PRELIMINARY PRODUCT BRIEF

MM4250

DC to 10 GHz SP6T

Cryogenic RF Switch Module

Menlo Micro's MM4250 DC to 10 GHz SP6T RF switch module is custom designed for use in cryogenic applications. It is built with Menlo Micro's Ideal Switch® technology which enables highly reliable low power switching in a small form factor adapted for ultra-low temperature environments.

The switch actuation is electrostatic, requiring only **hundreds of nanowatts of power** to actuate the switches. This ultra-low actuation energy results in no measurable temperature increase when operating at mK temperatures, providing an **exponential increase in testing throughput with no standby time** compared to electromechanical relays.

The MM4250 has also been designed with built in RF calibration standards (OSL) to allow users to transfer RF calibration plane to connector outputs without consuming RF channels for calibration. This provides more available channels for device measurements.

The extremely low actuation energy, internal calibration standards, and small form factor makes this SP6T switch module ideal for use in a wide variety of Cryogenic and Quantum Computing applications.

ideal switch®

FEATURES

- RF switching to 10mK
- Extremely low actuation power to eliminate joule heating
- Built-in internal RF calibration standards
- Compact size, compatible with existing dilution fridge connector environments
- External USB driver board available

MARKETS/APPLICATIONS

- Quantum Computing
- Cryogenic Device Characterization

ELECTRICAL

- Frequency: DC - 10 GHz
- IL: <3dB @ 3 Kelvin
- ISO: >40 dB @ 3 Kelvin
- Ch to Ch delay: <10 ps
- Actuator voltage: 90 V
- Actuator current: <10nA
- >1M switching cycles

MECHANICAL

- All brass construction, Au-plated finish
- 6 x SMA connectors, standard 4-hole mounting plate
- Micro D25 control interface
- 5 cm x 5 cm x 5 cm dimensions

FIG. 1 Temperature Change of Dilution Refrigerator While Cycling MM4250

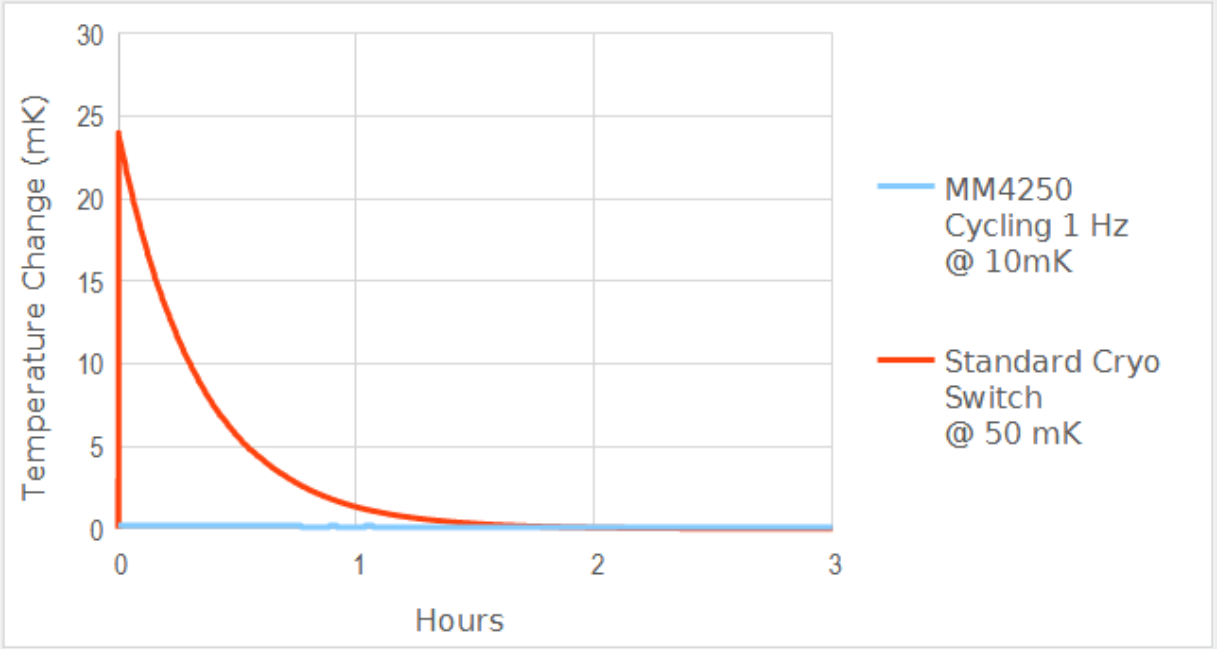
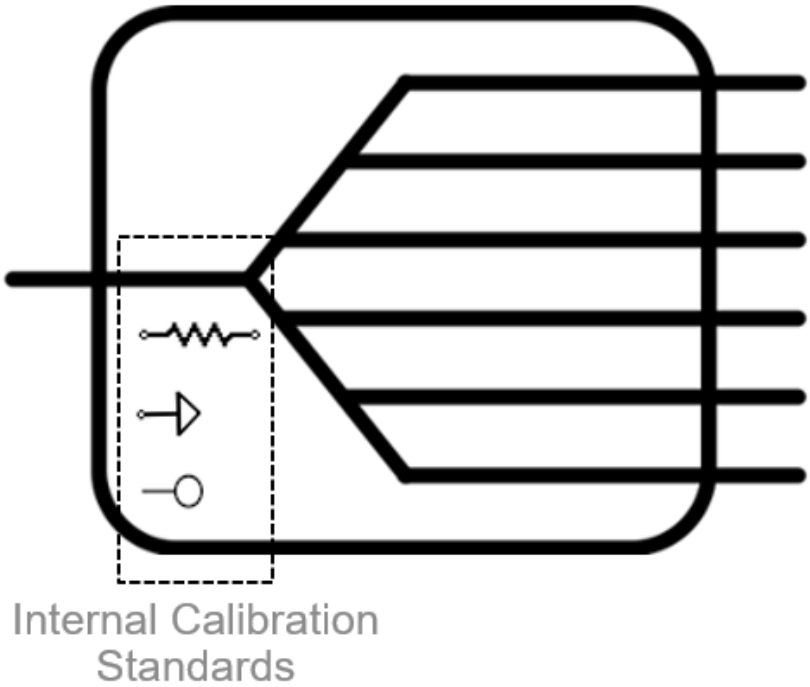


FIG. 2 Functional Diagram of MM4250 with Internal Calibration Standards



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