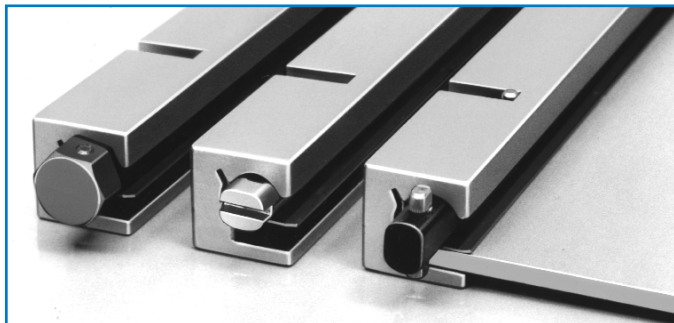


## STANDARD ZIF CIRCUIT BOARD RETAINERS



### THREE ZIF CONFIGURATIONS

- STANDARD ZIF (coldwall mounted)
- ZIF III (PCB mounted)
- MACHINED ZIF (ZIF geometry machined into coldwall)

### GENERAL DESCRIPTION

The ZIF retainer is a totally self-contained, precision assembly that provides a highly effective thermal interface between the circuit board and coldwall. Board lengths between 1-1/2" and 12" can be accommodated.

A ZIF retainer consists of:

- (1) an aluminum housing
- (2) a rod/cam assembly constructed from an aluminum or stainless steel double flat rod extrusion. The ZIF rod assembly is driven by one of three options: pin, hex-head or screwdriver slot
- (3) a beryllium copper spring

ZIF retainers are mounted to any flat metal surface (coldwall). The standard configuration is attached with 4-40 hardware. However, the retainer housing can be supplied

with tapped holes for M3x.5 metric hardware, or left undrilled with only index pins for vacuum brazing, dip brazing or epoxy bonding.

Engineers who specify the ZIF retainer can have confidence that it will perform as described. Complete product specifications are available upon request.

The following CTS laboratory test procedures, reports and results are available upon request:

- thermal performance testing
- shock testing
- vibration testing
- torque testing
- life cycling

### DESIGN FEATURES

#### ■ QUICK LOCKING ACTION

The locking operation which secures the PCB in the ZIF retainer requires only a 1/4 turn of the rod assembly.

#### ■ UNIFORM HEAT TRANSFER

Uniform clamping pressure eliminates hot spots along the PCB interface producing an even distribution of heat along the entire edge.

#### ■ COMPLETE INTERCHANGEABILITY

ZIF component parts are designed to assure consistent performance and interchangeability of all identical part numbers.

#### ■ OPERATING ENVIRONMENT

ZIF characteristics are unaffected by adverse environments typically encountered in military and industrial applications.

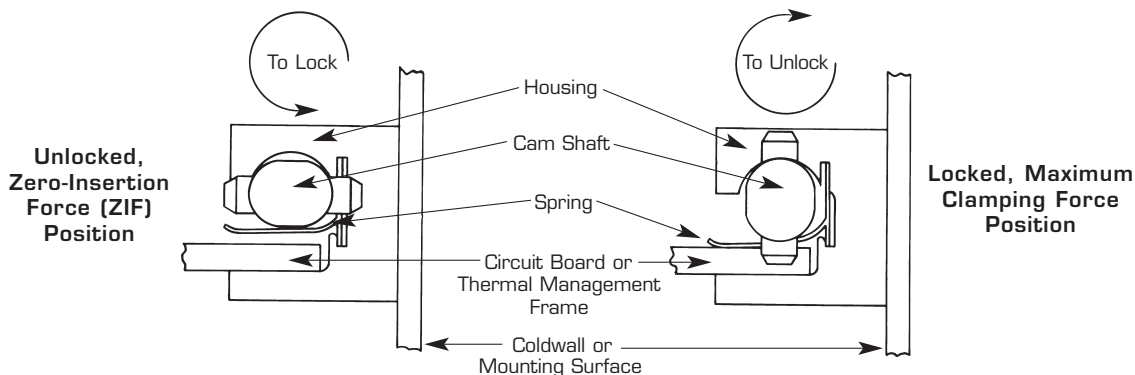
#### ■ VISUAL INDICATION

ZIF provides a visual indication that the rods are in the "open" or "closed" position relative to the position of the drive assembly.

