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# PULSE IV SYSTEM

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**(AM3200 SERIES 3)**



[www.amcad-mw.com](http://www.amcad-mw.com)

# SYSTEMS CATEGORY: STANDARD

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



## MAIN FEATURES :

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



## System description

This Pulse IV system is used to bias transistors in quasi-isothermal conditions, enabling 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

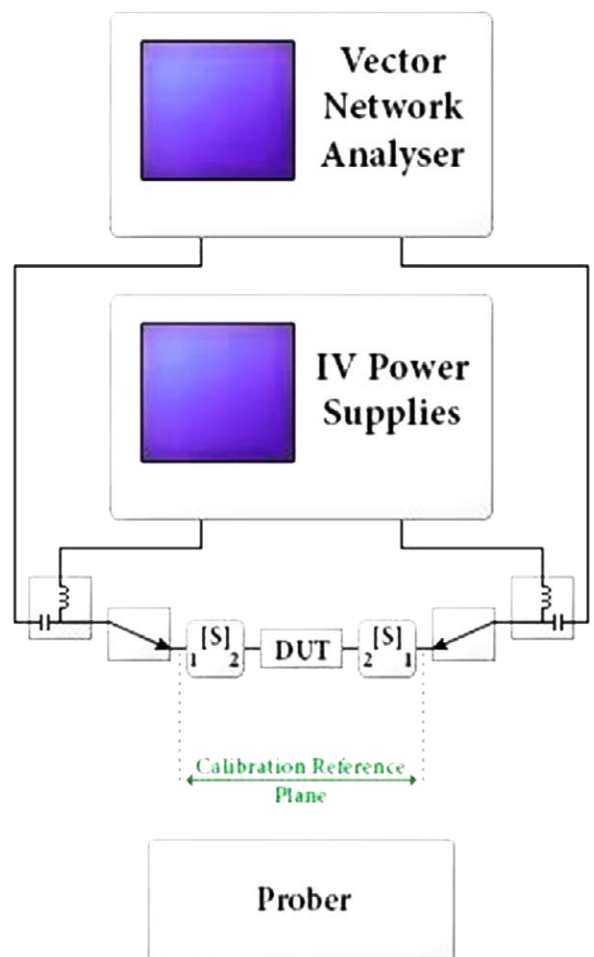
Programmable thresholds: pulse current and power, quiescent current and power, transient current.

## Measurement Sampling Time

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

## Modularity

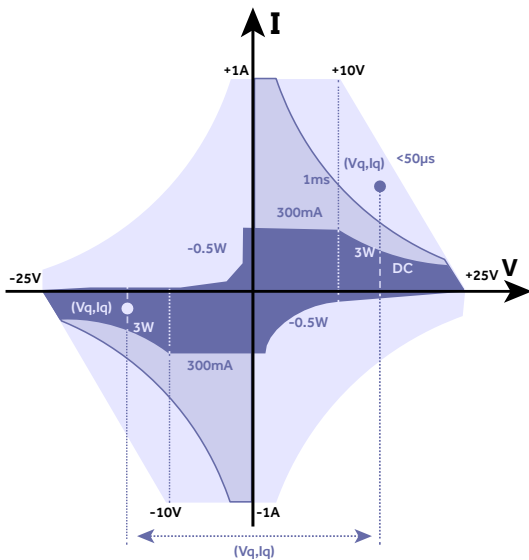
The standard system works with two pulse generators and one control box. External signals permit to combine and synchronize several control boxes (4, 6, 8...).





