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# Bottom Terminated Components

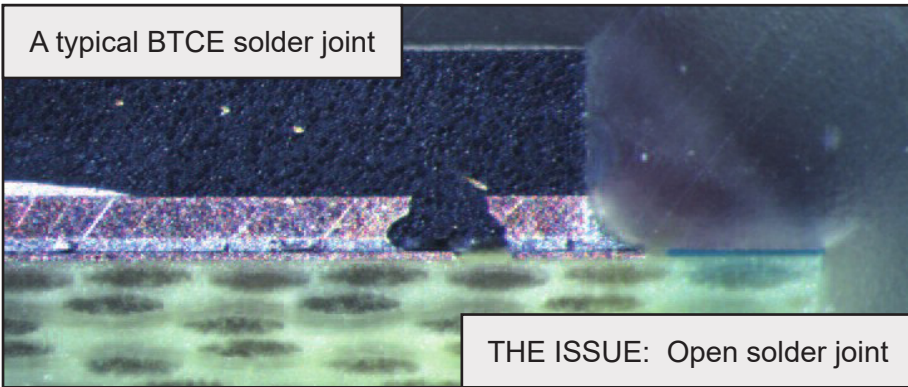


## *Enhancing BTCE Components for Harsh Environments*

Temp cycling and vibration can increase the potential for cracked solder joints

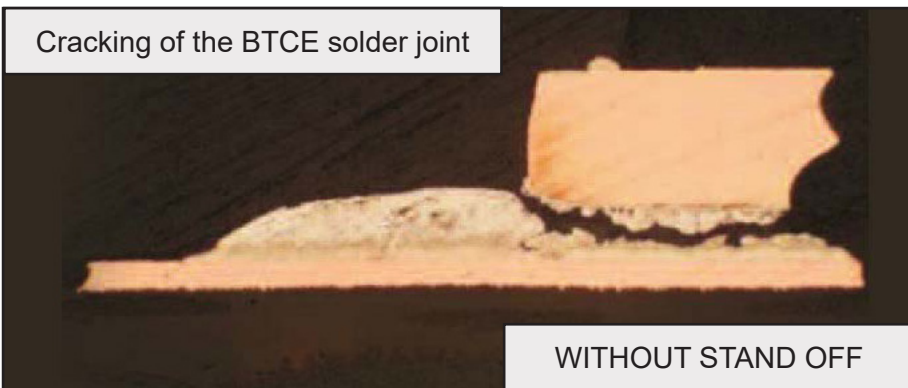
Bottom terminated components operating in extreme environment may require mitigation from cracked soldered joints due to CTE mismatch.

A typical BTCE solder joint



THE ISSUE: Open solder joint

Cracking of the BTCE solder joint



WITHOUT STAND OFF

### TYPICAL APPLICATIONS

- Oil & Gas Exploration
- Space and Aerospace
- Military & Defense
- Engine Management

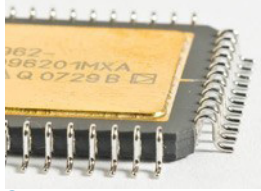
The non-collapsible Microcross stand-off can be applied to any technology currently assembled into a BTC package.

### BENEFITS INCLUDE:

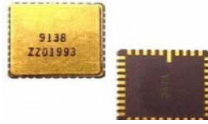
- Greater compliance
- Reduced gold embrittlement
- Increased joint thickness
- Easier to remove flux residue

## Increasing the compliance of Bottom Terminated Components

### LEAD ATTACH

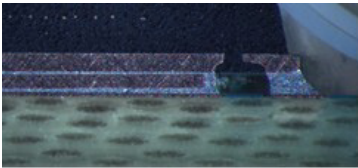


Devices with castellated edge pads  
Typical mitigation technique  
Lead Attach



Typical Values and package styles  
PLCC, SOIC, QFP, Jlead  
Option for bespoke footprints.

### BTCE



Devices with centre pad connection  
Typical mitigation technique  
Microcross BTCE (pat pending)

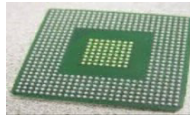


Typical Values and package styles  
3X3 through 12X12mm package size  
250 micron stand off, Pb and Pb-Free

### BALL ATTACH

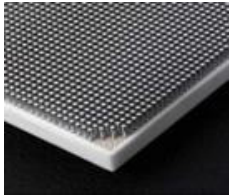


Devices with no centre pad  
Typical mitigation technique  
High Melting Point Sphere Attach.



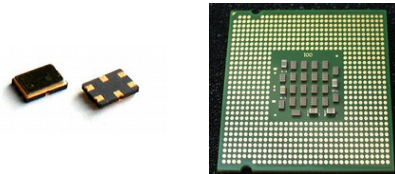
Any foot print of BGA available  
STD Sphere sizes 0.25 through 0.762mm  
Use of a HMPS sphere  
HMPS Sphere sizes 0.3 through 0.889 mm

### COLUMN ATTACH



Large pin count LGA devices  
Typical mitigation technique  
Solder Column Attach (CLASP)

LCC devices with square pad  
Typical mitigation technique  
Solder Column attach (CLASP)



Column Last Attach Solder Process  
CLASP

Available for a variety of component types  
Capable of greater than 2500 connections  
1.27mm and 1.0mm Pitch  
2.23 through 1.19 mm column height  
Option for bespoke heights.

### About Microcross

Microcross is the global one-source provider of Bare Die & Wafers, Advanced Interconnect Technology, Custom Packaging & Assembly, Component Modification Services, Electrical & Environmental Testing and Hi-Rel Products to manufacturers and users of semiconductor devices. In business for more than 40 years, our extensive hi-reliability capabilities serve the Aerospace & Defense, Space, Medical and Industrial markets. Microcross possesses the sourcing, packaging, assembly, engineering, test and logistics expertise needed to support an application throughout its entire program cycle.

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