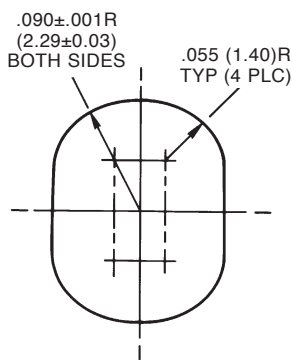
#### ■ MAINTAINABILITY

The unique design and interchangeability of like parts make field repairs quick and simple. Repairs can be accomplished without the use of any special tools. Although ZIF retainers have been tested for over a thousand lock-unlock cycles, they have been derated and specified for 400 fully loaded cycles. This, in most cases, will exceed the overall system life, virtually eliminating service or maintenance to ZIF assemblies.

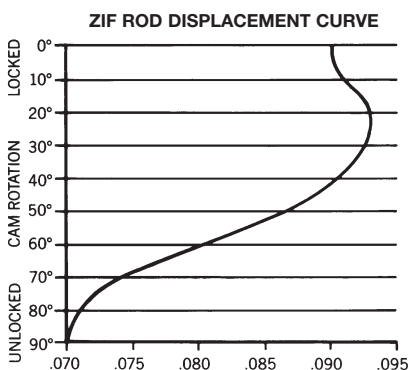
# SPECIFICATIONS



## ZIF OPERATION



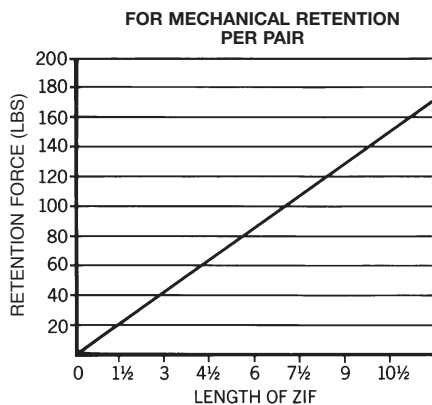
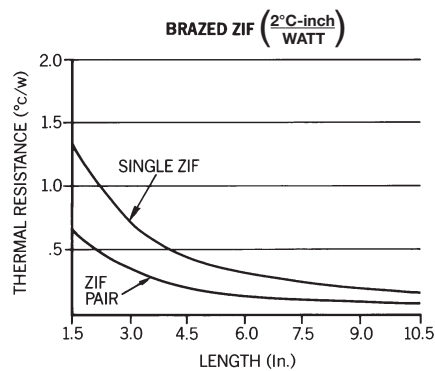
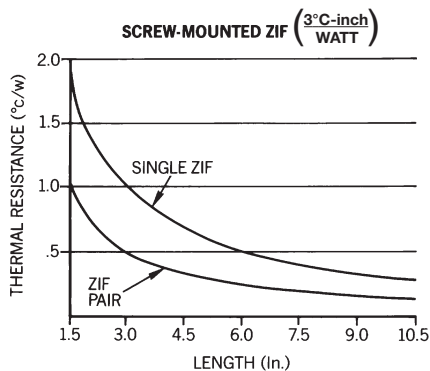
A positive mechanical detent is built into the cam rod shown here in cross section.



The ZIF cam detent design gives added assurance that a PCB will remain securely locked in position even under extreme vibration and shock levels. Detent action occurs during the final 15 degrees of cam rotation and virtually eliminates any possibility of the cam unlocking under environmental stress.

Improving the thermal conductivity of circuit board retainers enhances system performance by increasing the reliability of electronic components and circuit modules.

Extensive testing of ZIF retainers in the CTS Engineering Test Laboratory demonstrates that they have the best thermal performance of any circuit board retainer available.



Clamping pressure is not only essential to heat transfer, but also a critical requirement for retention of PCBs under severe shock and vibration. ZIF retainers have been subjected to the most extreme test conditions specified in MIL-STD-810C.

Nominal retention force for a circuit board held captive by a pair of ZIF retainers (I/O connector excluded) is shown in the graph at the left.

**Technical Assistance for Custom Designs** - Our engineering staff has extensive experience in the packaging of ZIF retainers. Modification of standard housings, cams and spring configurations for special design applications is frequently possible. Contact the CTS factory in Burbank, California. We welcome the opportunity of providing you with the assistance needed to solve all of your thermal management problems.

