

**Conversion of Select Sizes of LFCSP Package Outlines from Punched to Sawn
and Transfer of Assembly Site to ASE Korea**

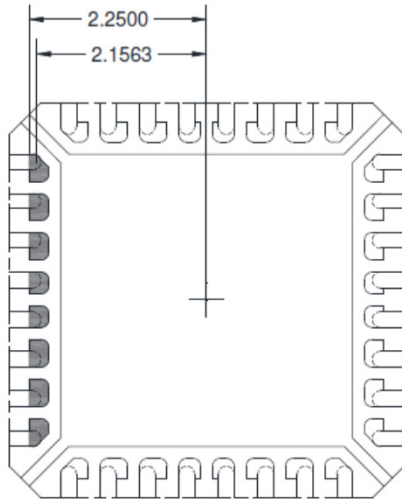
**Qualification Results Summary
for 4x4, 5x5, 6x6, and 7x7mm Sawn LFCSP Package
at ASE Korea**

| QUALIFICATION RESULT | | | |
|--|----------------------------|--------------------|---------------|
| TEST | SPECIFICATION | SAMPLE SIZE | RESULT |
| Temperature Cycle (TC)* | JEDEC <i>JESD22-A104</i> | 3 x 77 | PASS |
| Highly Accelerated Stress Test (HAST)* | JEDEC <i>JESD22-A110</i> | 3 x 77 | PASS |
| Autoclave (AC)* | JEDEC <i>JESD22-A102</i> | 3 x 77 | PASS |
| Solder Heat Resistance (SHR)* | JEDEC/IPC <i>J-STD-020</i> | 3 x 11 | PASS |
| High Temperature Storage (HTS) | JEDEC <i>JESD22-A103</i> | 3 x 77 | PASS |

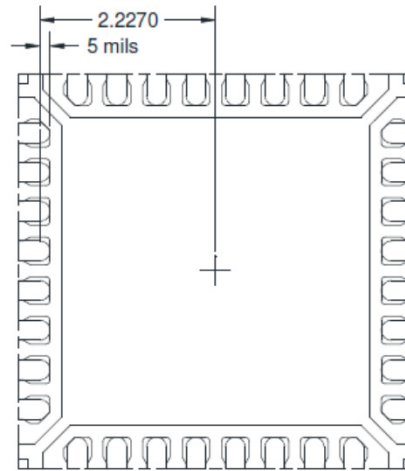
*Preconditioned per JEDEC/IPC J-STD-020

32L LFCSP 5X5

Bonding area location from pad center shaded in gray.

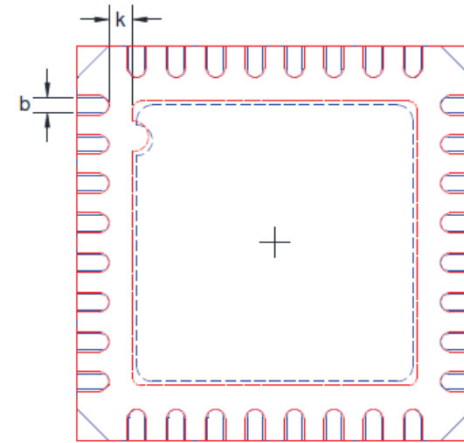


STATS — PKG#3061
CP-32-4



AEK — PKG#4889
CP-32-12

POD Footprint overlay



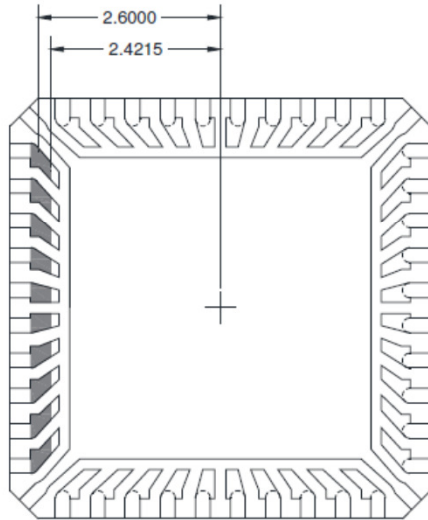
STATS : CP-32-4
AEK : CP-32-12

| | 32L LFCSP 5x5 | |
|-----------|---------------|-------------|
| | STATS | ASE |
| PAD SIZE | 3700 x 3700 | 3900 x 3900 |
| EPAD SIZE | 3500 x 3500 | 3600 x 3600 |
| PKG# | 3061 | 4889 |
| POD | CP-32-4 | CP-32-12 |
| k | 0.350 mm | 0.300 mm |
| b | 0.20 mm | 0.25 mm |

