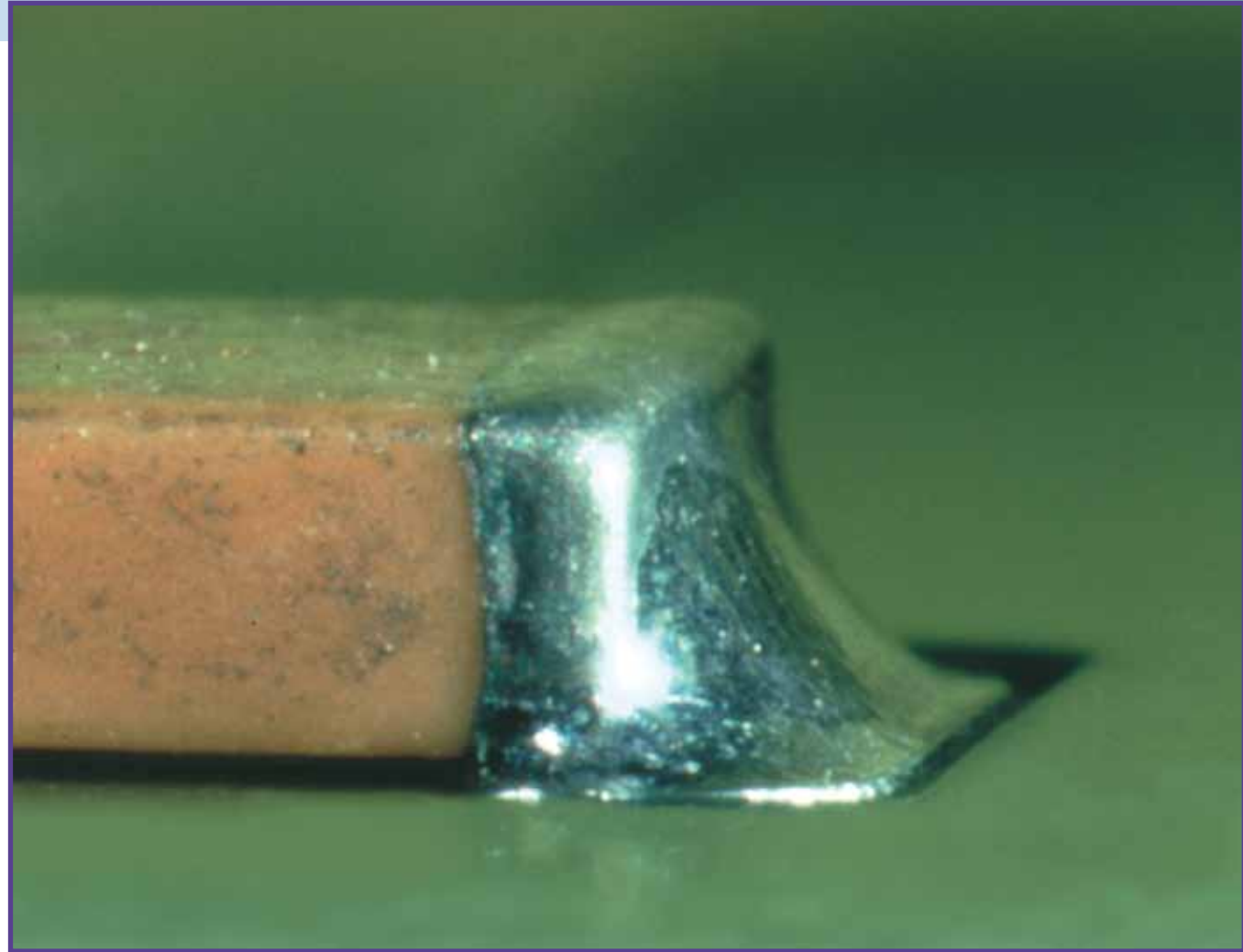


# Target Condition



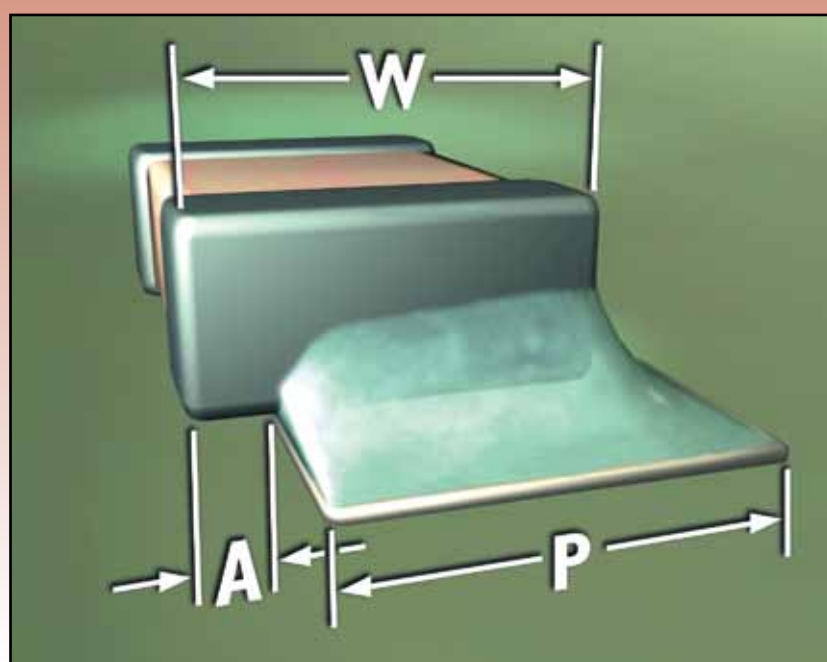
# Chip Components • Class 3

This photo represents an **ideal** surface-mount solder joint for any class of rectangular Chip component.

The following illustrations show the **limits** of component misalignment and solder joint size. Solder joints that **do not meet** any of these conditions for 1, 3 or 5-sided terminations should be considered **unacceptable**.

