Automated Multi-Channel RF-Biased Burn-In Test System Summary

The Automated Multi-Channel RF-Biased Burn-In Test System is a turnkey system that incorporates all of the capability needed for accelerated-aging and parametric testing of RF semiconductor devices. This architecture has been designed to minimize cost-per-channel; ideal for production burn-in testing. Yet, its powerful software elegantly supports data acquisition, storage, and presentation. Accel-RF's platform solution is the only integrated instrument that can demonstrate compliance with aerospace, government, and commercial RF semiconductor life-test and burn-in standards (GaAs, SiGe, GaN, SiC, InP and RFICs). Accel-RF's Burn-in Test System is used by a majority of the global community of wide band-gap (WBG) semiconductor manufacturers and component integrators.

Testing Tomorrow's Technology Today

Highlights

Up to 16 Channels per Tray

Up to 128 Channels per Platform

Modular, Low-Cost per Channel Configuration

Standard Frequency Ranges:

- 1 to 4 GHz, 8 to 12 GHz, 13 to 17 GHz, Millimeter bands (custom)

RF Drive Levels

- Variable from -5 to 15dBm
- Support for Optional SSPA
- Up to 100 Watts Input Power Available

Power Supplies

- Drain (0.5 to 100V; 50W/CH)
- Gate (+/-10V 4-Quandrant)
- Individual Gate Control for Setting Drain Current per Device

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858-278-2074
www.accelrf.com

Heater Control Unit		
Useable Range	+50°C to 200°C	No load -> maximum baseplate temperature not to exceed +205°C
Settability, Accuracy	+/-5°C	4 DUTS per heater, +/-3°C across 4 DUT positions
Stability or Drfit	<5°C in 200 hrs	Assumes constant DUT load power dissipation and between 20% and 90% duty factor operation
Setting Time	<60 minutes	
Overshoot	<10°C	Assumes constant DUT load power dissipation
DC Bias Control		
Bias1 Voltage		Note: A common Bias1 supply services up to 8 DUTs and Maximum Power on Bias1 is 400W (V*I)-> Total Maximum for 8 DUTs
Operational Range	0.5 to +100V	
Settability, Resolution	0.02% FSR	->20mV
Settability, Accuracy	1% target, or 0.1% FSR	Whichever is greater (1% limited by software)
Measurement Accuracy	0.05% FSR	->50mV
Source Drfit	<0.05% FSR in 100 hrs	->50mV
Measurement Drift	<0.05% FSR in 100 hrs	->50mV
Bias1 Current		Note: Total for 8 DUTs and 50W maxDC power per channel (Maximum 200W maxDC power per group of 4 DUTs on Heater Block)
Optional Range	0 to +4A	
DUT Drain Current Measurements:		Note: FSR = +0.5A per device
Measurement Accuracy	1% FSR	->5mA
Measurement Drift	<0.1% FSR in 100 hrs	->0.5mA
Bias2 Voltage		Note: A common Bias2 supply services up to 8 DUTs, Maximum Power on Bias2 is 10W (V*I)->Total Maximum for 8 DUTs and Individual gate control exists per device in the burn-in tray
Operational Range	-10 to +10V	
DUT Gate Voltage:		Note: FSR = 20V per device
Settability, Resolution	Continuous	Adjustable via pot on burn-in board
Measurement Accuracy	0.1% FSR	->20mV
Source Drift	<0.1% FSR in 100 hrs	->20mV (5mV typ.)
Measurement Drift	<0.05% FSR in 100 hrs	->10mV (5mV typ.)
Bias2 Current		Note: Individual gate currents are limited by burn-in tray on-board op-amp limitations, not the global Bias2 supply
Operational Range	-500 to +500mA	Note: Gate current FSR = 50mA per device
DUT Gate Current:		->250µA
Measurement Accuracy	0.5% FSR	->50µA (20µA typ.)
Measurement Drift	<0.1% FSR in 100 hrs	
RF Control		
DUT Input Power Level (for max setting)	>+15 dBm	Over F(low) to F(high), degradation of -1dB at band edges is acceptable
		At test device output (ie FET or HEMT or MMIC)
DUT Output Power Level	<=+40 dBm (+50dBm option)	Note: Output matching network or output 50-ohm circuit must be designed to handle device maximum output capability
Dynamic Range	20dB	DUT input power adjustment level is a minimum of 20 dB
Frequency Range	1-18 GHz, Millimeter-wave bands available	(Band Specific- consult Accel-RF for bandwidth per drawer)
Settability, Resolution	0.5 dB	As measured with better than 14dB return-loss load (~50-ohm input) via integrated detector diode
Settability, Accuracy	0.5 dB	As calibrated with better than 17dB return-loss load (~50-ohm input)
Measurement Accuracy	0.5 dB	As measured with better than 14dB return-loss load (~50-ohm input)
Stability or Drift	0.5 dB in 200 hrs	Assumes continuous update operational mode into constant load
SSPA		
	Per Customer Specifics	Ability to upgrade with SSPA is integrated into each drawer (Requires external power supply)
		Liquid-cooled option required with SSPA integration

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