SPECIFICATIONS

| CONTROL BOX AM3200 SYSTEM | | |
|---|--|--|
| PULSERS | AM321 | AM3221 |
| PURPOSE | 1 GATE | DRAIN |
| OPERATING RANGE | | |
| Switched voltage levels | 2 | 2 |
| Voltage | ±25V | +250V |
| Pulsed current | ±1A | +30A |
| DC& RMS Current | 300mA | 5A |
| DC power | 3W Source, 0.5W Sink | 100W |
| Pulse Power | 10W Source or Sink | 3KW |
| SOURCE PERFORMANCE | | |
| Voltage setting resolution | 16bit | 18bit |
| Output impedance | I ≤ 0.1mA: 204Ω / I > 0.1mA: 14.5Ω | I ≤ 0.3A: 2Ω / I > 0.3A: 0,4Ω |
| PULSE TIMING | | |
| Rise Time (10% -90%) Fall Time (10% -90%) | fast(*): 33ns (typ. value) fast(*): 32ns (typ. value) | fast(**): 20ns (typ. value) fast(**): 22ns (typ. value) |
| Pulse timing | Resolution: 20ns, Width: 200ns to DC (Power limits) | |
| Fmax | 500kHz | |
| MEASUREMENT PERFORMANCE | | |
| V range | 25V | 250V/5V |
| I range | 1A/10mA/0,1mA | 30A/3A/0,3A |
| V & I ADCresolution | 16bit | 16bit |
| Noise free resolution (average filter 128 samples, at 0 voltage and current) | 0,5mV 30μA/3μA/0,3μA | 3mV/0,25mV 0,3mA/0,13mA/10μA |
| Settling time | 300ns | 300ns |
| Bandwidth (greatest range) | 10MHz | 10MHz |
| Output connector | D-SUB15 | 2 BNC |

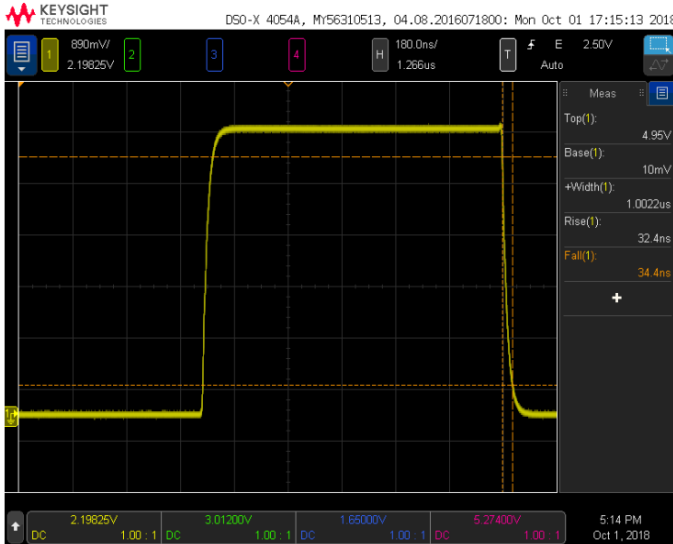
* : AM3211, speed : fast, no load, 5V step