## ORDERING INFORMATION

**Z A S 1 1 1 - 062 - 15 R\* - B B U**

### ZIF Designation

#### Assembly Option

A=Assembled K=Kit

#### Mounting Method

B=Brazed  
S=Screws 4-40  
M=Metric Screws (M3x0.5)

#### Housing Series

1=Without Pins  
2=With .062x.040  
Extended Aluminum Index Pins

#### Rod Assembly

1=Pin Drive, Aluminum Rod (6" Max.)  
2=Pin Drive, Steel Rod  
3=Slot Drive, Steel Rod (4.5" Max.)  
4=1/4 Hex Drive, Aluminum Rod  
7=3/16 Hex Drive, Steel Rod  
①S=3/16 Hex Drive, Steel Rod  
②Z=1/8" Socket Head Cap, Steel Rod

#### Spring Series

1=Current Design

#### Board Thickness (±.005 Max.)

.031" .050" .062" .084" .093" .125"

### Spring Plating

U=Unplated  
B=Black Cadmium  
N=Nickel

### Rod Plating

B=Black Anod. Aluminum Rods  
P=Passivated, Steel Rods

### Housing Plating

B=Black Anodize  
U=Unplated  
R=Chem. Film

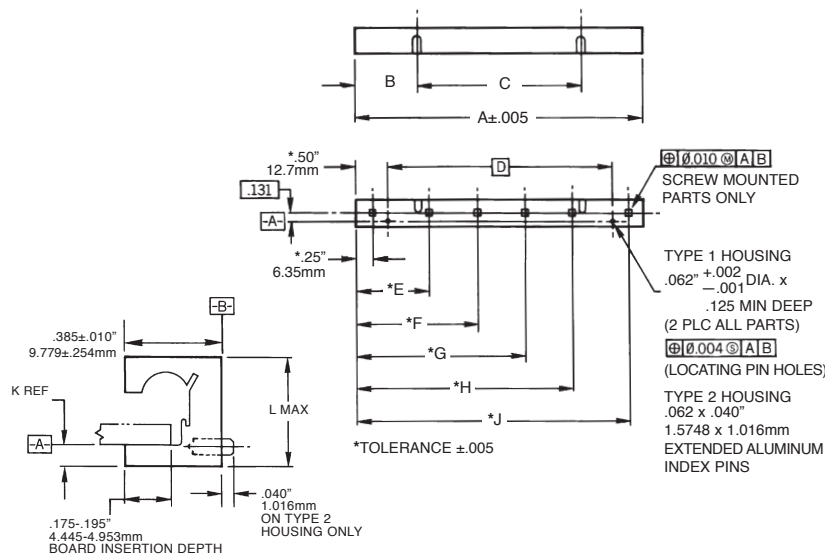
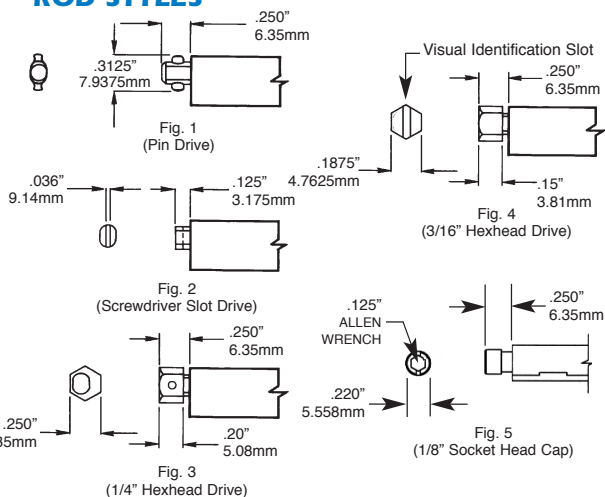
R=Right Hand Part  
L=Left Hand Part

Assembly Length in .5" Increments x 2  
Ex: 7.5"=15

\*All assembled ZIFs must have a left or right designation.  
Any kit with a 1/4 inch hexhead drive must have a left or right designation.

① Visual identification slot painted yellow.

## ROD STYLES



| ROD TYPE |          |          |                    |
|----------|----------|----------|--------------------|
| DESIG.   | FIG. NO. | MATERIAL | MAX. SPRING LENGTH |
| ZRA1     | 1        | aluminum | 6 inches           |
| ZRA2     | 1        | steel    | 10.5 inches        |
| ZRA3     | 2        | steel    | 4.5 inches         |
| ZRA4     | 3        | aluminum | 10.5 inches        |
| ZRA7     | 4        | steel    | 10.5 inches        |
| ①ZRAS    | 4        | steel    | 10.5 inches        |