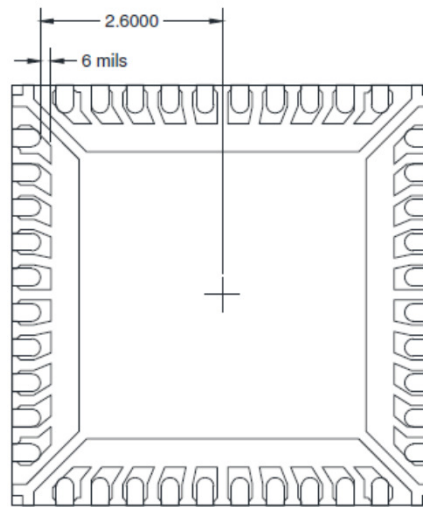
The 2nd bond location of AEK LF is within bonding area location of STATS LF.

40L LFCSP 6X6

Bonding area location from pad center shaded in gray.

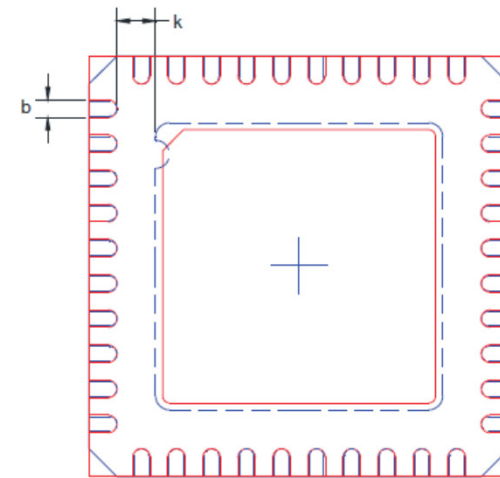


STATS - PKG#1118
CP-40-1



AEK - PKG#5099
CP-40-14

POD Footprint overlay



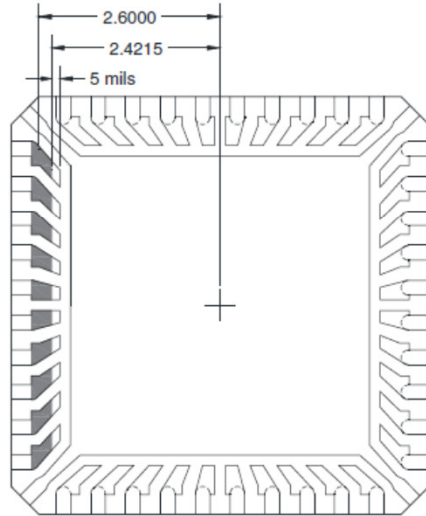
STATS : CP-40-1
AEK : CP-40-14

| | 40L LFCSP 6x6 | |
|-----------|---------------|-------------|
| | STATS | ASE |
| PAD SIZE | 4300 x 4300 | 4100 x 4100 |
| EPAD SIZE | 4100 x 4100 | 3900 x 3900 |
| PKG# | 1118 | 5099 |
| POD | CP-40-1 | CP-40-14 |
| k | 0.550 mm | 0.650 mm |
| b | 0.21 mm | 0.25 mm |

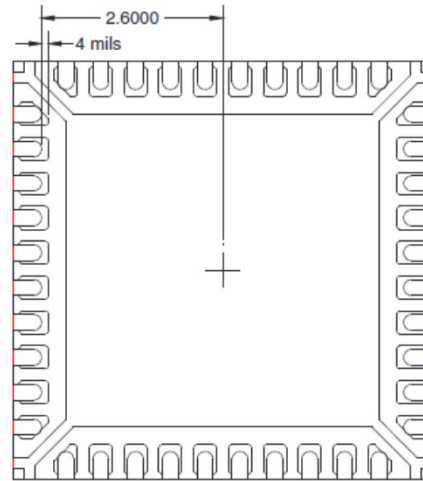
The 2nd bond location of AEK LF is within bonding area location of STATS LF.