** : AM3221, speed : fast, no load, 100V step

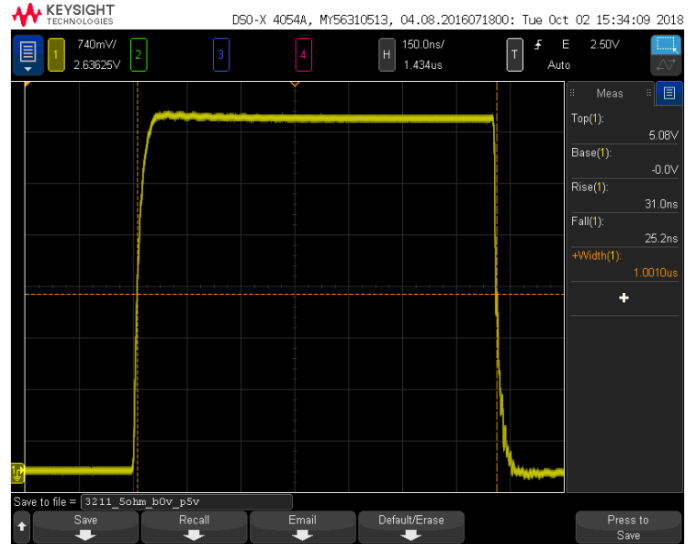
SYSTEM SPECIFICATIONS

AM3211 Bipolar Probe +/-25V +/-1A

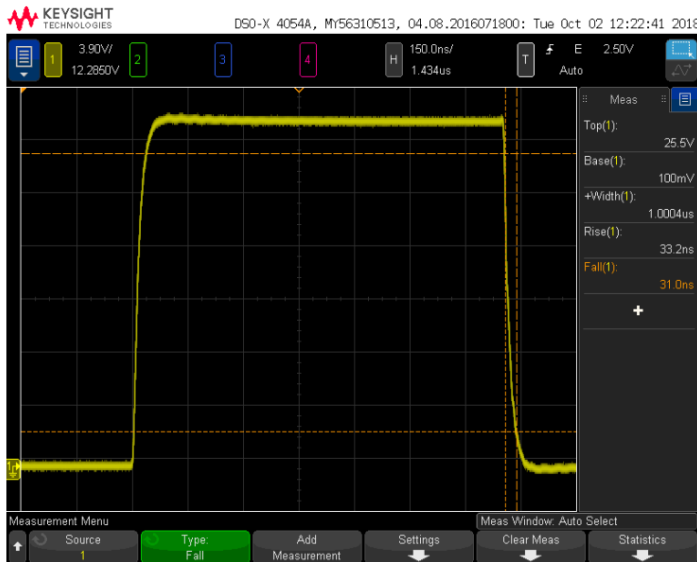
Example of pulsed voltages provided by the AM3211 bipolar probe



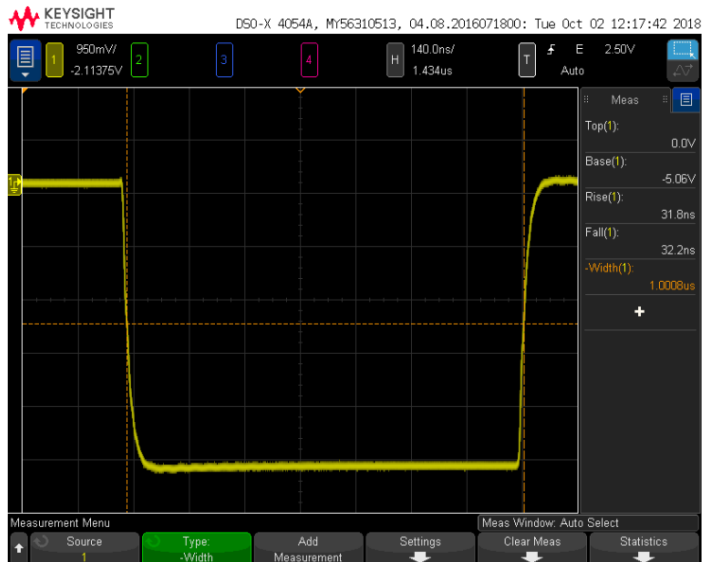
Load=open, -5V -> +5V



Load=5Ω, 0V -> +5V @ 1A



Load=open, 0V -> +25V



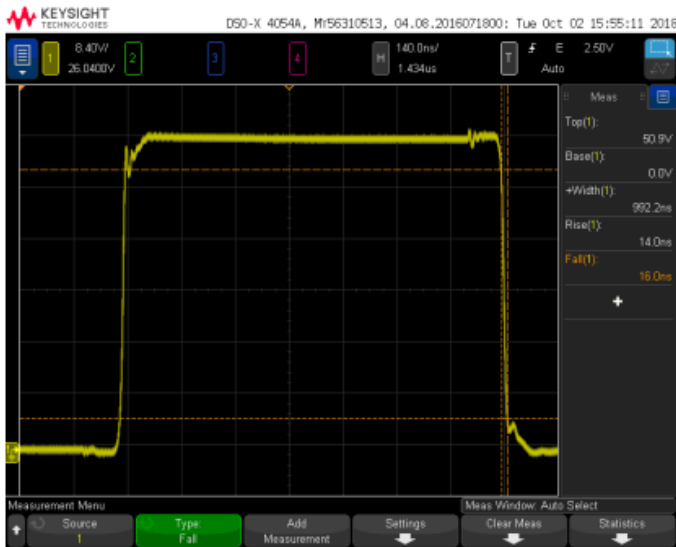
Load=open, 0V -> -5V

Voltage Pulse Shape measured with an Oscilloscope (Keysight DSO-X, 4054A & 700MHz Voltage probe N2894A).