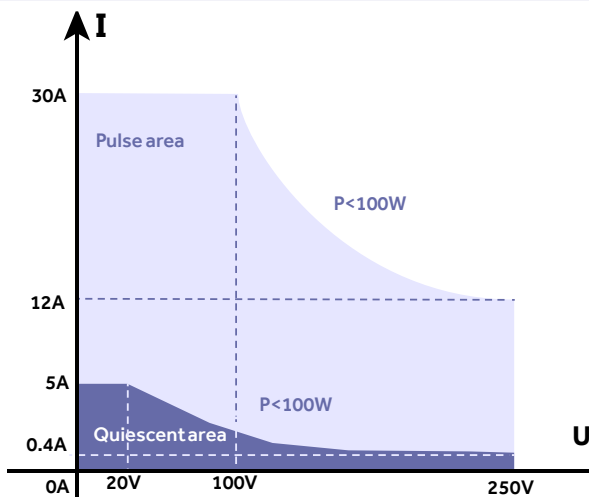
## AM3211 BIPOLAR PROBE $\pm 25V$ / $\pm 1A$ :

The AM3211 is a low-noise floating pulse generator dedicated to bias the transistor gate, optimized to drive quickly and safely all 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

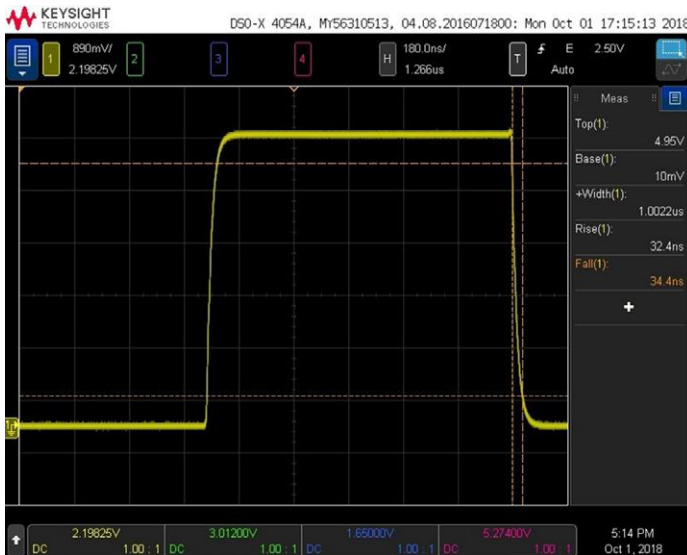
### CONTROL BOX AM3200 SYSTEM

PULSERS	AM3211	AM3221
PURPOSE	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%)	fast(*): 33ns (typ. value)	fast(**): 20ns (typ. value)
Fall Time (10% - 90%)	fast(*): 32ns (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 ADC resolution	16bit	16bit
Noise free resolution (average filter 128 samples, at 0 voltage and current)	0.5mV	3mV/0.25mV
Settling time	300ns	300ns
Bandwidth (greatest range)	10MHz	10MHz
Output connector	D-SUB15	2 BNC

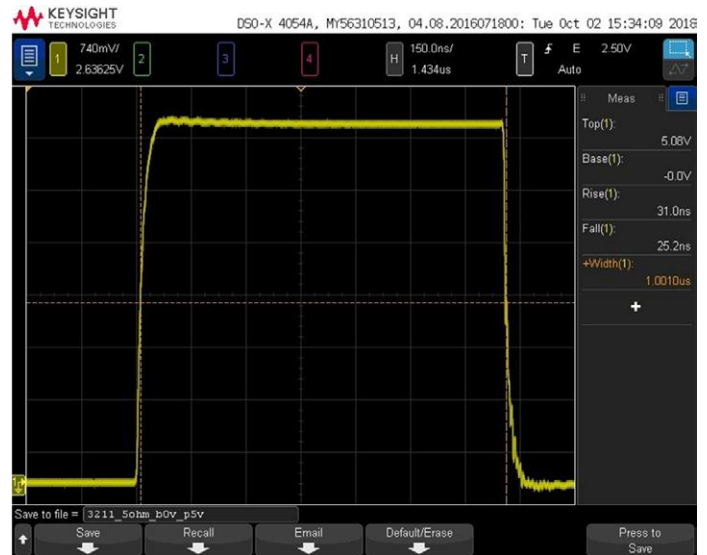
\*: AM3211, speed: fast, no load, 5V step    \*\*: AM3221, speed: fast, no load, 100V step

