Barry Industries

Pulsed Power Testing Capabilities of Thick Film Components

Tech Note

Barry Industries, Inc. offers complementary pulsed power testing to your specific requirements for all its thick film resistive components.

Our resistor substrates absorb heat during short pulses with peak powers greatly exceeding the CW power rating. With our testing you can choose a smaller, more cost-effective part instead of over-specifying peak power with CW power rating. Smaller parts generally perform better at higher RF frequencies.

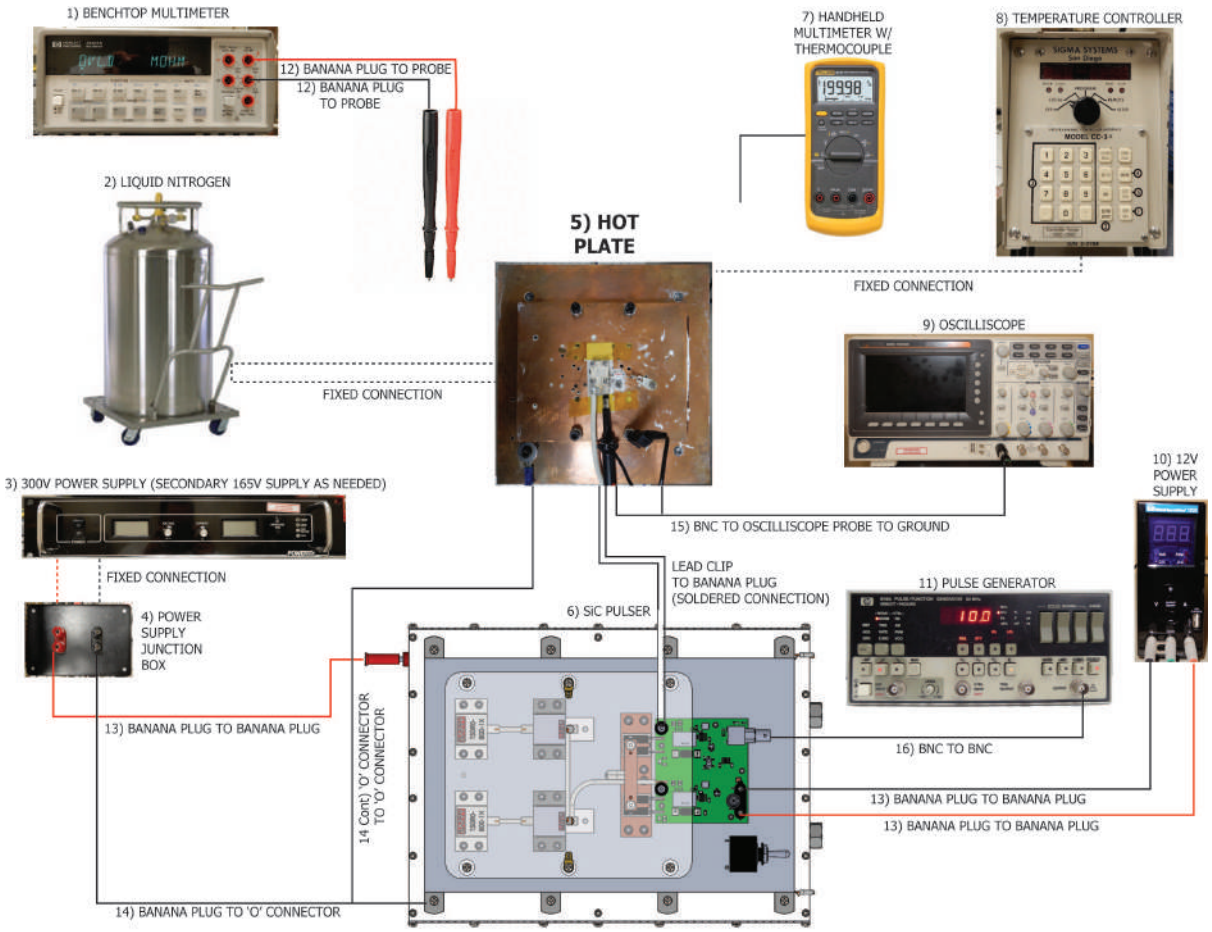
Pulsed power applications include radar, MRI, semiconductor processing, and high peak to average RF modulation schemes. Barry's thick film components are rated at continuous wave (CW) DC input levels given a constant mounting surface temperature of 100 deg C or less. We use a Liquid Nitrogen cooled baseplate to maintain this temperature while under load during test.

There are three variables based on customer application for measuring the pulsed power capabilities of Barry components:

- Pulsed Peak Power Level (measured in Watts)
- Pulse Width (measured in time).
- Duty Cycle pulse (measured in percent of a time for which the pulse occurs)

Given these parameters – we subject the component to increasing voltage levels until the ohmic value changes beyond 5% of nominal resistance – this is the point of failure.

To perform pulsed power tests we use the arrangement below. The key element is Barry's proprietary Silicon Carbide (SiC) MOSFET based pulser offering faster rise/fall times with lower high voltage switching losses as compared to silicon IGBT's or silicon MOSFET's.



Barry Industries maintains an ISO9001 Certified Quality Management System and is an ITAR Registered company..

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Barry's pulsed power testing capabilities currently allow the following range of specifications:

- Pulse repetition Frequency: 0.5 Hz – 900 kHz with pulse burst capability
- Duty cycle: 0-100%
- Pulse Width: 250 nanoseconds to 1 second, rectangular only
- Pulse voltage flatness: ±3% for pulse widths >2 µS, otherwise ±6%
- Rise and Fall time: 50 nS (5 to 95%)
- Maximum Voltage: 465V limited by power supply, our pulser works to 1400V.
- Average current: 10 A (0-300V), 8A (300-465V)
- Peak current: 75A maximum
- Peak or average power (50Ω DUT): 4300 watts
- DUT mounting surface temperature: 100°C nominal, -20 to 150°C available

Contact Barry Industries, Inc. today with your Pulsed Power Level, Pulse Width and Duty cycle and we will perform a pulsed power test on any of our components at no charge.

barryind.com
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