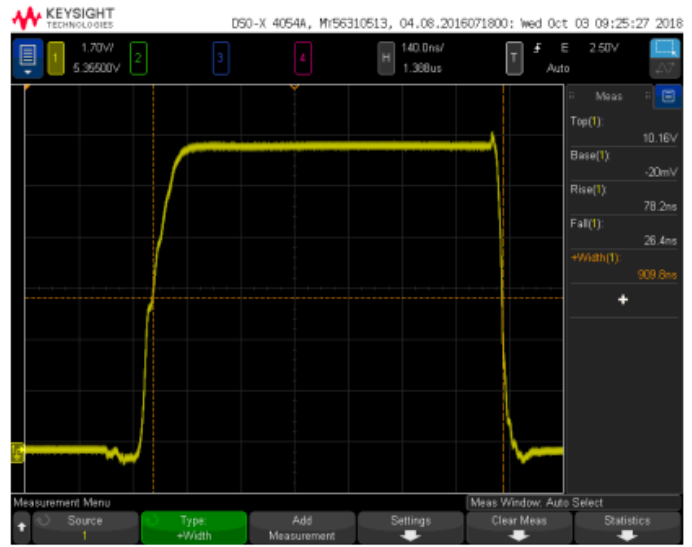
SYSTEM SPECIFICATIONS

AM3221 Probe +250V +30A

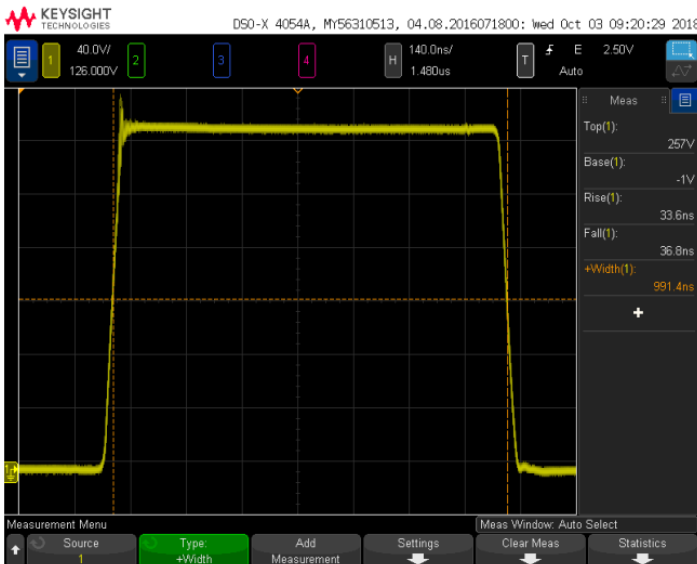
Example of pulsed voltages provided by the AM3221 bipolar probe