40L LFCSP 6X6

Bonding area location from pad center shaded in gray.

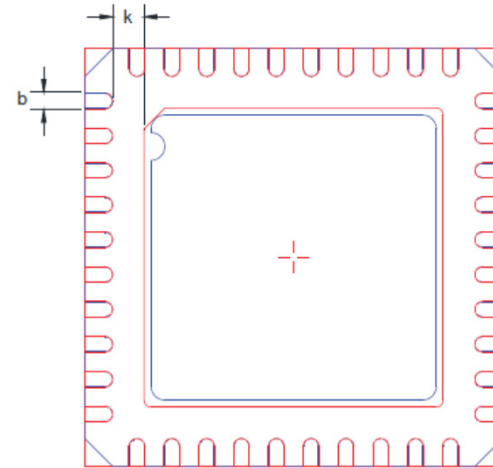


STATS - PKG#1118
CP-40-1



AEK - PKG#5003
CP-40-10

POD Footprint overlay



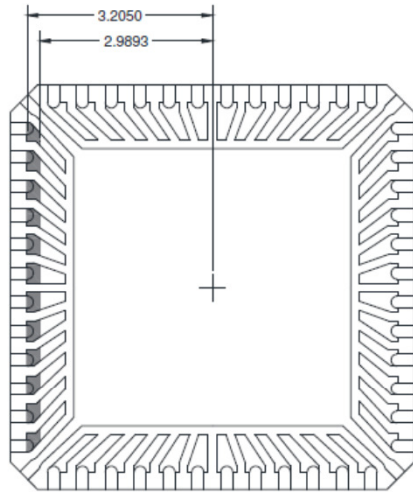
STATS : CP-40-1
AEK : CP-40-10

| | 40L LFCSP 6x6 | |
|-----------|---------------|-------------|
| | STATS | ASE |
| PAD SIZE | 4300 x 4300 | 4500 x 4500 |
| EPAD SIZE | 4100 x 4100 | 4300 x 4300 |
| PKG# | 3365 | 5003 |
| POD | CP-40-1 | CP-40-10 |
| k | 0.550 mm | 0.450 mm |
| b | 0.21 mm | 0.25 mm |

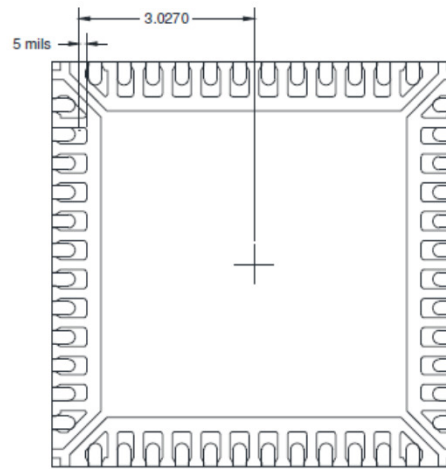
The 2nd bond location of AEK LF is within bonding area location of STATS LF.

48L LFCSP 7X7

Bonding area location from pad center shaded in gray.

