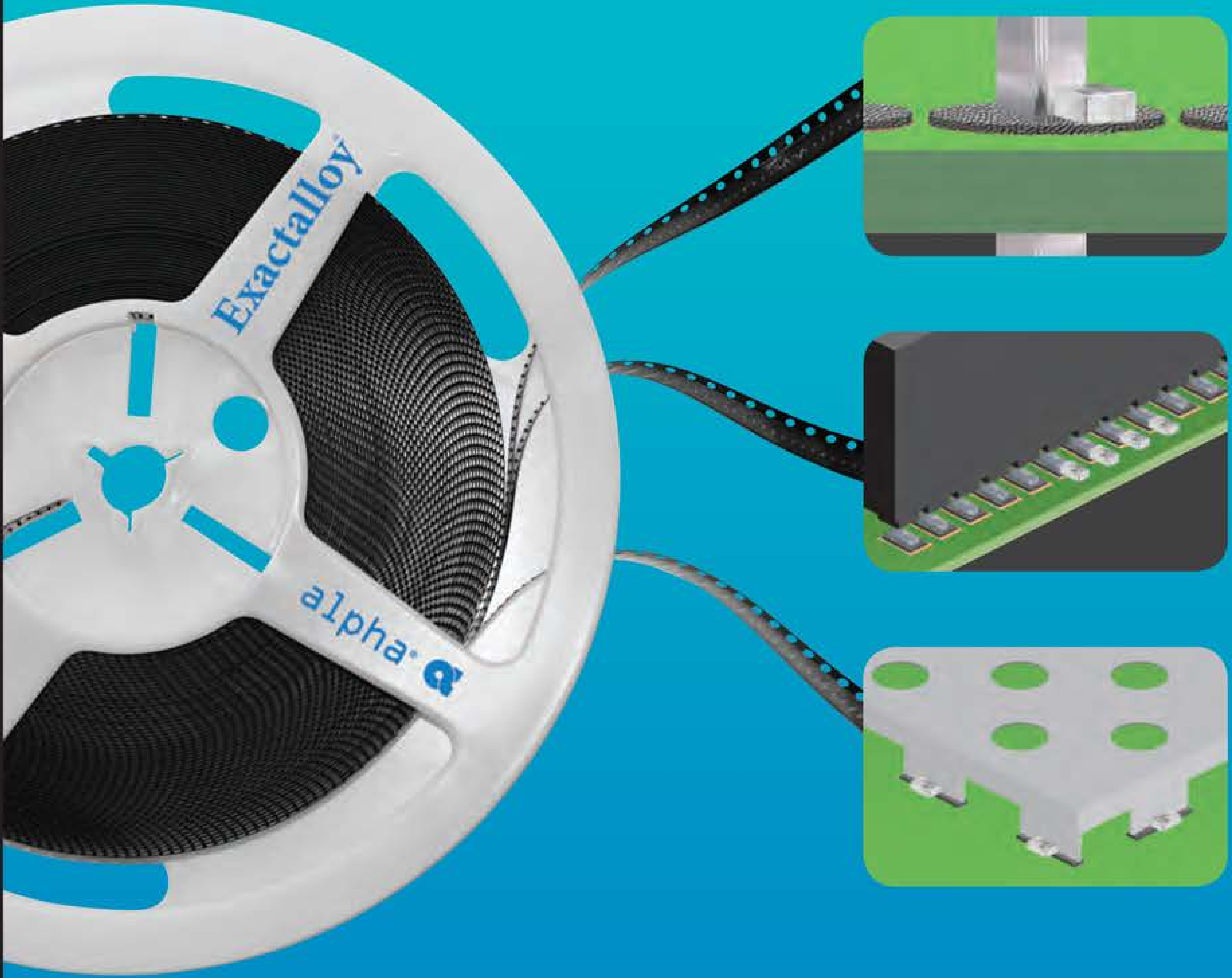
ALPHA® Exactalloy® Solder Preforms

Versatile Solutions for Challenging Assembly Applications



The combination of preforms and solder paste optimizes solder volume and enhances joint strength and reliability.