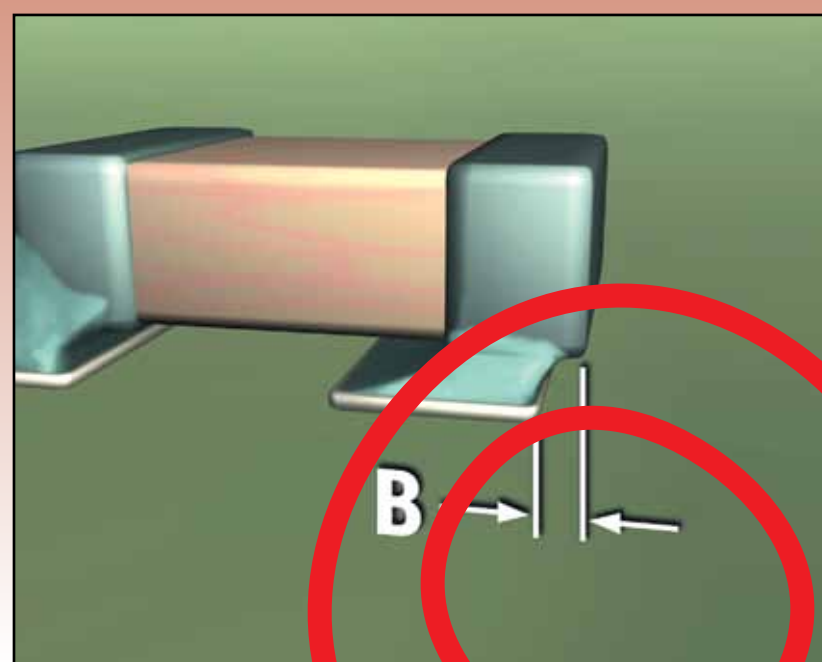
**Notes:** Solder joints are semi-transparent to show relationship between land and termination. Minimum side joint length, dimension (D), is not required for chips, only a properly wetted fillet.

## Acceptability Requirements



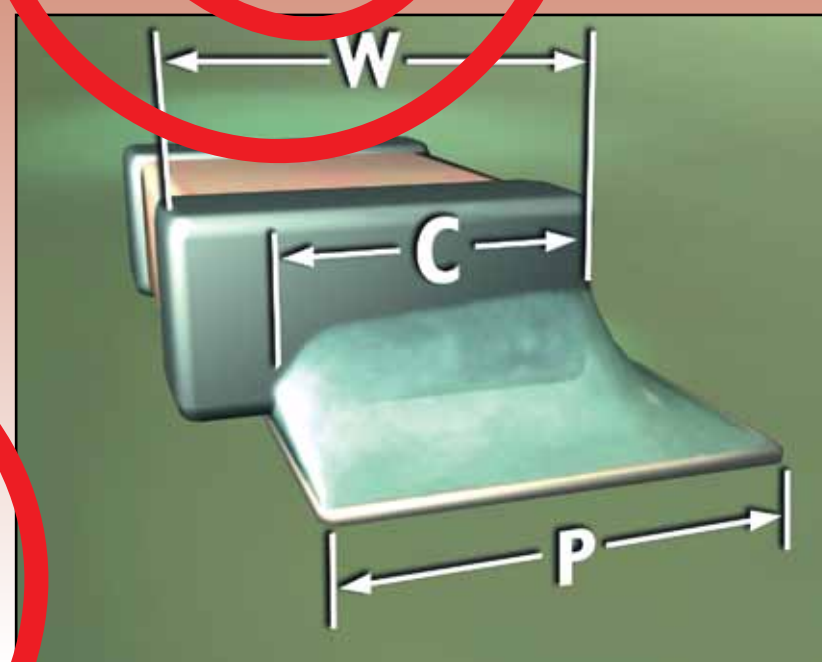
### Side Overhang (A)

The component may overhang the side of the land a **maximum** of 25% of the width of the component termination (**W**), or 25% of the width of the land (**P**), whichever is less.



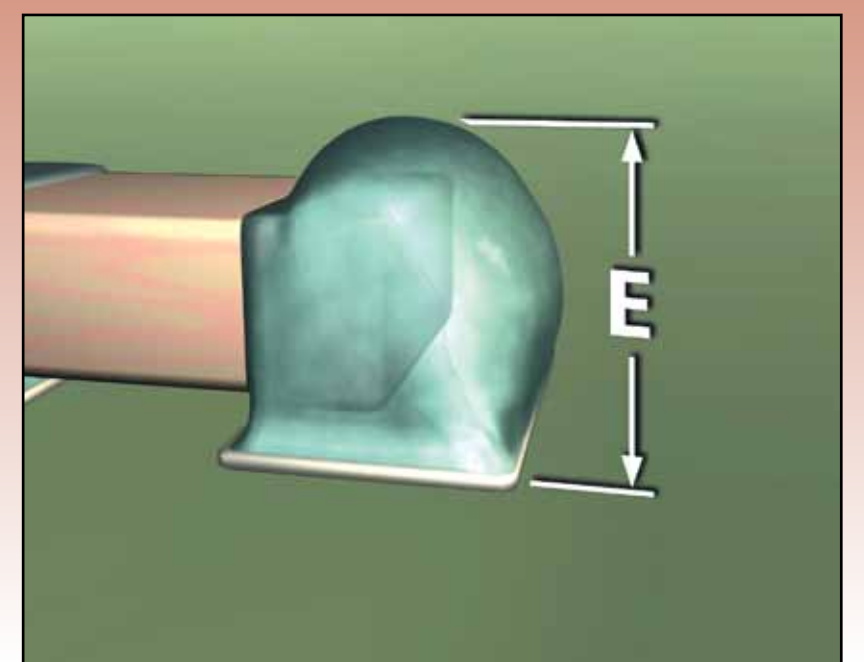
### End Overhang (B)

Any part of the component termination extending beyond the land is **unacceptable**.



### End Joint Width (C)

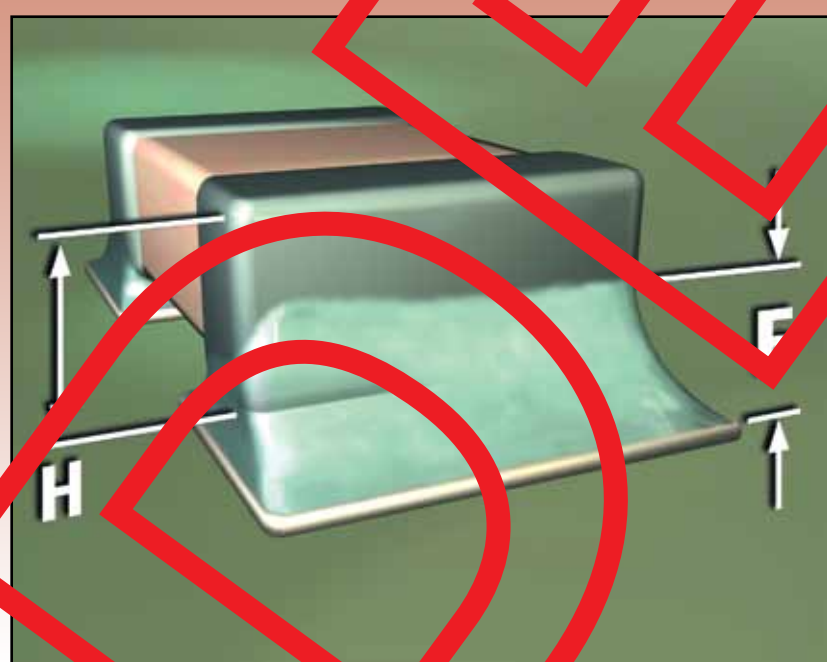
The width of the solder joint at its narrowest point must be a **minimum** of 75% the width of the component termination (**W**), or 75% of the width of the land (**P**), whichever is less.