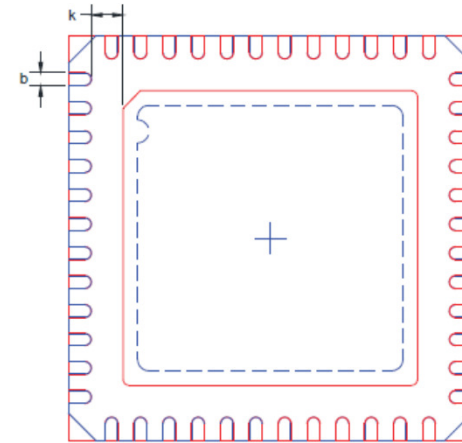


STATS - PKG#3758
CP-48-12



AEK - PKG#5004
CP-48-4

POD Footprint overlay



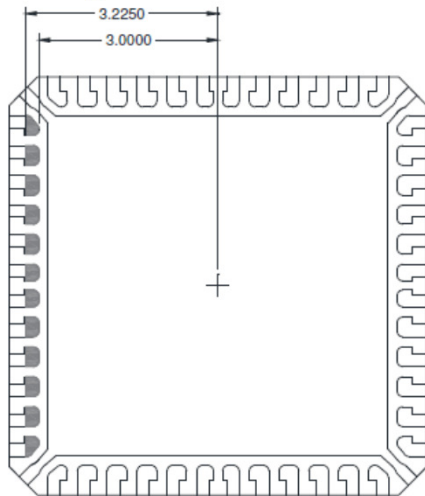
STATS : CP-48-12
AEK : CP-48-4

| | 48L LFCSP 7x7 | |
|-----------|---------------|-------------|
| | STATS | ASE |
| PAD SIZE | 4800 x 4800 | 5300 x 5300 |
| EPAD SIZE | 4600 x 4600 | 5100 x 5100 |
| PKG# | 3758 | 5004 |
| POD | CP-48-12 | CP-48-4 |
| k | 0.800 mm | 0.550 mm |
| b | 0.21 mm | 0.23 mm |

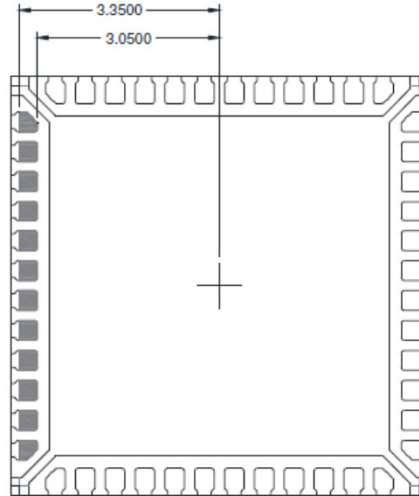
The 2nd bond location of AEK LF is within bonding area location of STATS LF.

48L LFCSP 7X7

Bonding area location from pad center is the tip of the lead length because the C&I does not have positive bias.

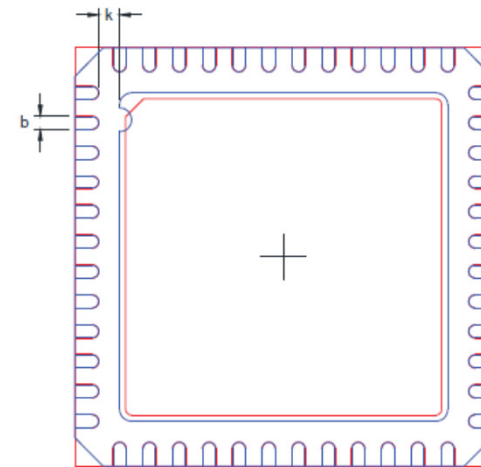


STATS - PKG#3558
CP-48-8



AEK - PKG#5074
CP-48-20

POD Footprint overlay



STATS : CP-48-8
AEK : CP-48-20

| | 48L LFCSP 7x7 | |
|-----------|---------------|-------------|
| | STATS | ASE |
| PAD SIZE | 5700 x 5700 | 5700 x 5700 |
| EPAD SIZE | 5500 x 5500 | 5300 x 5300 |
| PKG# | 3558 | 5074 |
| POD | CP-48-8 | CP-48-20 |
| k | 0.350 mm | 0.450 mm |
| b | 0.21 mm | 0.23 mm |

The 2nd bond location of AEK LF is the same with SCC LF because the C&I used Does not have a positive bias.

LFCSP 4x4 to 7X7 mm Package Outline Drawing (POD)