http://bit.ly/AlphaPreformHome

alpha®

ACHIEVE 100% HOLE FILL IMPROVE MECHANICAL RELIABILITY RESTORE RF SHIELD INTEG

IMPROVE FIRST PASS YIELD ELIMINATE PIN SHORTS FROM WAVE REDUCE FLUX RESIDUE INCREASE SOLDER VOLUME OVERCOME SMT CONNECTOR NON-PLANARITY

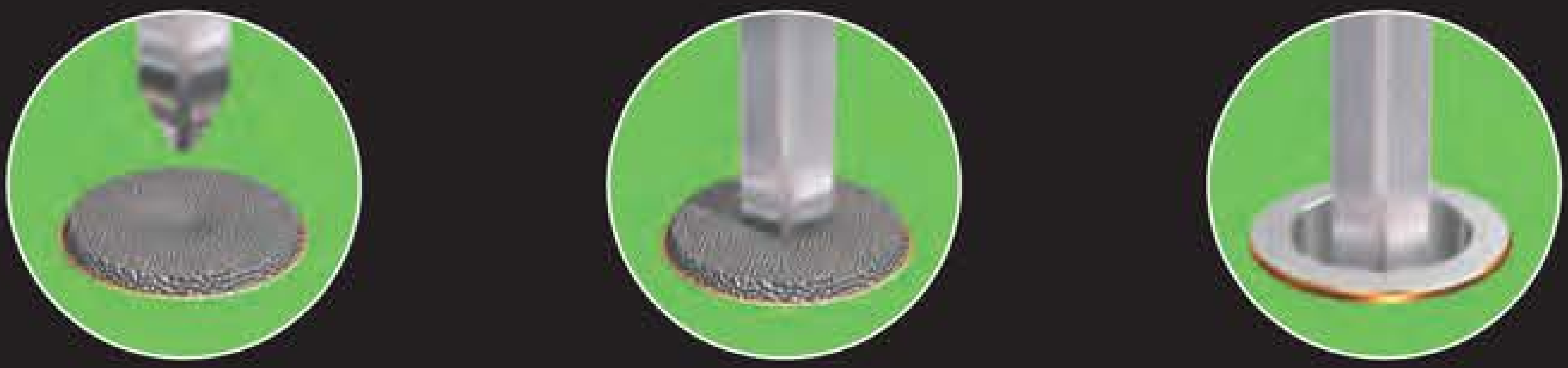
ALPHA® Exactalloy® Solder Preforms

Tape & Reel Packaging

ALPHA® Exactalloy® Preform technology is based on our dedicated research and development work which is focused on meeting your electronic assembly requirements. Whether it is solving hole fill issues or RF shield challenges, we have the right preform solution that will ensure solder joint reliability and high first pass yield.

Reflow of Through Hole Components

Conventional: solder paste only



Thick boards and tight pin spacing result in inadequate hole fill.

Supplemented with ALPHA® Exactalloy® Preforms

A preform added to solder paste yields 100% hole fill plus fillet.

Eliminate Wave Soldering

Key Benefits:

- Improved first pass yield
- 100% hole fill
- No board thickness limitations
- Fillets as required
- PCB exposed to fewer thermal cycles

Key Considerations:

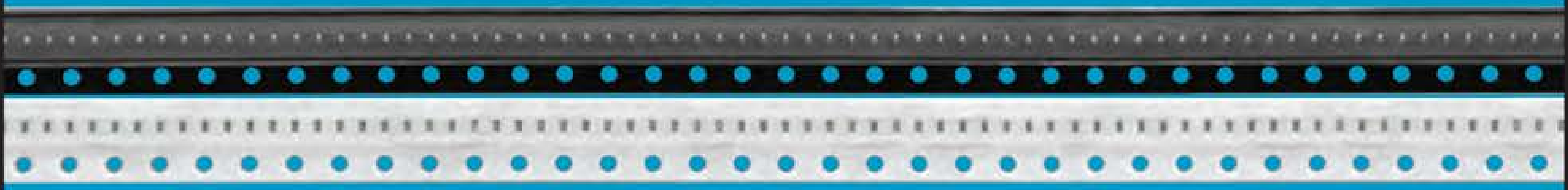
- Components tolerate reflow temperature
- Component stand-off height
- No shoulder on pins
- No paste is printed underneath stand-offs
- Pin protrusion is not excessive
- Pin hole ratio is reasonable

Learn more
http://bit.ly/AlphaPreformsElimofWave

RITY ELIMINATE POST SMT HANDLING DAMAGE REALIZE COST REDUCTION ELIMINATE FLUX MIGRATION FAILURES IM

New Technology Yields Highest Performance

Alpha deploys a number of manufacturing techniques to meet the needs of the tape and reel preform market. For the smallest tape and reel preforms, Alpha's new Symmetrical Technology creates a preform with four identical pick surfaces, enabling the industry's highest pick and place rates.



Alpha provides preforms in plastic and paper tapes to meet your performance requirements. (Actual size shown)

ALPHA® SnBiAg Preform and Solder Paste Technology Enables Low Temperature RoHS Soldering

SnBiAg solder has emerged as a viable solder alloy for an increasing number of applications. Solder preforms in SnBiAg bring all the benefits of preform technology to the low temperature solder world.

SnBi57.6Ag0.4 – Available Preform Sizes			
1406	1206	0805	0805H
0603	0603H	0402	

ALPHA® InnoLot™ Preform and Solder Paste Technology Delivers Exceptional Thermal Cycling Endurance

InnoLot™ solder plays a critical role in high-temperature applications, such as automotive engine control units (ECU), where an increasing trend is to locate electronics near the engine. InnoLot is also being used in outdoor telecom applications, a tribute to the alloy's superior thermal cycling endurance.

InnoLot – Available Preform Sizes			
1406	1206	0805	0805H
0603	0603H	0402	0402H

Tape & Reel Packaging

Metric (mm)											
Sizes	**0403**	**0505**	**06035**	**1006H**	**1005**	**1608H**	**1608**	**2013**	**2013S**	**3015**	**3615**
L	0.44	0.51	0.6	1.0	1.0	1.6	1.6	2.0	2.0	3.01	3.56
W	0.28	0.51	0.35	0.6	0.5	0.8	0.8	1.3	1.3	1.47	1.52
H	0.28	0.25	0.35	0.25	0.5	0.5	0.8	0.76	1.3	0.76	0.77
Volume (mm^3)	0.042	0.065	0.074	0.15	0.25	0.64	1.02	1.98	3.38	3.36	4.17
English (mils)											
Sizes	**0201S**	**0202**	**024014**	**0402H**	**0402**	**0603H**	**0603**	**0805**	**0805S**	**1206**	**1406**
L	17	20	24	39	39	63	63	79	79	118	140
W	11	20	14	24	20	31	31	51	51	57	60
H	11	10	14	10	20	20	31	30	51	30	30
Volume (K mil^3)	2	4	4.5	8.4	15.6	39	61	121	205	202	254
Quantities per Reel											
7″ Reels	10,000	10,000	10,000	5,000	5,000	4,000	4,000	3,000	3,000	3,000	3,000
13″ Reels	50,000	50,000	50,000	25,000	25,000	20,000	15,000	15,000	15,000	15,000	15,000
Alloys											
Pb-Free	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SnPb		✓		✓	✓	✓	✓	✓	✓	✓	✓
SnBiAg					✓	✓	✓	✓	✓	✓	✓