### Fillet Height (E)

The solder may overhang the land, and extend onto the top of the termination, but **not touch** the top of the component body, as a **maximum** fillet height.

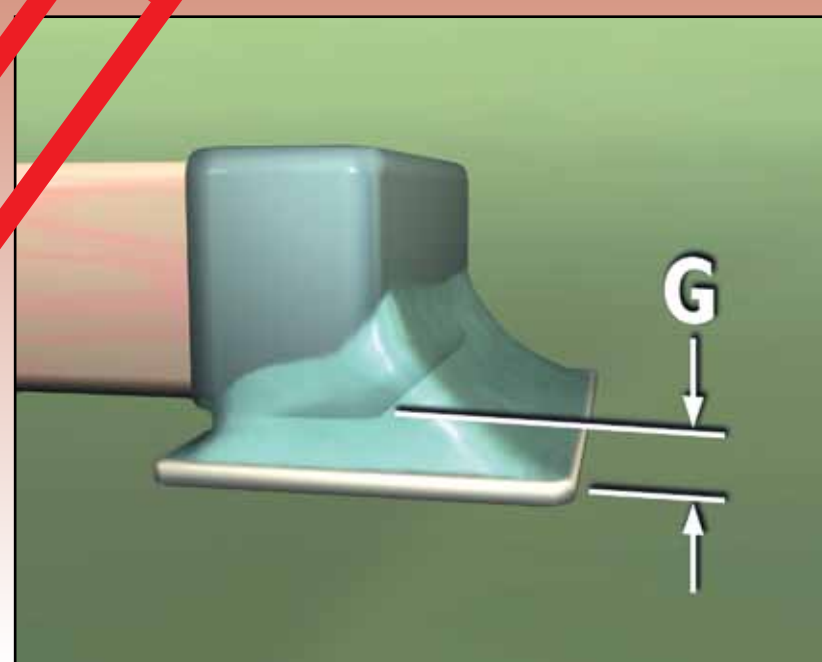
## Acceptability Requirements



### Fillet Height (F)

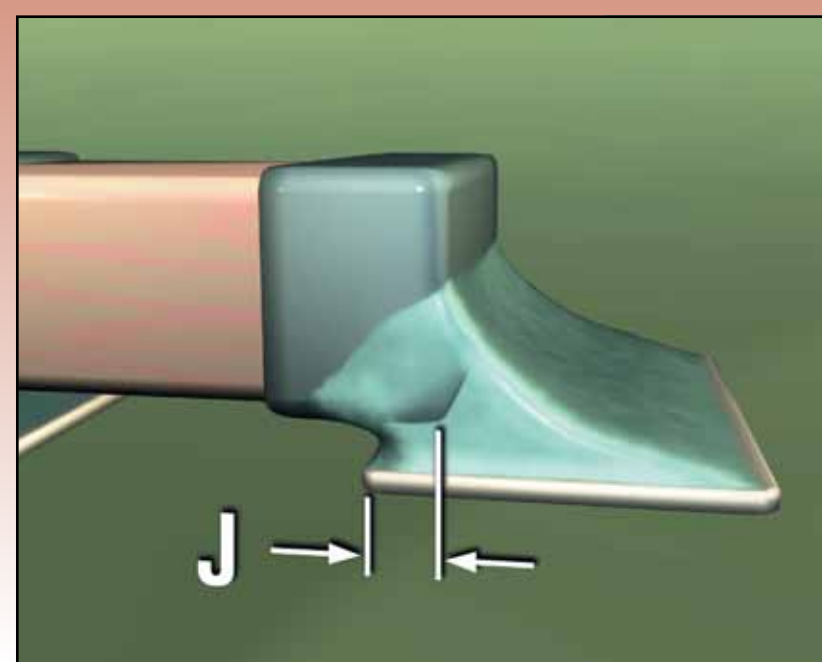
The **minimum** fillet height must extend at least 25% of the height of the component termination (**H**)\*, or 0.5 mm (0.02 in.), whichever is less.

\* Including any measurement for solder thickness (G).



### Solder Thickness (G)

The **minimum** distance between the land and component termination is **not specified**. Only a properly wetted fillet must be evident.



### End Overlap (J)

Some amount of overlap between the component termination and the land is **required** for **minimum** acceptance.