ZIF circuit board retainers are available in several standard configurations. When ordering standard ZIF assemblies, kits or individual components, please refer to the ZIF identification number guide shown above. Custom ZIF retainers will be assigned special part number identification.

| BOARD THICK | K REF   | L MAX    |
|-------------|---------|----------|
| .031"       | .094"   | .400"    |
| .787mm      | 2.388mm | 10.16mm  |
| .050"       | .075"   | .400"    |
| 1.27mm      | 1.905mm | 10.16mm  |
| .062"       | .063"   | .400"    |
| 1.575mm     | 1.600mm | 10.16mm  |
| .084"       | .063"   | .422"    |
| 2.134mm     | 1.600mm | 10.719mm |
| .093"       | .079"   | .447"    |
| 2.362mm     | 2.007mm | 11.354mm |
| .125"       | .082"   | .478"    |
| 3.175mm     | 2.083mm | 12.141mm |

| ZIF HOUSING DIMENSIONS |               |         |      |     |      |                     |      |      |      |       |                    |
|------------------------|---------------|---------|------|-----|------|---------------------|------|------|------|-------|--------------------|
| LENGTH DESIGNATION     | SPRING LENGTH | A ±.005 | B    | C   | D    | 4-40 MOUNTING HOLES |      |      |      |       | NO. OF MNTG. HOLES |
|                        |               |         |      |     |      | E                   | F    | G    | H    | J     |                    |
| 03                     | 1.5           | 1.50    | .75  | —   | .50  | 1.25                | —    | —    | —    | —     | 2                  |
| 04                     | 1.5           | 2.00    | 1.00 | —   | 1.00 | 1.75                | —    | —    | —    | —     | 2                  |
| 05                     | 1.5           | 2.50    | 1.25 | —   | 1.50 | 2.25                | —    | —    | —    | —     | 2                  |
| 06                     | 3             | 3.00    | .75  | 1.5 | 2.00 | 1.50                | 2.75 | —    | —    | —     | 3                  |
| 07                     | 3             | 3.50    | 1.00 | 1.5 | 2.50 | 1.75                | 3.25 | —    | —    | —     | 3                  |
| 08                     | 3             | 4.00    | 1.25 | 1.5 | 3.00 | 2.00                | 3.75 | —    | —    | —     | 3                  |
| 09                     | 4.5           | 4.50    | .75  | 3.0 | 3.50 | 2.25                | 4.25 | —    | —    | —     | 3                  |
| 10                     | 4.5           | 5.00    | 1.00 | 3.0 | 4.00 | 1.75                | 3.25 | 4.75 | —    | —     | 4                  |
| 11                     | 4.5           | 5.50    | 1.25 | 3.0 | 4.50 | 2.00                | 3.50 | 5.25 | —    | —     | 4                  |
| 12                     | 6             | 6.00    | .75  | 4.5 | 5.00 | 2.00                | 4.00 | 5.75 | —    | —     | 4                  |
| 13                     | 6             | 6.50    | 1.00 | 4.5 | 5.50 | 2.25                | 4.25 | 6.25 | —    | —     | 4                  |
| 14                     | 6             | 7.00    | 1.25 | 4.5 | 6.00 | 2.50                | 4.50 | 6.75 | —    | —     | 4                  |
| 15                     | 7.5           | 7.50    | 2.25 | 3.0 | 6.50 | 2.00                | 3.75 | 5.50 | 7.25 | —     | 5                  |
| 16                     | 7.5           | 8.00    | 2.50 | 3.0 | 7.00 | 2.00                | 4.00 | 6.00 | 7.25 | —     | 5                  |
| 17                     | 7.5           | 8.50    | 2.75 | 3.0 | 7.50 | 2.25                | 4.25 | 6.25 | 8.25 | —     | 5                  |
| 18                     | 9             | 9.00    | 3.75 | 1.5 | 8.00 | 2.50                | 4.50 | 6.50 | 8.75 | —     | 5                  |
| 19                     | 9             | 9.50    | 4.00 | 1.5 | 8.50 | 2.00                | 3.75 | 5.75 | 7.50 | 9.25  | 6                  |
| 20                     | 9             | 10.00   | 4.25 | 1.5 | 9.00 | 2.00                | 4.00 | 6.00 | 8.00 | 9.75  | 6                  |
| 21                     | 10.5          | 10.50   | 5.25 | —   | 9.50 | 2.25                | 4.25 | 6.25 | 8.25 | 10.25 | 6                  |

All dimensions are in inches unless otherwise noted.