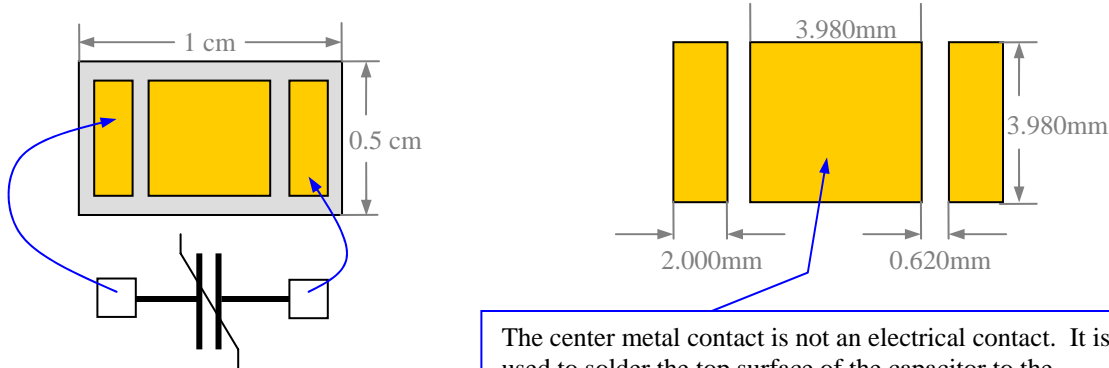


**RC1-166A
4mm Sensor Die**

Date: November 6, 2007

Summary:

The RC1-166A capacitor is a 4-millimeter by 4-millimeter 1-micron thick ferroelectric capacitor with no external package. It is configured so that it may be soldered directly onto PC boards or other mounts for use as a pressure, vibration, or temperature sensor.



The center metal contact is not an electrical contact. It is used to solder the top surface of the capacitor to the substrate if required for the application.

NOTE: It might be shorted to the top electrode. Do not use it as an electric contact.

Temperature Range: -55°C to 125°C.

Device Designation:

“BC” => Die RC1-166A

10,000Å thick 4% niobium doped 20/80 PZT (4/20/80 PNZT) with CHROME/GOLD metallization.

Capacitor Size:

0.16cm²

Total Lead Content per Die:

108.1 micrograms

Recovery: The platinum electroded capacitors are prone to fatigue and imprint. They may be imprinted when received. They do imprint at room temperature after use. There is a recovery procedure that will fully recover the capacitor from imprint. As well, the recovery procedure will recover some fatigue loss. The recovery procedure may be executed multiple times on a capacitor without damage. To recover a 1-micron thick capacitor, execute a 36V square wave at 1Hz for 100s on each capacitor at room temperature.

Poling: The PNZT capacitor on the die should be poled prior to use. The poling voltage can be between 15V and 30V in either direction for a few seconds. The capacitor will not generate a piezoelectric or pyroelectric signal if it is not poled. For sensor dice mounted on the EDU Sensor Board, there are solder jumpers on the board that allow you to disconnect the capacitor from the circuitry and connected it between the ±15V power supplies for poling. The capacitor may also be poled using the HOBBYIST ferroelectric tester.