References:  
IPC-A-610E and  
IPC J-STD-001E

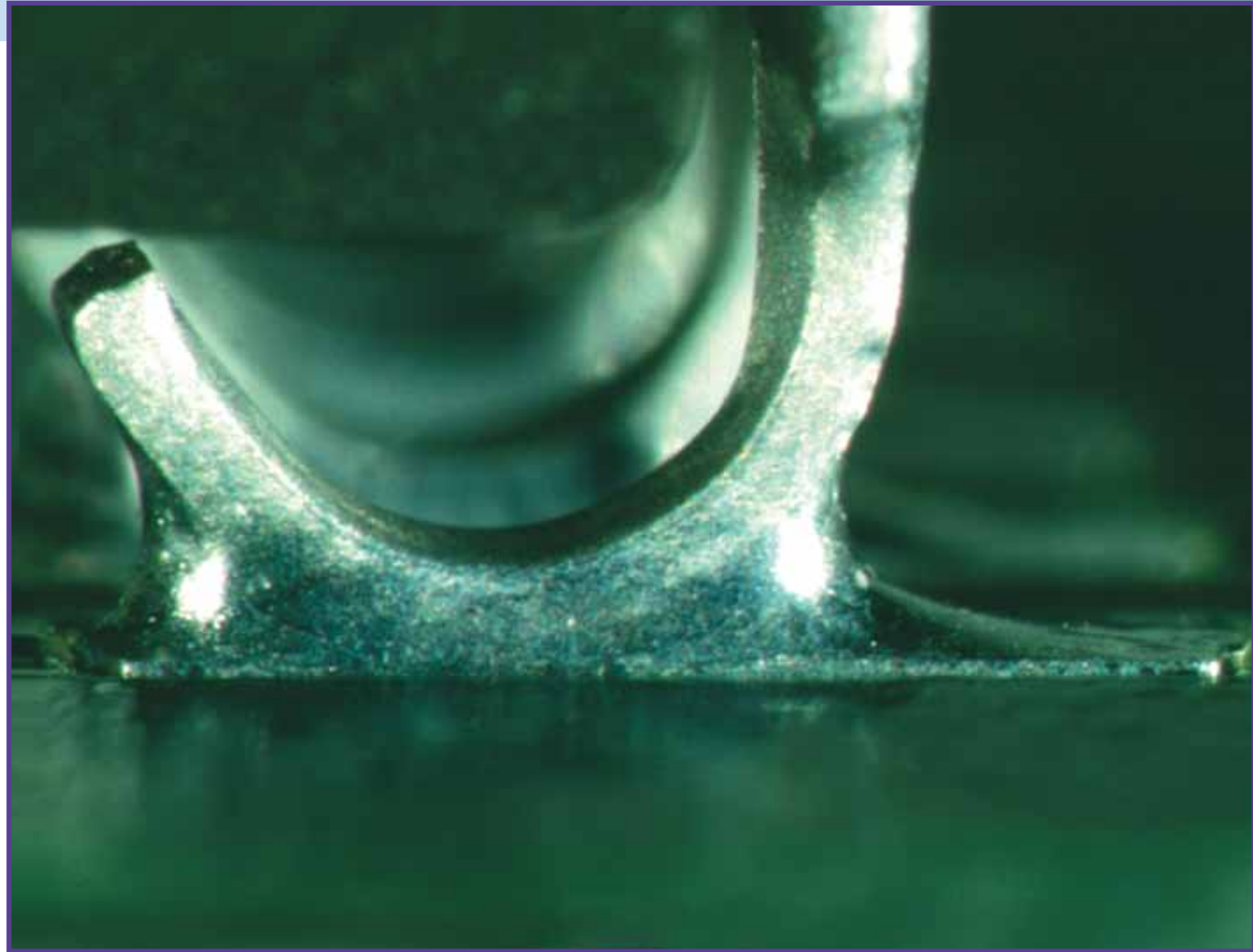
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# Target Condition



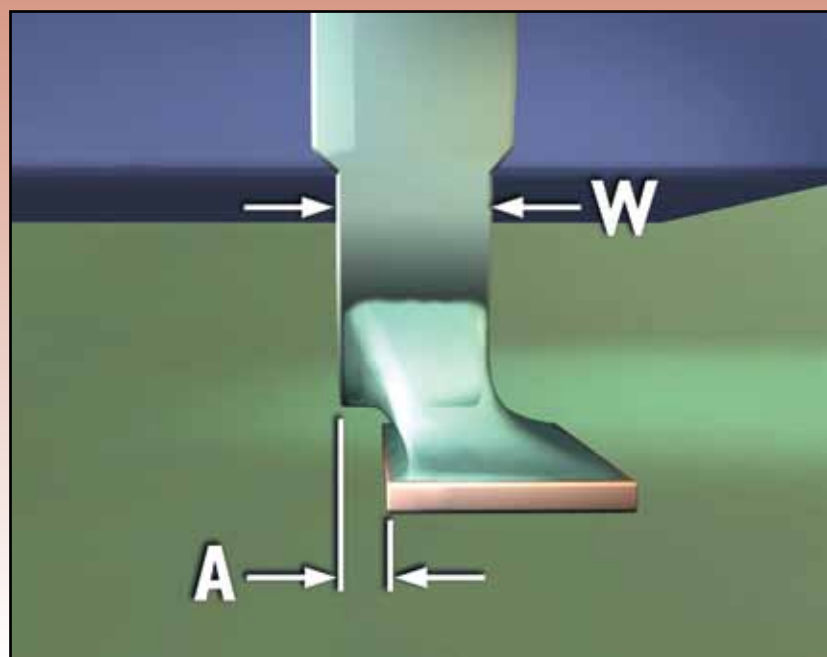
# J-Lead Components • Class 3

This photo represents an **ideal** surface-mount solder joint for any class of J-Lead component.

The following illustrations show the **limits** of component misalignment and solder joint size. Solder joints that **do not meet** any of these conditions should be considered **unacceptable**.

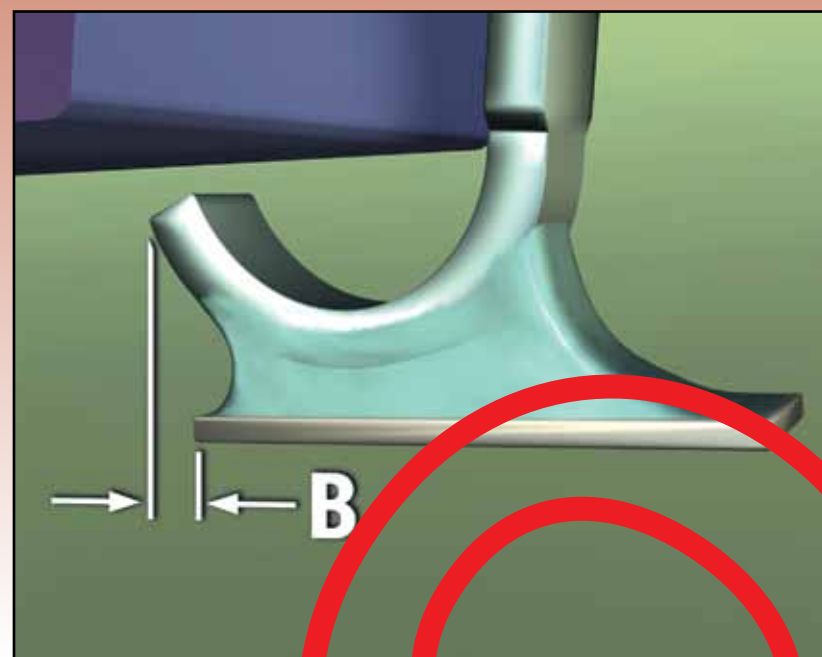
**Note:** Solder joints are semi-transparent to show relationship between land and lead.

