

SOLDER FORTIFICATION[®] PREFORMS

Design Guide



SOLDER FORTIFICATION® PREFORMS

INTRODUCTION

Obtaining the correct amount of solder to ensure a strong solder joint is critical in electronics manufacturing. However, miniaturization trends, such as the reduction of stencil thickness and more tightly fitted components, make this increasingly difficult. **Solder Fortification® Preforms** can provide the solution for these challenging issues.

Solder Fortification® Preforms are generally rectangle-shaped pieces of alloyed metal that do not contain any flux. The preform is added to a deposit of solder paste using standard pick and place equipment. Since the alloy for both the preform and the solder paste is the same, the preform will reflow at the same temperature as the solder paste, with the solder paste providing the necessary flux. The preform increases the volume of solder above what could be achieved with just solder paste, especially for stencils with a pitch of 0.3mm or less.

Features

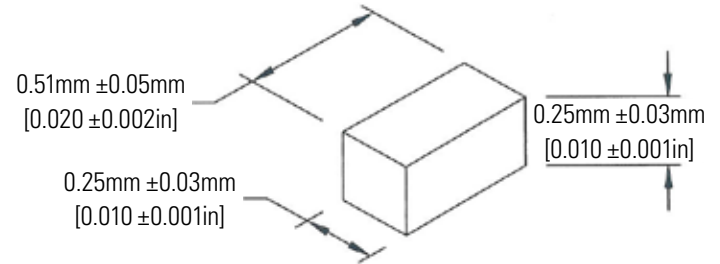
- Increased solder volume
- Improved drop test results
- Fewer issues with flux residue
- Reduced rework
- Improved fillet shape and volume
- Maximized pick rate

ADVANTAGES

The advantages of **Solder Fortification® Preforms** include:

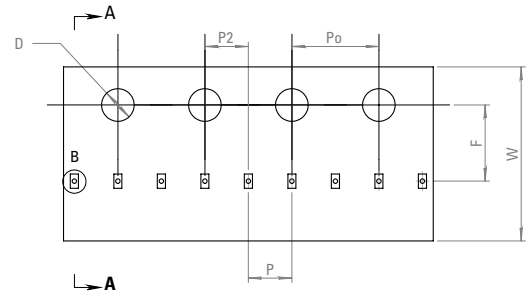
- Increased solder volume compared to what could be achieved with just solder paste
- Fewer issues with flux residue
- Elimination of costly or time-consuming processes, such as wave soldering or selective soldering
- Stronger solder joints, which help improve drop test results
- Reduced rework and other manual processes to add solder volume
- Improved shape and volume of fillet to ensure joints meet IPC specifications

Solderable Preform 0201

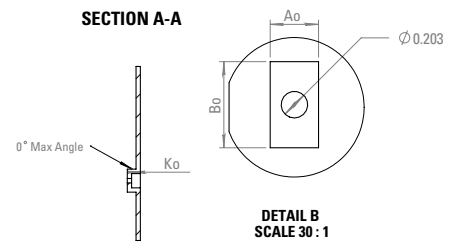


Notes: Unless Otherwise Specified

Standard Material, Other Alloys Available	SAC305
	Sn62
	Sn63
50k per 13" Reel	
13" Reel to have a 2.5" center hub	



SECTION A-A



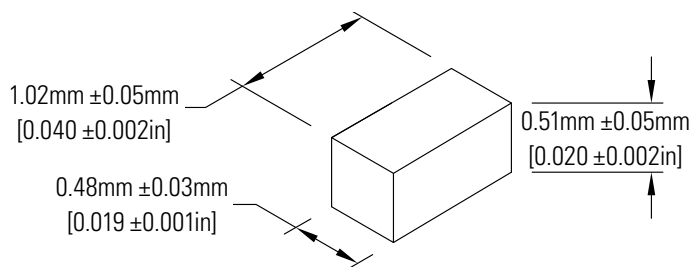
DETAIL B
SCALE 30 : 1

	D	E	F	D1	Po	P2
MM	1.500 +0.100 -0.000	1.750 0.100	3.500 ±0.25 -0.00	1.000 +0.25 -0.00	4.000 ±0.100	2.000 ±0.050
INCHES	0.059 +0.004 -0.000	0.069 ±0.004	0.138 +0.010 -0.000	0.039 +0.010 -0.000	0.157 ±0.004	0.079 ±0.002

	T	W	P	Ao	Bo	Ko
MM	0.200 ±0.0200	8.000 +0.30 -0.10	2.000 ±0.100	0.300 ±0.030	0.580 ±0.030	0.300 ±0.030
INCHES	0.008 ±0.0008	0.315 +0.012 -0.004	0.079 ±0.004	0.011 ±0.001	0.022 ±0.001	0.011 ±0.001

