Target Condition

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.

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Acceptability Requirements

**Side Overhang (A)**
The component may overhang the side of the land a maximum of 50% of the width of the component termination (W), or 50% 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 50% of the width of the component termination (W), or 50% 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.

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Acceptability Requirements

**Fillet Height (F)**
Wetting is evident on termination’s vertical surfaces as a minimum fillet height.

**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.

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

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Target Condition

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 50% 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 50% 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).

Filler Height (E)
The solder may not touch the component body as a maximum fillet height.

Heel Fillet Height (F)
The heel fillet must extend at least 50% the thickness of the component lead (T)*, as a minimum fillet height.

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

* Including any measurement for solder thickness (G)
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 50% 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 50% of 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.).

#### Side Joint Length (D)

**Long Foot**—When foot length (L) is equal to or greater than three lead widths (W), the 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)

**Small T:** Where lead thickness (T) is 0.38 mm or less, **minimum** heel fillet height is equal to (T)*, measured at the toe.

**Large T:** Where (T) is greater than 0.38 mm, Dim. F is a **minimum** of 50% (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