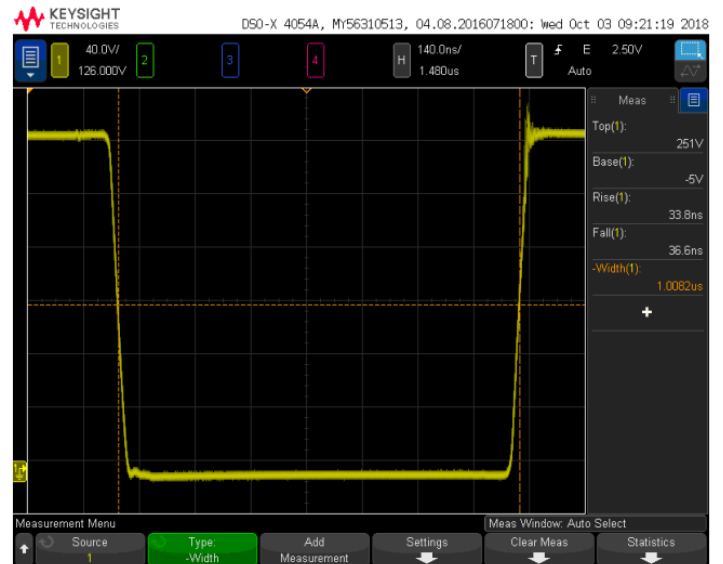
Load=open, 0V -> +50V



Load=5Ω, 0V -> +10V @ 2A



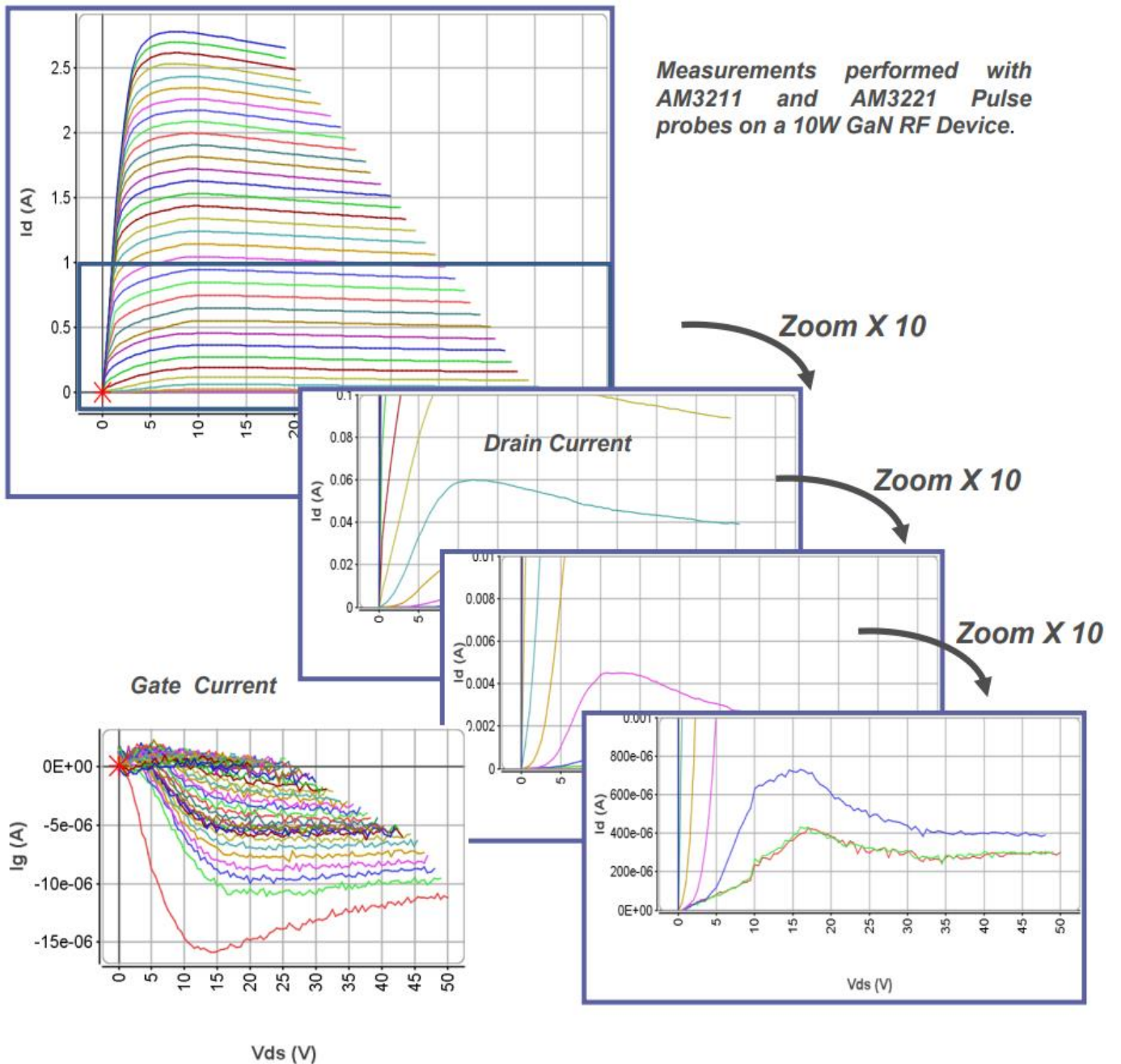
Load=open, 0V -> +250V



Load=open, 250V -> 0V

Voltage Pulse Shape measured with an Oscilloscope (Keysight DSO-X, 4054A & 700MHz Voltage probe N2894A)

Ultimate Measurement Speed and Performances



Warranty

Any AMCAD product comes with a two-year parts and labour warranty, when returned to our workshops. A phone support service is also available for the same period. At the end of the initial two-year period, a further contract can be subscribed, including:

- A preventive functional check and calibration of the modules (on site or in our workshop)
- A further two-year warranty period

Quality Regulations & Environment

The PIV System and all modules are compliant to the applicable European directive and hold the CE mark.

- ISO/CEI 17025 compliant calibration for any DC source or measurement module, calibration certificate provided.
- Serial number based life cycle management
- All products are 100% tested (test reports on demand)
- AMCAD only uses RoHS compliant components and does not use substances banned by the COSHH regulation.
- AMCAD complies with the relevant national regulations related to the safety and health of its employees against hazardous substances.
- The protection degree of the PIV system is IP20 according to CEI 60529.



AMCAD Engineering
Advanced Modeling for Computer-Aided Design

PIV SYSTEM – AM3200_BROCHURE_REV10

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Specifications are subject to change without notice