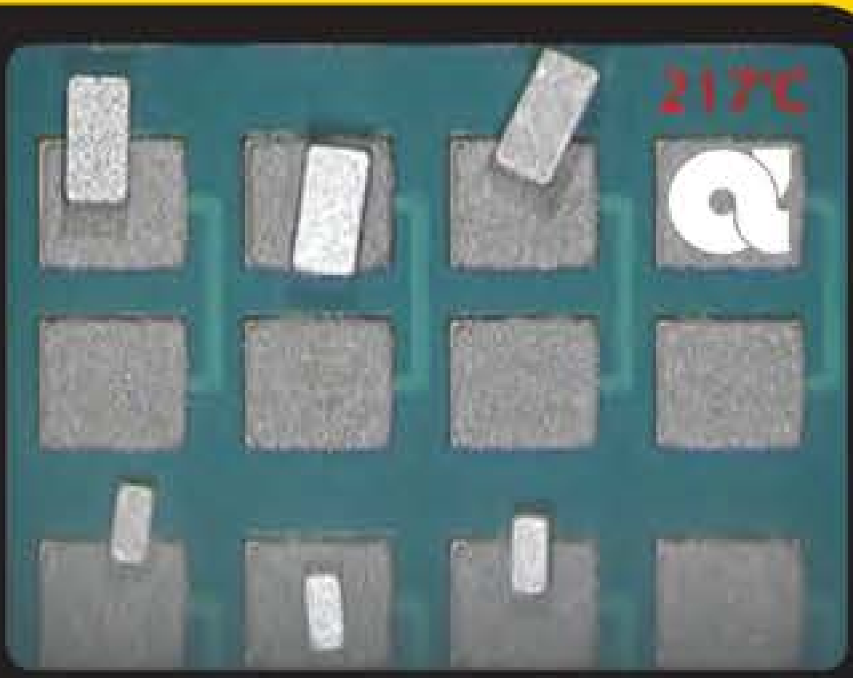
Versatile Solutions for Challenging Assembly Applications

Selectively Increase Solder Volume

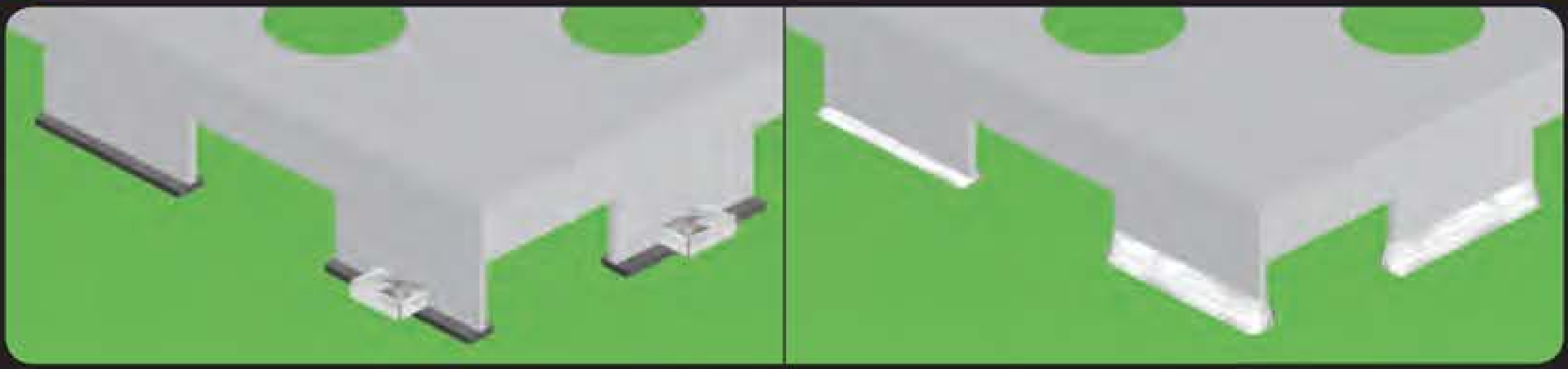
During reflow, the preform is pulled into the solder, creating a solder joint with increased volume.

