



 **RichardsonRFPD**  
An Arrow Company

## SEMICONDUCTOR MEASUREMENT & CHARACTERIZATION SERVICES

Richardson RFPD has provided in-house semiconductor measurement services for over 30 years:

- Validating in-house measurements
- Solving supply chain challenges
- Simplifying product sourcing
- Improving efficiencies and cash flow



## MEASUREMENT SERVICES

Richardson RFPD has provided semiconductor measurement services in-house for over 30 years. While our business has evolved, the need for measurement services has increased, and new use cases are constantly arising. The value of semiconductor testing is far-reaching. Typical requests include validating in-house measurements, solving supply chain challenges, simplifying product sourcing and improving efficiencies and cash flow.

## ACCESS TO CALIBRATED TEST EQUIPMENT

The Richardson RFPD services lab equipment is calibrated annually.

## IT'S LIKE DEVELOPING A CUSTOM IC WITHOUT NRE

The bulk of all electronic products are made possible through the availability of standardized semiconductors. However, the economics of creating standard devices are complex. The IC developers tend to create devices that serve an application yet also have a broad enough appeal to justify the cost of development. Invariably, they cannot accommodate every use case, which can make things difficult for product designers, especially if they are truly “innovating.” Customized semiconductors may be a wise choice if a supplier can provide one, but they come at a cost. In addition to out-of-pocket NRE charges and a volume requirement that would justify the development, it will likely take several months to finalize the solution, which may delay the ultimate product release. Alternatively, it is entirely possible that a screened, standard semiconductor is all that is required. And while there is a fee for the screening service, expensive NRE charges are avoided, and work can begin immediately rather than waiting for custom deliverables.



Learn more about our Component Testing and Characterization services at [richardsonrfpd.com](http://richardsonrfpd.com)



## USE CASES

### Simplifying product sourcing

A standard semiconductor component is available but does not meet all your needs, as it has been designed for a different application. Rather than spend months of time and significant NRE commitments to develop a custom solution, Richardson RFPD can screen the standard device that will meet your requirements. It's like getting your own custom part without NRE.

### Time-to-market

A new project requires a semiconductor that is on a supplier's roadmap but not currently available. Rather than wait for the product's release and lose the time-to-market advantage, Richardson RFPD will screen a standard device to your requirements to ensure it is suitable for your project.

### Increasing yields by reducing waste

Your end-product utilizes a device which has attributes that vary from lot to lot—perhaps even a characteristic that is not normally referenced in the component datasheet. Rather than screening lots or dealing with waste or reworking, let Richardson RFPD provide devices screened to your conditions.

## TEST LAB EQUIPMENT

List current as of July 2019

Network Analyzer: HP 8753ES  
Spectrum Analyzer: HPE4407B  
Noise Figure Analyzer: N8974A  
Signal Generators: Agilent E4438C, HP 8648D,  
HP8648C  
Combination Signal Generator/Analyzer: Keysight  
N9917A  
Noise Source: N4001A  
Power Meters: Agilent E4419B (2)  
Power Sensors: Agilent E9301A (3), HP ECP-E18A,  
Agilent E4412A



Multimeters: HP 34401A (2), Fluke 77 Series II,  
Fluke 89IV, Wavetek DM23XT(2)  
Power Supplies: Agilent E3642A, Agilent E3646A(2),  
HP6012B, HP6228B  
Pulse/Function Generator: HP 8111A  
Semiconductor Tester: Scientific Test MODEL 5000E  
Calibration Kit: Agilent 85052D



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# SEMICONDUCTOR TESTING SERVICES: SORTING, SELECTING & MATCH-PAIRING\*

## POWER TRANSISTORS

Services	Device Technology	Characteristics	Measurement Parameters
RF Measurements (0.1-1.0 GHz)	RF Transistors	Power Gain Gain Compression Phase	Power Gain Gain Compression Phase
DC Measurements	RF Transistors	Leakage Currents Breakdown Voltages Gain On-State	$I_{EBO}, I_{CBO}, I_{CEO}, I_{CES}, I_{CER}, I_{CEV}$ $BV_{CES}, BV_{CEO}, BV_{CBO}, BV_{EBO}$ $h_{FE}$ $V_{CESAT}, V_{BESAT}, V_{BEON}$
	MOSFETs	Leakage Currents Breakdown Voltages Gain On-State	$I_{DSS/P}, I_{GSSF}, I_{GSSR}$ $BV_{DSS}$ $V_{GSTH}, gFS$ $V_{DSON}, V_{GSON}, V_{SD}, I_{DON}, R_{DSON}$
	IGBTs	Leakage Currents Breakdown Voltages Gain On-State	$I_{CES}, I_{GEFS}, I_{GESR}$ $BV_{CES}$ $V_{GETH}, gFE$ $V_{CESAT}, V_{GEON}, V_F, I_{CON}$
	SCRs	Leakage Currents Breakdown Voltages On-State Trigger Latch Hold	$I_{DRM}, I_{RRM}, I_{GKO}$ $V_{DRM}, V_{RRM}, BV_{GKO}$ $V_{TM}$ $I_{GT}, V_{GT}$ $I_L$ $I_H$

## RF AMPLIFIER ICs

Services	Devices	Characteristics	Capability
RF Measurements	RF Amplifier ICs (LNA, Gain Block, Driver, Power)	Output Power Power Gain IMD IP3 Phase Noise	<6 GHz <40 dBm

\* Testing over temperature is available upon request.



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