## Acceptability Requirements



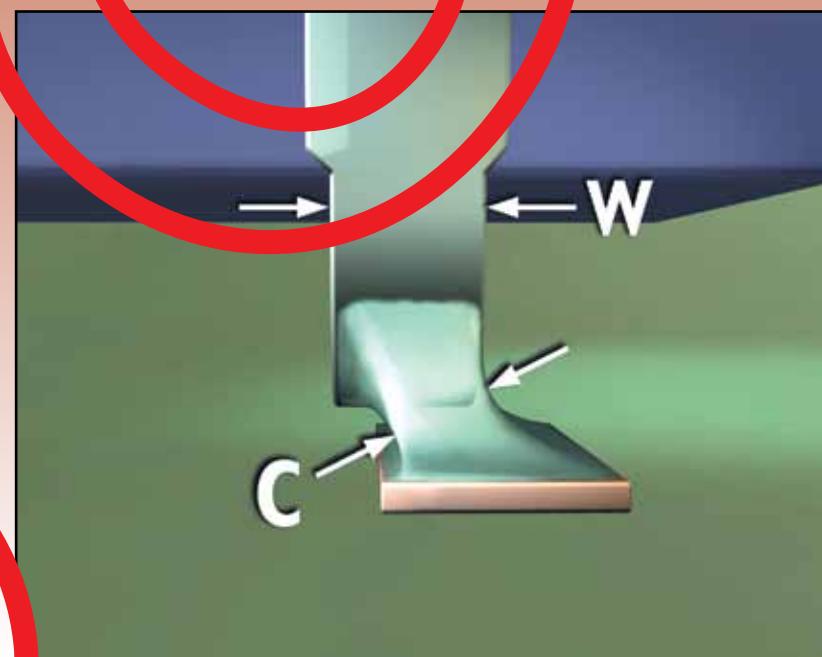
### Side Overhang (A)

The component lead may overhang the side of the land a **maximum** of 25% of the width of the lead (**W**).



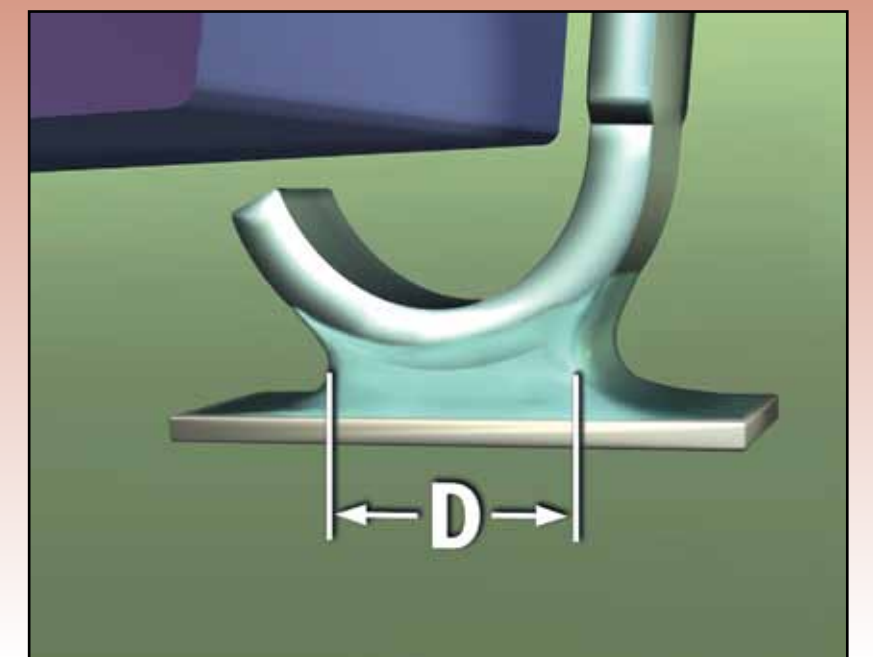
### Toe Overhang (B)

The **maximum** distance the end, or tip, of the lead may extend over the edge of the land is **not specified**.



### End Joint Width (C)

The width of the solder joint at its narrowest point needs to be a **minimum** of 75% the lead width (**W**).



### Side Joint Length (D)

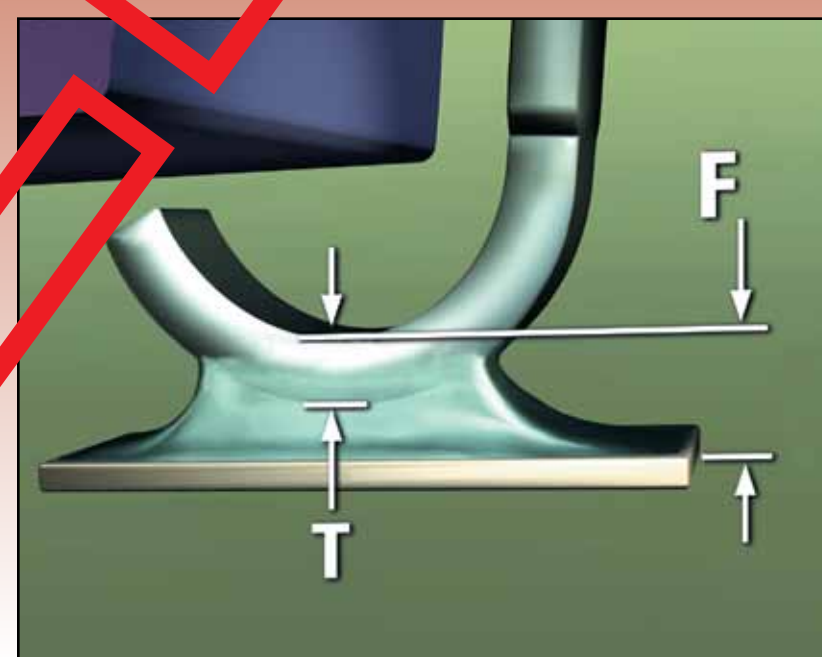
The length of the solder joint at its narrowest point must be a **minimum** of 150% the width of the lead (**W**).

## Acceptability Requirements



### Fillet Height (E)

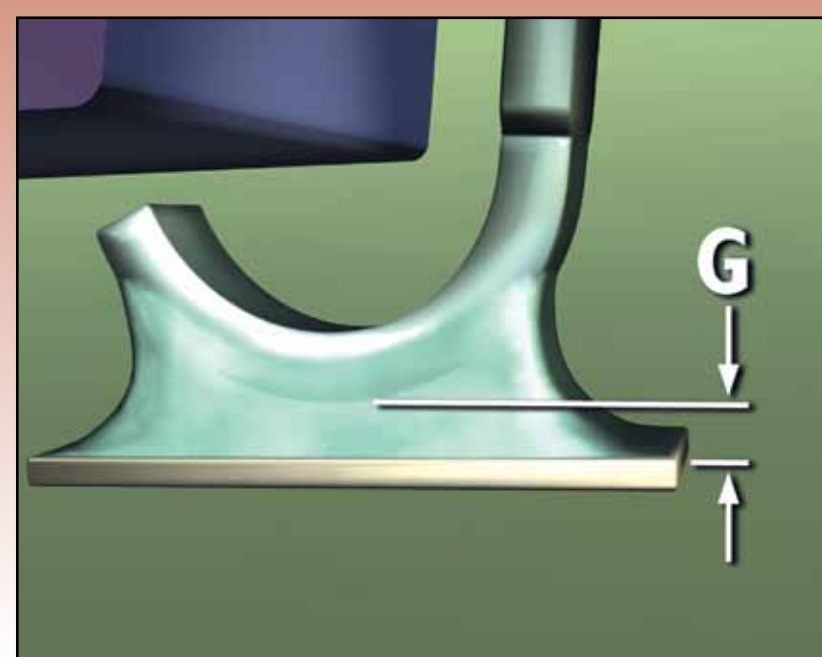
The solder may **not touch** the component body as a **maximum** fillet height.