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

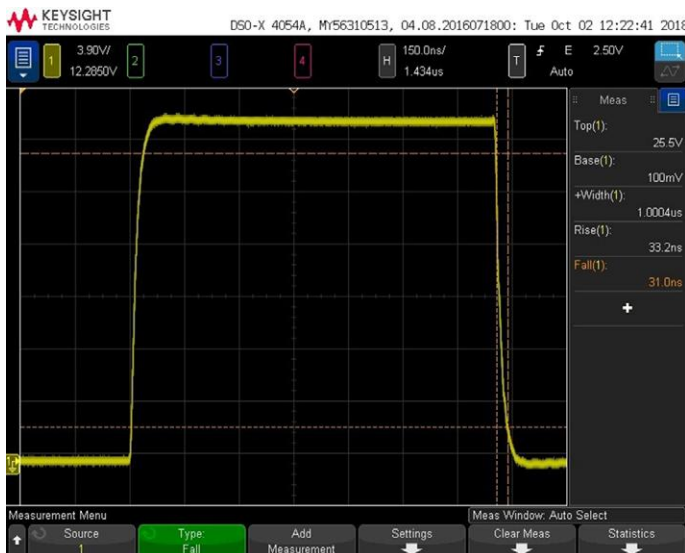
*Example of pulsed voltages provided by the AM3211 bipolar probe*



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



**Load=5W, 0V +5V at 1A**



**Load=open, 0V -> +25V**

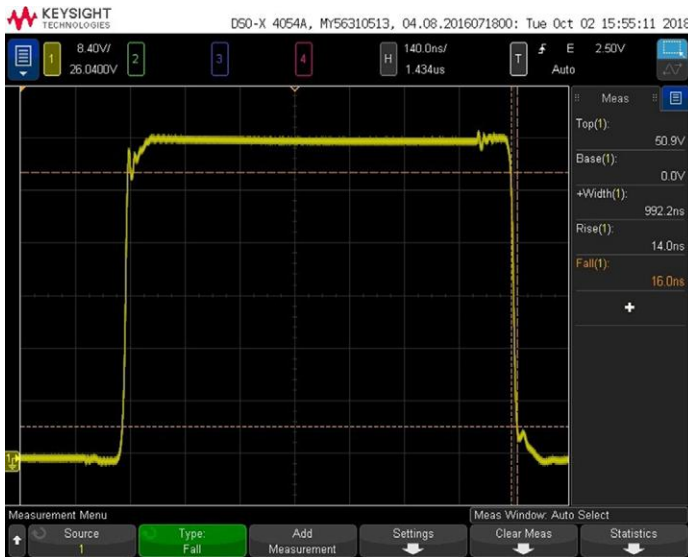


**Load=open, 0V -> -5V**

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

# AM3221 Bipolar Probe +250V+30A

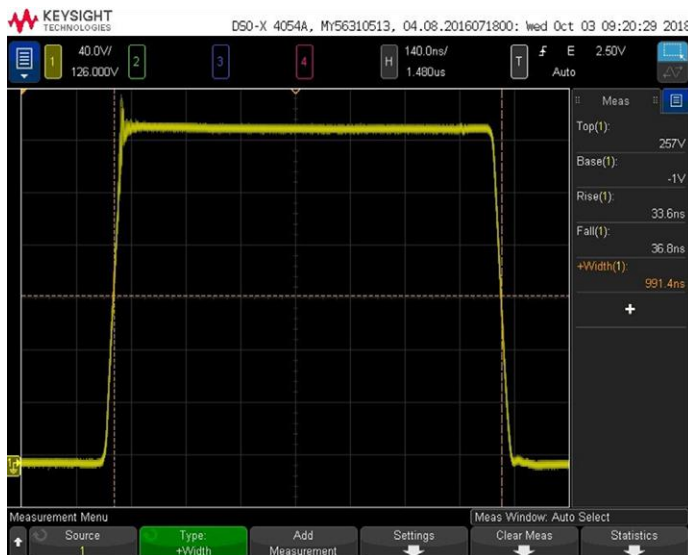
*Example of pulsed voltages provided by the AM3211 bipolar probe*