| Body Size (mm) | Lead Count | Punch Type LFCSP STATSChipPAC-Singapore (SCS) | | | | Sawn Type LFCSP ASE-Korea (AEK) | | | |
|----------------|------------|--|---------------------|------------------|-----------------------|------------------------------------|----------------------------|------------------|-----------------------|
| | | POD Spec | E-Pad Size (mm SQ.) | Lead Length (mm) | Lead Width (mm) | POD Spec | E-Pad Size (mm SQ.) | Lead Length (mm) | Lead Width (mm) |
| 4x4 | 24 | CP-24-2 | 2.30x2.30 ± 0.15 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-24-14 | 2.30x2.30 ± 0.10 | 0.40 ± 0.10 | 0.25 ± 0.05 |
| 5x5 | 32 | CP-32-2 | 3.10x3.10 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 | CP-32-7 | 3.10x3.10 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 |
| 5x5 | 32 | CP-32-3 | 3.30x3.30 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 | CP-32-13 | 3.30x3.30 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 |
| 5x5 | 32 | CP-32-4 | 3.50x3.50 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 | CP-32-12 | 3.60x3.60 + 0.15 - 0.05 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 |
| 6x6 | 40 | CP-40-1 | 4.10x4.10 ± 0.15 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-40-14 | 3.90x3.90 ± 0.15 | 0.40 ± 0.05 | 0.25 + 0.05 - 0.07 |
| 6x6 | 40 | CP-40-1 | 4.10x4.10 ± 0.15 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-40-10 | 4.30x4.30 + 0.15 - 0.05 | 0.40 ± 0.05 | 0.23 + 0.07 - 0.05 |
| 6x6 | 40 | CP-40-4 | 4.30x4.30 ± 0.15 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-40-10 | 4.30x4.30 + 0.15 - 0.05 | 0.40 ± 0.05 | 0.23 + 0.07 - 0.05 |
| 7x7 | 48 | CP-48-3 | 4.10x4.10 ± 0.15 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-48-5 | 4.10x4.10 ± 0.15 | 0.40 ± 0.05 | 0.23 + 0.07 - 0.05 |
| 7x7 | 48 | CP-48-12 | 4.60x4.60 ± 0.10 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-48-4 | 5.10x5.10 ± 0.10 | 0.40 ± 0.05 | 0.23 + 0.07 - 0.05 |
| 7x7 | 48 | CP-48-1 | 5.10x5.10 ± 0.15 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-48-4 | 5.10x5.10 ± 0.10 | 0.40 ± 0.05 | 0.23 + 0.07 - 0.05 |
| 7x7 | 48 | CP-48-8 | 5.50x5.50 ± 0.05 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-48-20 | 5.30x5.30 ± 0.10 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 |

- NOTE: 1. POD spec indicated in blue have a change in AEK POD Spec number and E-Pad Size.
 2. POD spec indicated in green has a change in SCS POD Number i.e. CP-40-1 and have parts for both CP-40-14 and CP-40-10.
 3. POD spec change for "SCS CP-48-6 to AEK CP-48-5" removed.

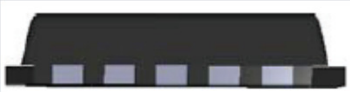



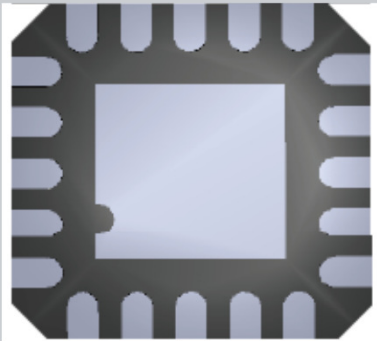
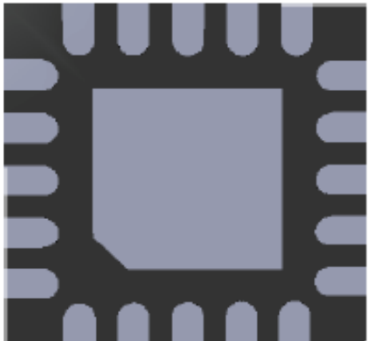
LFCSP 4x4 to 7X7 mm

Bill Of Materials

| BODY SIZE | MATERIAL | FROM: SCS | TO: AEK |
|-----------|--|--|---|
| 4X4 | Die Attach Wire Mold Compound Leadframe | Ablestik 8290 MKE UB 4N Gold 1.0mil Sumitomo G700E C194 | Ablestik 8290 MKE R 2N/4N Gold 0.8/1.0mil Sumitomo G700 C194 |
| 5X5 | Die Attach Wire Mold Compound Leadframe | Ablestik 8290 MKE UB 4N Gold 1.0 mil Sumitomo G700E C194 | Hitachi EN 4900GC MKE R 2N/4N Gold 0.8/1.0mil Sumitomo G700 C194 |
| 6X6 | Die Attach Wire Mold Compound Leadframe | Ablestik 8290 MKE UB 4N Gold 1.0mil Sumitomo G700E C194 Ablestik 3230 MKE UB 4N Gold 1.0mil Sumitomo G700E C194 | Hitachi EN 4900GC MKE R 2N/4N Gold 0.8/1.0mil Sumitomo G700 C194 |
| 7X7 | Die Attach Wire Mold Compound Leadframe | Ablestik 8290 MKE UB 4N Gold 1.0mil Sumitomo G700E C194 Ablestik 3230 MKE UB 4N Gold 1.0mil Sumitomo G700E C194 | Hitachi EN 4900GC MKE R 2N/4N Gold 0.8/1.0mil Sumitomo G700 C194 |

NOTE: 1. Material set in green added for SCS 7x7.
2. Wire type ID in blue added for all material sets of AEK 4x4-7x7.