### Heel Fillet Height (F)

The **minimum** heel fillet height must be at least 100% of the lead thickness (**T**)\*.

\* Including any measurement for solder thickness (**G**).



### Solder Thickness (G)

The **minimum** distance between the land and component lead is **not specified**. Only a properly wetted fillet must be evident.

References:  
IPC-A-610E and  
IPC J-STD-001E

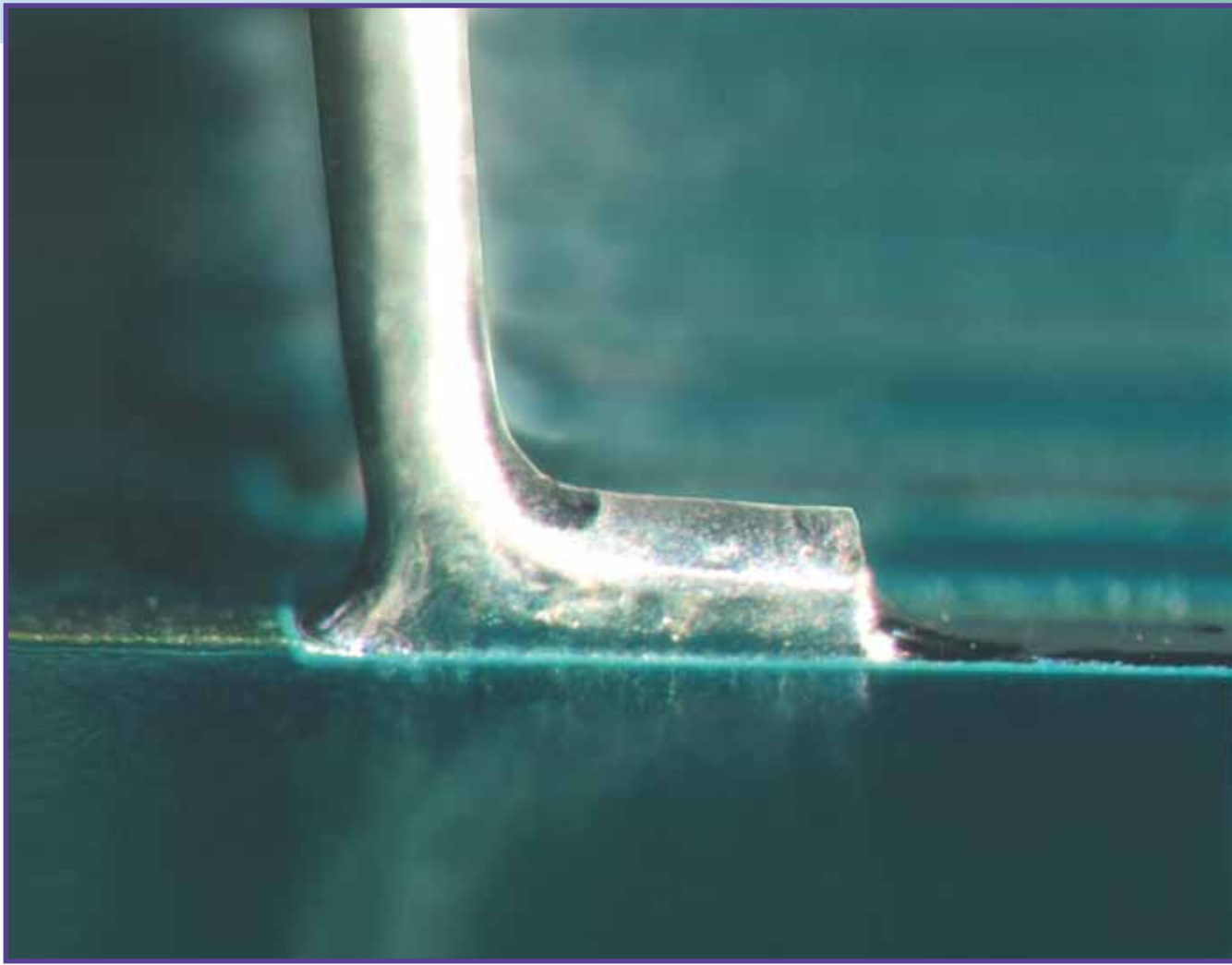
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# Target Condition



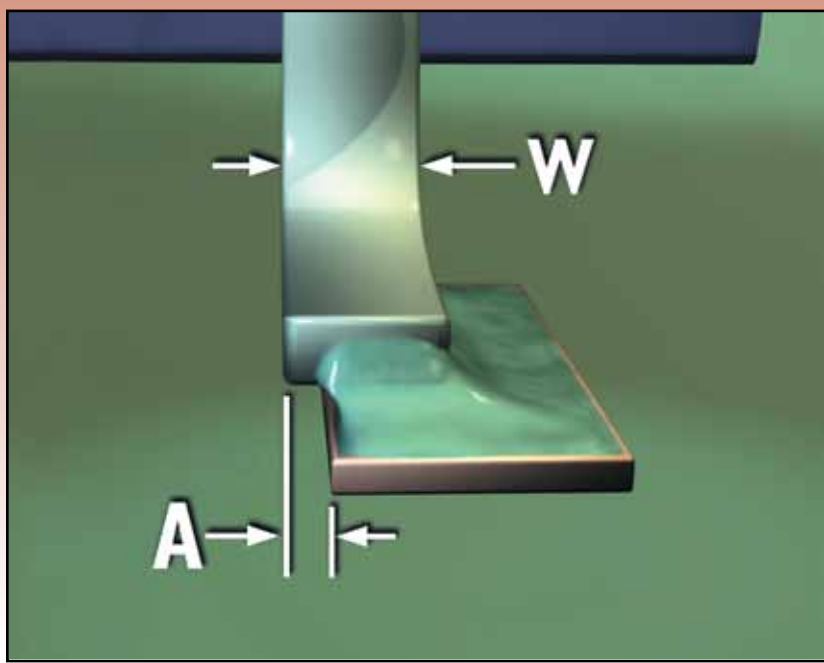
# Gull Wing Components • Class 3

This photo represents an **ideal** surface mount solder joint for any class of Gull Wing component.