*Load=open, 0V -> +50V*



*Load=5W, 0V -> +10V at 2A*



*Load=open, 0V -> +250V*

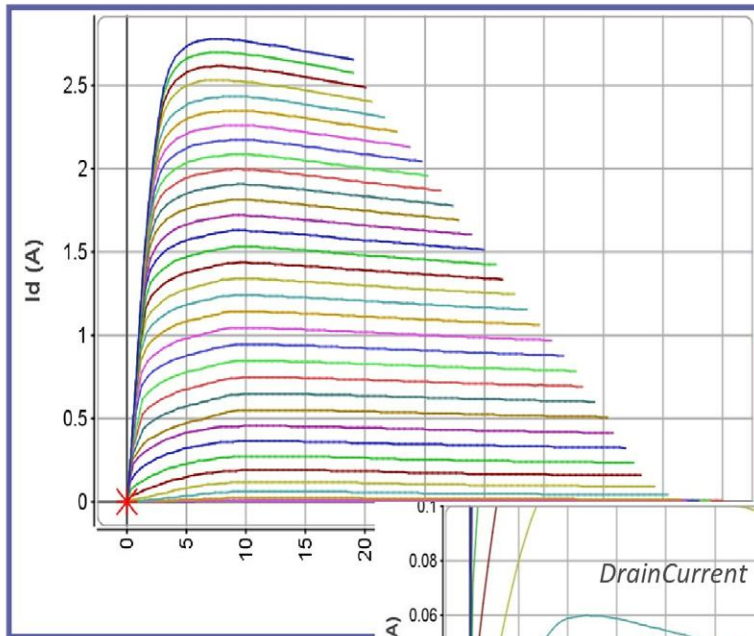


*Load=open, 250V -> 0V*

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

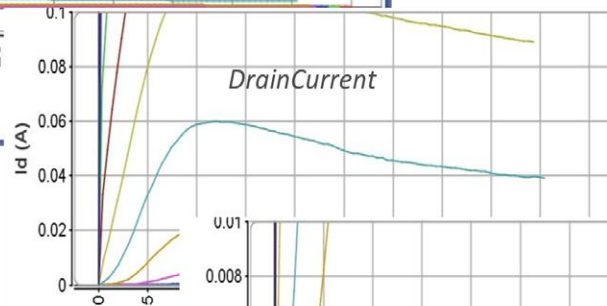


## Ultimate Measurement Speed and Performances

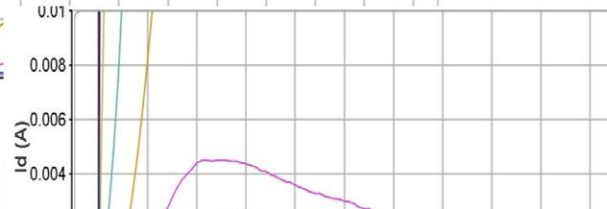


Measurements performed with  
AM3211 and AM3221 Pulse  
probes on a 10W GaN RF Device .

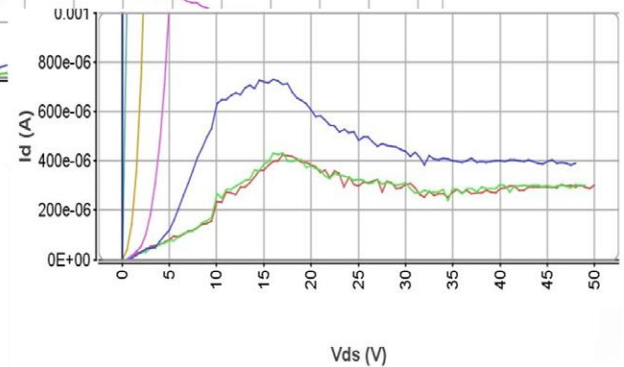
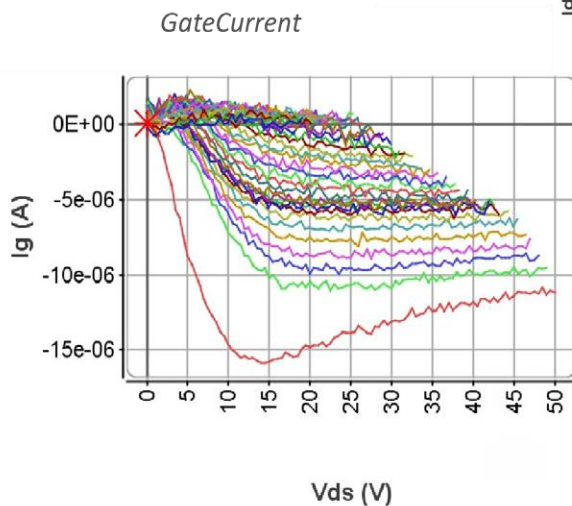
Zoom X 10