From One Engineer To Another®

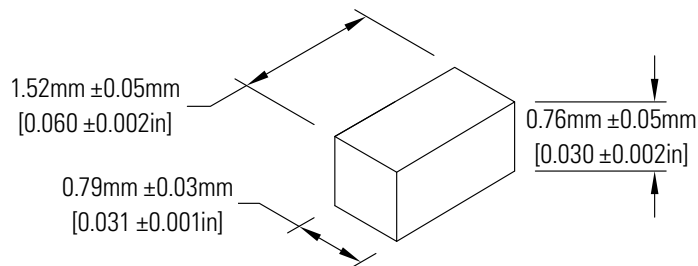
Solderable Preform 0402



Notes: Unless Otherwise Specified

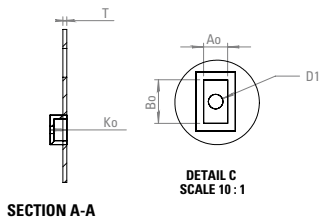
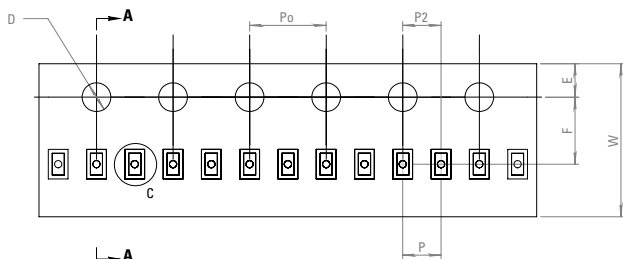
Standard Material, Other Alloys Available	SAC305
	SAC387
	Sn62
	Sn63
15k per 13" reel	
13" Reel to have a 2.5" center hub	

Solderable Preform 0603

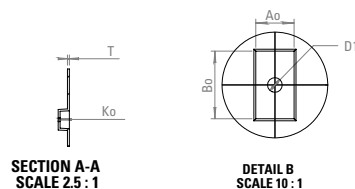
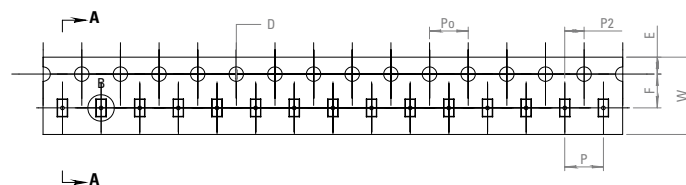


Notes: Unless Otherwise Specified

Standard Material, Other Alloys Available	SAC305
	SAC387
	Sn62
	Sn63
15k per 13" reel	
13" Reel to have a 2.5" center hub	



	D	E	F	D1	P ₀	P ₂
MM	1.500 ^{+0.10} _{-0.00}	1.750 0.100	3.500 ^{+0.050}	0.380 ^{+0.03} _{-0.03}	4.000 ±0.100	2.000 ^{+0.050}
INCHES	0.059 ^{+0.004} _{-0.000}	0.069 ^{+0.004} _{±0.004}	0.138 ^{+0.002} _{±0.002}	0.015 ^{+0.001} _{-0.001}	0.157 ^{+0.004} _{±0.004}	0.079 ^{+0.002} _{±0.002}
	T	W	P	A ₀	B ₀	K ₀
MM	TBD	8.000 ^{+0.300} _{-0.100}	2.000 ±0.100	0.610 ±0.100	1.200 ±0.100	0.610 ±0.100
INCHES	TBD	0.315 ^{+0.012} _{-0.004}	0.157 ^{+0.004} _{±0.004}	0.024 ^{+0.004} _{±0.004}	0.047 ^{+0.004} _{±0.004}	0.024 ^{+0.004} _{±0.004}



	D	E	F	D1	P ₀	P ₂
MM	1.500 ^{+0.100} _{-0.000}	1.750 0.100	3.500 ^{+0.050}	0.380 ^{+0.250} _{-0.250}	4.000 ±0.100	2.000 ^{+0.050}
INCHES	0.059 ^{+0.004} _{-0.000}	0.069 ^{+0.004} _{±0.004}	0.138 ^{+0.002} _{±0.002}	0.015 ^{+0.010} _{-0.010}	0.157 ^{+0.004} _{±0.004}	0.079 ^{+0.002} _{±0.002}
	T	W	P	A ₀	B ₀	K ₀
MM	0.200 ±0.0200	8.000 ^{+0.30} _{-0.10}	4.000 ±0.100	0.990 ±0.100	1.750 ±0.100	0.960 ±0.100
INCHES	0.008 ^{+0.0008} _{±0.0008}	0.315 ^{+0.012} _{-0.0004}	0.157 ^{+0.004} _{±0.004}	0.039 ^{+0.004} _{±0.004}	0.069 ^{+0.004} _{±0.004}	0.038 ^{+0.004} _{±0.004}

SOLDER FORTIFICATION® PREFORMS

SOLDER FORTIFICATION® SOLUTION OPTIONS

Standard Sizes (other sizes available on request):

Name	Size	Quantity Per Reel		Example Weight: SAC305 (grams/ea)
		7"	13"	
0201	.010" x .020" x .010" rectangle (0.254mm x 0.508mm x 0.254mm)	1k	50k	0.00024
0402	.020" x .040" x .019" rectangle (0.508mm x 1.01mm x 0.48mm)	1k	15k	0.00182
0603	.030" x .060" x .030" rectangle (0.76mm x 1.52mm x 0.787mm)	1k	15k	0.00672
0805	.050" x .080" x .050" rectangle (1.27mm x 2.03mm x 1.27mm)	1k	15k	0.02410

Packaging

Solder Fortification® Preforms are packaged in tape & reel for easy placement by standard pick and place machines.

Common Alloys

- SAC305
- SAC387
- Sn63
- Sn62
- BiSn
- BiSnAg

Technical and Customer Support

Indium Corporation's internationally experienced engineers provide in-depth technical assistance to our customers.

Thoroughly knowledgeable in all facets of Materials Science as it applies to the electronics and semiconductor sectors, technical support engineers provide expert advice in solder properties, alloy compatibility, and selection of solder preforms, wire, ribbon, and paste. Indium Corporation's technical support engineers provide rapid response to all technical inquiries.



Contact our engineers today: esolders@indium.com

Learn more: www.indium.com/solderfortification

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