The following illustrations show the **limits** of component misalignment and solder joint size. Solder joints that **do not meet** any of these conditions should be considered **unacceptable**.

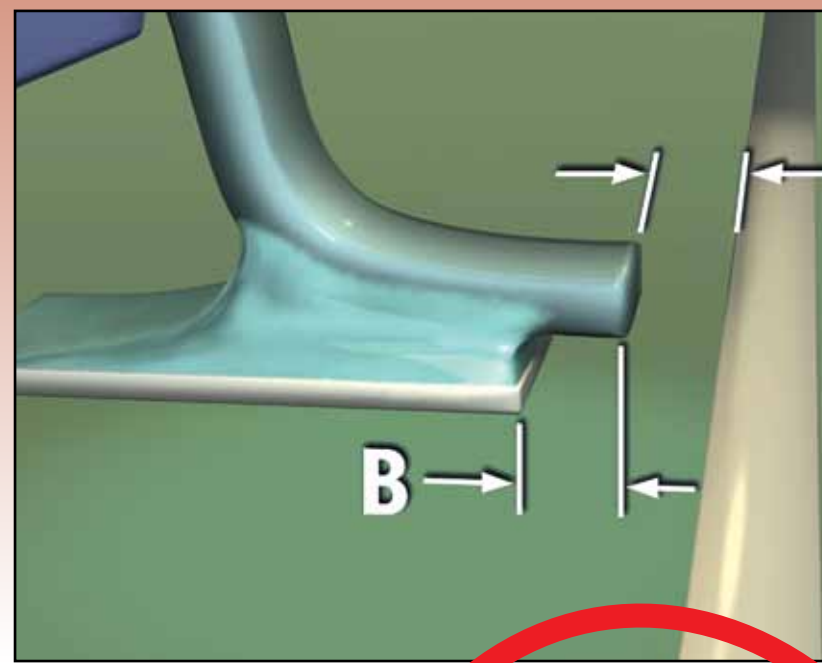
**Note:** Solder joints are semi-transparent to show relationship between land and lead.

## Acceptability Requirements



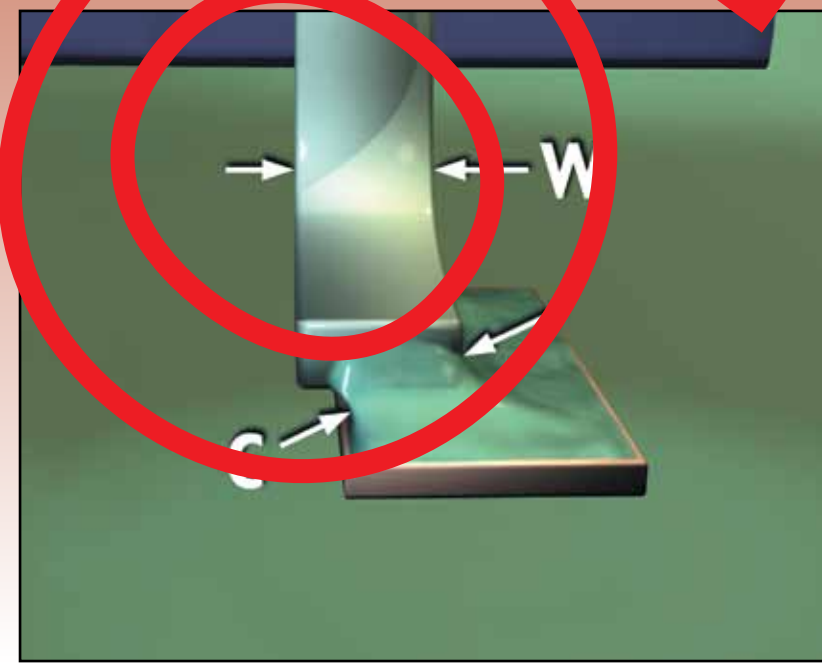
### Side Overhang (A)

The component lead may overhang the side of the land a **maximum** of 25% of the width of the lead (**W**), or 0.5 mm (0.02 in.), whichever is less.



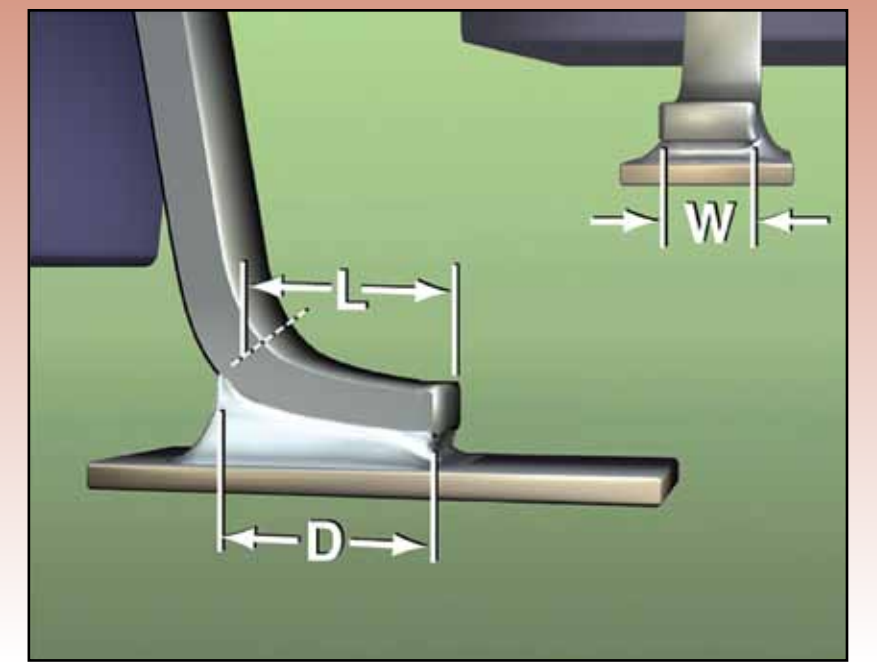
### Toe Overhang (B)

The end or tip of the lead extending over the edge of the land **must not violate minimum electrical clearance** as a **maximum** condition.