LFCSP 4x4 to 7X7 mm Package Configuration and Pin One Marking

| Package | FROM: SCS | TO: AEK | Remarks |
|---------|---|--|--|
| |  |  | SCS Punch: Flange AEK Sawn: Square |
| Top |  |  | AEK Sawn: <ul style="list-style-type: none"> • Square edge • Pin one is laser marked |
| Bottom |  |  | AEK Sawn: <ul style="list-style-type: none"> • Chamfer pad pin one indicator |

| Body Size | Lead Count | Generic | AFFECTED FINISHED GOOD PARTS | | | | | | | |
|-----------|------------|----------|------------------------------|--------------------|-------------------|-------------------|-------------------|------------------|---------------|------------------|
| | | | | | | | | | | |
| 7x7 | 48 | AD9219 | AD9219ABCPZ-40 | AD9219ABCPZ-65 | AD9219ABCPZRL7-40 | | | | | |
| 7x7 | 48 | AD9228 | AD9228ABCPZ-40 | AD9228ABCPZ-65 | AD9228ABCPZRL7-40 | AD9228ABCPZRL7-65 | | | | |
| 7x7 | 48 | AD9229 | AD9229ABCPZ-50 | AD9229ABCPZ-65 | | | | | | |
| 7x7 | 48 | AD9255 | AD9255BCPZ-105 | AD9255BCPZ-125 | AD9255BCPZ-80 | AD9255BCPZRL7-105 | AD9255BCPZRL7-125 | AD9255BCPZRL7-80 | | |
| 7x7 | 48 | AD9259 | AD9259ABCPZ-50 | AD9259ABCPZRL7-50 | | | | | | |
| 7x7 | 48 | AD9261 | AD9261BCPZ-10 | AD9261BCPZRL7-10 | | | | | | |
| 7x7 | 48 | AD9265 | AD9265BCPZ-105 | AD9265BCPZ-125 | AD9265BCPZ-80 | AD9265BCPZRL7-105 | AD9265BCPZRL7-125 | AD9265BCPZRL7-80 | | |
| 7x7 | 48 | AD9284 | AD9284BCPZ-250 | AD9284BCPZRL7-250 | | | | | | |
| 7x7 | 48 | AD9286 | AD9286BCPZ-500 | AD9286BCPZRL7-500 | | | | | | |
| 7x7 | 48 | AD9287 | AD9287ABCPZ-100 | | | | | | | |
| 7x7 | 48 | AD9517-0 | AD9517-0ABCPZ | AD9517-0ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9517-1 | AD9517-1ABCPZ | AD9517-1ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9517-2 | AD9517-2ABCPZ | AD9517-2ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9517-3 | AD9517-3ABCPZ | AD9517-3ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9517-4 | AD9517-4ABCPZ | AD9517-4ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9518-0 | AD9518-0ABCPZ | AD9518-0ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9518-1 | AD9518-1ABCPZ | AD9518-1ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9518-2 | AD9518-2ABCPZ | AD9518-2ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9518-3 | AD9518-3ABCPZ | AD9518-3ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9518-4 | AD9518-4ABCPZ | AD9518-4ABCPZ-RL7 | | | | | | |
| 7x7 | 48 | AD9644 | AD80274BCPZ-155 | AD80274BCPZRL7-155 | AD9644BCPZ-155 | AD9644BCPZ-80 | AD9644BCPZRL7-155 | AD9644BCPZRL7-80 | AD9644CCPZ-80 | AD9644CCPZRL7-80 |
| 7x7 | 48 | AD9967 | AD9967BCPZ | AD9967BCPZRL | | | | | | |