The preform volume can be up to four times the solder paste volume and routinely achieve excellent reflow results.

See video
http://bit.ly/AlphaPreformVideo



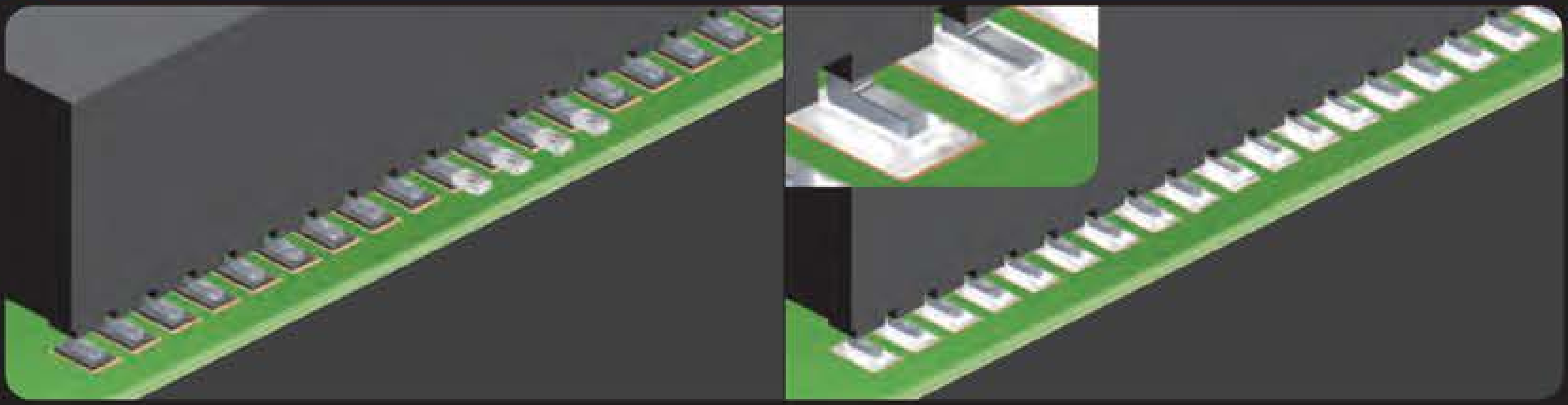
Application: RF Shield



Before reflow, preforms in paste **After reflow, extra solder volume**

RF shields represent two distinct challenges: characteristic warping and the need for relatively wide SMT pads for adequate solder. Preforms add solder, enabling the use of smaller shield pads, and maintain shield-board integrity despite warping.

Application: Long SMT Header Connector



Before reflow, preforms in paste **After reflow, extra solder volume**

Open circuits can occur with long header connectors if the board warps during reflow. Preforms add the solder volume needed to prevent opens and strengthen header connector joints, even when warping occurs.

Commonly Used Alloys

		Sn	Ag	Cu	Bi	Pb	Melting Temp
Lead-Free	SAC305	96.5	3.0	0.5	–	–	217-219°C
	Sn96.5Ag3.5	96.5	3.5	–	–	–	217°C
	SACX (SAC0807)	98.5	0.8	0.7	–	–	217-228°C
	SACX (SAC0307)	99.0	0.3	0.7	–	–	219-229°C
	SAC357	95.8	3.5	0.7	–	–	217°C
	SAC387	95.5	3.8	0.7	–	–	217°C
	SAC405	95.5	4.0	0.5	–	–	217-218°C
Low-Temp Lead-Free	SnBi57.6Ag0.4*	42	0.4	–	57.6	–	138°C
Tin-Lead	Sn63Pb37	63.0	–	–	–	37.0	183°C
	Sn62Pb36Ag2	62.0	2.0	–	–	36.0	179-182°C
	Sn62.8Pb36.8Ag0.4	62.0	0.4	–	–	36.8	179-183°C

Additional alloys and sizes available
* Other SnBi alloy blends available on request.

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