

Application Note



5800 Series- Overcoming Charged Parallel Capacitors When Using CODA

Reference: AN518-01



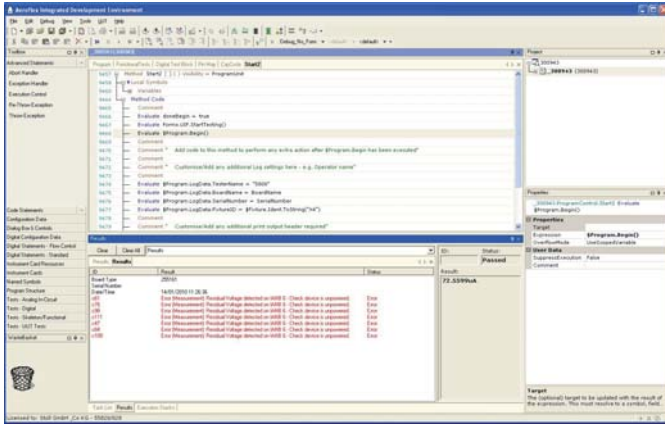
Introduction

When checking the polarity of a single capacitor in a parallel capacitive chain using CODA, it is possible, due to the test technique employed that a charge is left on the tested capacitor causing the next capacitor in the parallel chain to fail the 'precharge' test of the CODA routine.

This application note details the effect seen and two methods that can be used to overcome it.

Symptom

During the running of the CODA test in an in-circuit application it is possible that AIDE will warn the user of a residual voltage being detected on an internal analog bus line, as highlighted below. This is because the CODA test technique used on the 5800 Series of test systems checks that there is less than 100mV across the DUT prior to carrying out the test. This method ensures that the test subject is in a safe state and secondly that the test results will not be skewed by this effect.



When carrying out a polarity test on a single isolated capacitor on any given PCB then this problem is unlikely to be seen. The issue may arise however with large value capacitors in a parallel chain, for example a power supply circuit, where the DUT has been charged as part of the CODA test and is retaining this charge whilst another capacitor on the same chain is being polarity tested.

Voltage/Discharge Method

2TRcircuitA.Program

```

558 Method CapCode [ ] ( )
559     Local Symbols
560     Method Code
561     Evaluate $System.Reset()
562     DC Voltage C10 PinA = #5.171 PinB = #5.186 TestLimits = <100mV PoweredTest = False
563     Comment = "Check voltage across capacitor"
564     GetUp
565     Measure
566     Before Execution
567     After Execution
568     If ( $Test.Status == Failed )
569         Comment = "If voltage across capacitor is more than 100mV discharge the capacitor"
570     Then
571         DfDischarge DischargeReferencePins = #5.186 DischargePins = (#5.171)
572     Evaluate
573     Coda C10
574
575 Method QTests [ ] ( )
576 Method Connectors [ ] ( )
577 Method LinearDevices [ ] ( )
578 Method AnalogueSW [ ] ( )
    
```

Charge Decay Method

Coda.Program

```

1 Program Code OnStart = CapCode() UUTDatabase = CodaDebug.uutdb CodaDatabase = Coda C10.cdb
2 Configuration Data
3 NET Assembly References
4 NET Assembly Reference AssemblyFile:mscorlib.dll
5 NET Namespace References
6 NET Namespace Reference System
7 Global Symbols
8 Dialog Boxes
9 Custom Test Types
10 Digital Configuration Data
11 Modules
12 Methods
13 Method OnTestEnd [ ] ( )
14 Comment = "If CODA test then wait 20ms at the end of each test to allow potential parallel charge to decay."
15 Local Symbols
16 Method Code
17 If ( $Test.Keyword == "CODA" )
18 Then
19     Evaluate $System.Wait(20ms)
20     Comment = "Delay value will need to be adjusted depending on board architecture"
21 Method CapCode [ ] ( )
22 Local Symbols
23 Method Code
24 Code Block NewScope = True
25 Evaluate $Scope.OnTestEnd.AddHandler(new OnTestHandler(OnTestEnd))
26 Comment = "Apply 'OnTestEnd' delay for every CODA test."
27 Coda C10
28 Coda C11
    
```

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