PARTS AFFECTED BY DIMENSIONAL CHANGES TO PODS

| Body Size (mm) | Lead Count | Punch Type LFCSP STATSChipPAC-Singapore (SCS) | | | | (FROM) Sawn Type LFCSP ASE-Korea (AEK) | | | | (TO) Sawn Type LFCSP ASE-Korea (AEK) | | | | AFFECTED FINISHED GOOD PARTS | | | |
|----------------|------------|--|---------------------|------------------|--------------------|---|-------------------------|------------------|--------------------|---|---------------------|------------------|--------------------|------------------------------|-------------------|-------------------|--------------------|
| | | POD Spec | E-Pad Size (mm SQ.) | Lead Length (mm) | Lead Width (mm) | POD Spec | E-Pad Size (mm SQ.) | Lead Length (mm) | Lead Width (mm) | POD Spec | E-Pad Size (mm SQ.) | Lead Length (mm) | Lead Width (mm) | | | | |
| 5x5 | 32 | CP-32-3 | 3.30x3.30 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 | CP-32-12 | 3.60x3.60 + 0.15 - 0.07 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 | CP-32-13 | 3.30x3.30 ± 0.15 | 0.40 ± 0.10 | 0.25 + 0.05 - 0.07 | AD5204BCPZ10-REEL | ADF7241BCPZ | ADF7242BCPZ | ADV7391BCPZ |
| 7x7 | 48 | CP-48-8 | 5.30x5.50 ± 0.05 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | CP-48-13 | 5.60x5.60 ± 0.10 | 0.40 ± 0.10 | 0.25 ± 0.05 | CP-48-20 | 5.30x5.30 ± 0.10 | 0.40 ± 0.10 | 0.23 + 0.07 - 0.05 | AD5204BCPZ10-REEL7 | ADF7241BCPZ-RL7 | ADF7242BCPZ-RL | ADV7391BCPZ-REEL |
| | | | | | | | | | | | | | | AD9219ABCPZ-40 | AD9255BCPZRL7-80 | AD9517-1ABCPZ | AD9518-3ABCPZ |
| | | | | | | | | | | | | | | AD9219ABCPZ-65 | AD9259ABCPZ-50 | AD9517-1ABCPZ-RL7 | AD9518-3ABCPZ-RL7 |
| | | | | | | | | | | | | | | AD9219ABCPZRL7-40 | AD9259ABCPZRL7-50 | AD9517-2ABCPZ | AD9518-4ABCPZ |
| | | | | | | | | | | | | | | AD9228ABCPZ-40 | AD9261BCPZ-10 | AD9517-2ABCPZ-RL7 | AD9518-4ABCPZ-RL7 |
| | | | | | | | | | | | | | | AD9228ABCPZ-65 | AD9261BCPZRL7-10 | AD9517-3ABCPZ | AD80274BCPZ-155 |
| | | | | | | | | | | | | | | AD9228ABCPZRL7-40 | AD9265BCPZ-105 | AD9517-3ABCPZ-RL7 | AD80274BCPZRL7-155 |
| | | | | | | | | | | | | | | AD9228ABCPZRL7-65 | AD9265BCPZ-125 | AD9517-4ABCPZ | AD9644BCPZ-155 |
| | | | | | | | | | | | | | | AD9229ABCPZ-50 | AD9265BCPZ-80 | AD9517-4ABCPZ-RL7 | AD9644BCPZ-80 |
| | | | | | | | | | | | | | | AD9229ABCPZ-65 | AD9265BCPZRL7-105 | AD9518-0ABCPZ | AD9644BCPZRL7-155 |
| | | | | | | | | | | | | | | AD9255BCPZ-105 | AD9265BCPZRL7-125 | AD9518-0ABCPZ-RL7 | AD9644BCPZRL7-80 |
| | | | | | | | | | | | | | | AD9255BCPZ-125 | AD9265BCPZRL7-80 | AD9518-1ABCPZ | AD9644CCPZ-80 |
| | | | | | | | | | | | | | | AD9255BCPZ-80 | AD9287ABCPZ-100 | AD9518-1ABCPZ-RL7 | AD9644CCPZRL7-80 |
| | | | | | | | | | | | | | | AD9255BCPZRL7-105 | AD9517-0ABCPZ | AD9518-2ABCPZ | AD9965BCPZ |
| | | | | | | | | | | | | | | AD9255BCPZRL7-125 | AD9517-0ABCPZ-RL7 | AD9518-2ABCPZ-RL7 | AD9965BCPZRL |
| | AD9967BCPZ | AD9967BCPZRL | | | | | | | | | | | | | | | |