### End Joint Width (C)

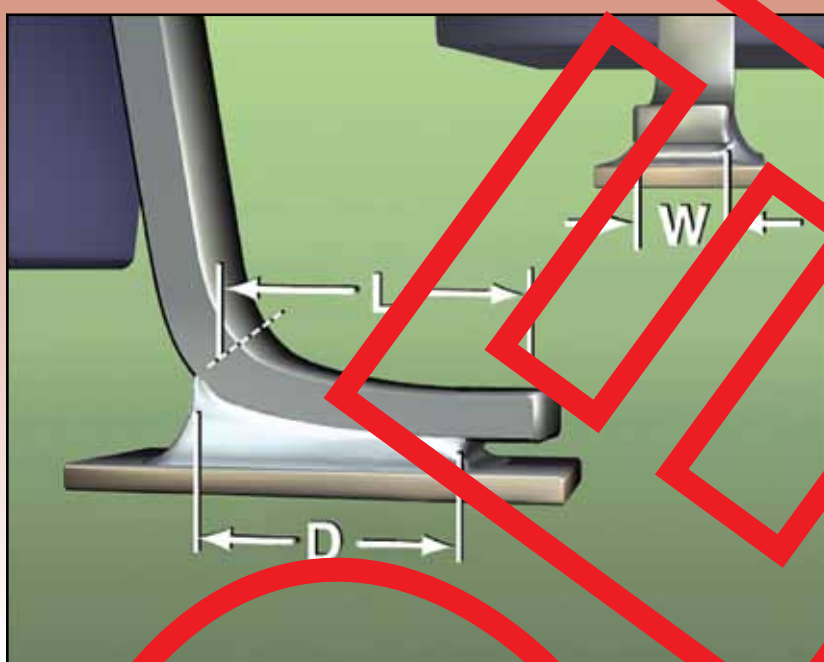
The width of the solder joint at its narrowest point needs to be at least 75% the lead width (**W**), as a **minimum** requirement.



### Side Joint Length (D)

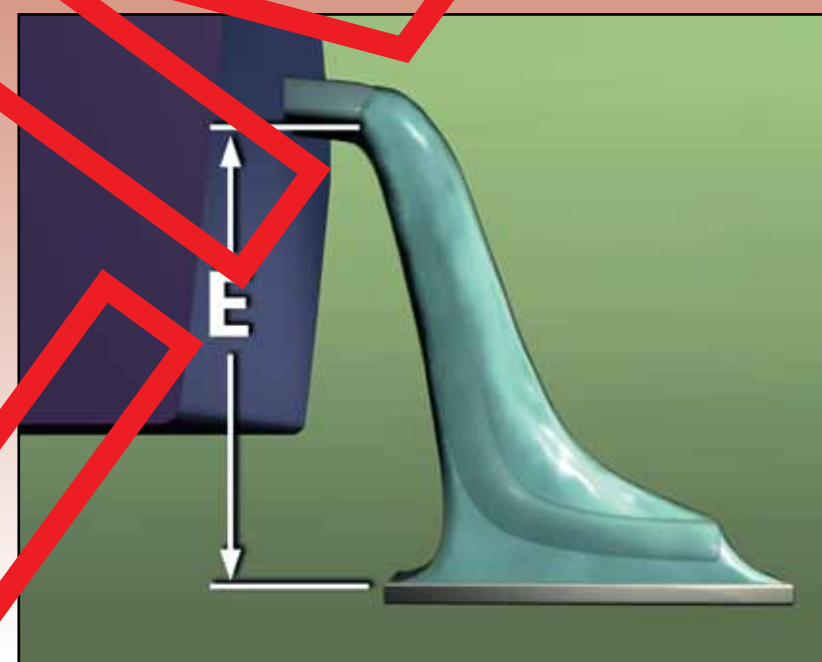
**Short Foot**—If foot length (**L**) is less than 3 (**W**), then **minimum (D)** is 100% (**L**).  
**Note:** Fine pitch leads—short and long foot—require (**D**) to be at least 0.5 mm (0.02 in.).

## Acceptability Requirements



### Side Joint Length (D)

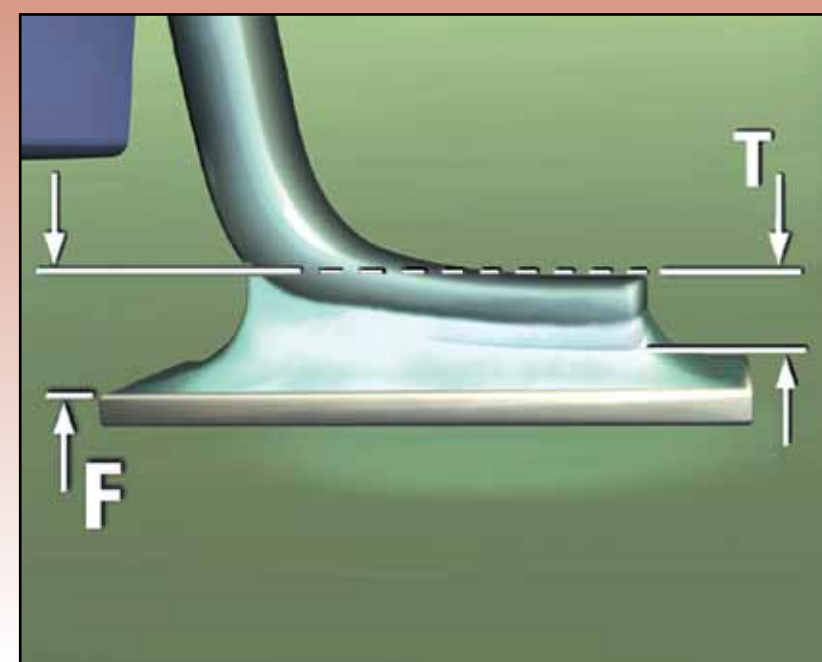
**Long Foot**—When foot length (**L**) is equal to or greater than three lead widths (**W**), side joint length (**D**) must be a **minimum** of 3 (**W**) or 75% (**L**), whichever is longer.



### Heel Fillet Height (E)

Solder may extend to the top bend of the lead, or knee, but **not touch** the component body or end seal as a **maximum** fillet height.

**Note:** Solder may touch the body of a plastic SOIC or SOT Component.



### Heel Fillet Height (F)

The **minimum** heel fillet height must be at least as high as lead thickness (**T**)\* at connection side.

\* Including any measurement for solder thickness (**G**).



### Solder Thickness (G)

The **minimum** distance between the land and component lead is **not specified**. Only a properly wetted fillet must be evident.