eV Technologies

Think Energy!

CHC6054-QQA

Adaptive-Biasing

for Energy-Efficient Front-End-Modules

The CHC6054-QQA Bias Module is a fully self-contained module that can power up and bias the UMS chip. The module controls the Switch, Gate and Drain and allows custom bias settings and full power sequencing to ensure safety,

The module is powered and controlled via USB and can report drain currents and voltages and allow setting of both positive and negative controlled gates. There are LEDs present to show current operating status.

The module is controlled from the computer using simple terminal commands. Each drain and gate can be individually controlled. The unit can display the drain current for a given gate voltage. A smart self-biasing mode can be invoked to automatically adjust the gate voltage to achieve a desired drain bias current. The module will constantly monitor the current and turn off should the drain current go too high, thus preventing damage. The unit can switch seamlessly between TX and RX modes.

Easy-to-use | Compact & lightweight | Portable | Value for money | Rugged

APPLICATIONS:

- Test automation
- Test equipment extender
- Antenna characterization
- 5G & phased arrays
- Power-Supply Modulation

RF FEATURES:

- High power handling
- High linearity
- High isolation
- Zero drift
- Repeatable performance
- Fast switching

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MAIN SPECIFICATIONS

- Negative Gate Range : 0V to -4V
- Positive Gate Range : 0V to +4.3V
- Gate Step Size : 50 mV
- Drain Current Sensing : 0 to 500 mA in 50 µA steps[2]

CONTROL:

- Programmable and versatile
- Easy to use
- Compatible with LabVIEW, Matlab, C and other environments
- USB interface
- External and Internal trigger with programmable switch sequences

MECHANICAL DETAILS:

- Compact and lightweight
- Portable and rugged
- Mounting screws
- EMC shielded

INTERFACE:

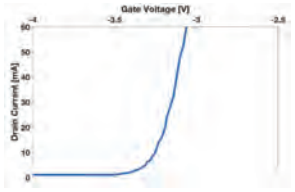
- USB SCPI style interface
- Fast data transfer
- Field upgradable software and regular firmware releases.
- Matlab / Labview Drivers
- Windows GUI for plug and play functionality with scripts for complex automated test routines.

TECHNICAL SUPPORT:

eV-Technologies offers support to get you up and running quickly. Please don't hesitate to get in touch at info@ev-technologies.com

TURNKEY SOLUTIONS

We have many customers who require a complete turnkey test solution. We can implement new firmware commands to enable custom measurements to be completed at the hardware level. See the following pages for examples of where a turnkey implementation was used.
If you require anything just a little bit different to what is here, please get in touch – we may be able to make or modify it for you.



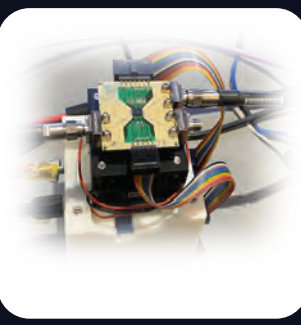
Measured Drain-Current as Function of Gate Voltage

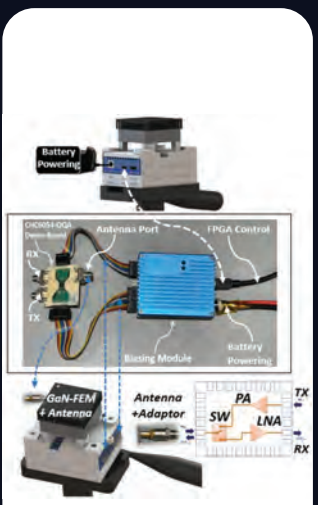
Symbol	Parameter	Value	Unit
V_{gg1}	HPA Drain bias voltage	16 to 25	V
V_{g1}	HPA Gate bias voltage (quiescent biasing)	-3.1	V
I_{DQ}	HPA drain quiescent bias current	40	mA
V_{DD1}/V_{DD2}	Driver 1st/2nd stage drain voltage	4	V
V_{g1}/V_{g2}	Driver 1st/2nd stage gate voltage	4	V
I_{dd}	Driver drain quiescent bias current	130	mA
SW	Switch Control voltage	0	V
T_{on}	Switch Rise Time	15	nS
T_{off}	Switch Fall Time	11	nS
P_{in}	Maximum input power	+9	dBm

Recommended Operating Parameters in Tx-Mode

Symbol	Parameter	Value	Unit
V_{dd}	HPA Drain bias voltage	16 to 25	V
V_{g1}	HPA Gate bias voltage	-5.0	V
V_{dd}	Drain bias voltage	4	V
V_{gg}	Gate bias voltage	-4	V
I_{DQ}	LNA drain quiescent bias current	80	mA
SW	Switch Control voltage	20	V
T_{on}	Switch Rise Time	25	nS
T_{off}	Switch Fall Time	15	nS
P_{in}	Maximum input power	-3	dBm

Recommended Operating Parameters in Rx-Mode





Biasing Module

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