Zoom X 10



Zoom X 100



## Warranty

Any AMCAD product comes with a two-year parts and labor 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:

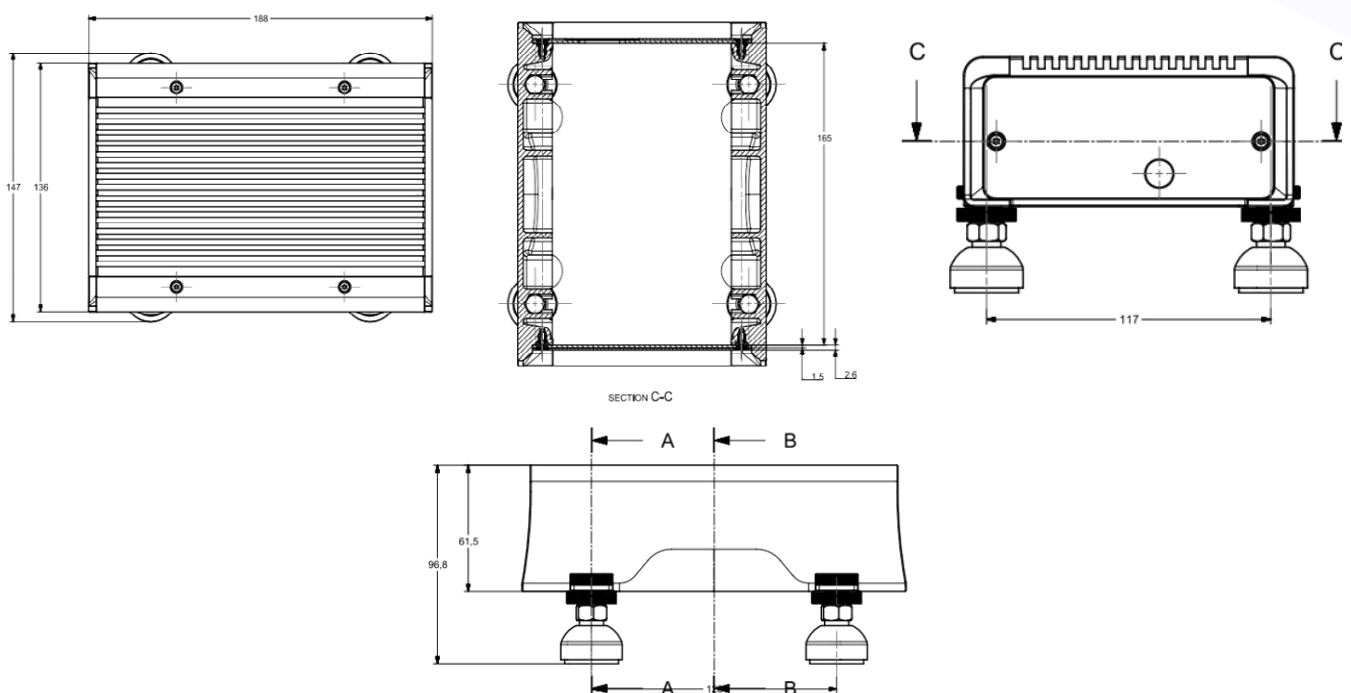
- a preventive functional check and calibration of the modules (onsite or in our workshop)
- a further two-year warranty period

## 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.

## Probe dimension (mm)



# CONTACT US



# AMCAD

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