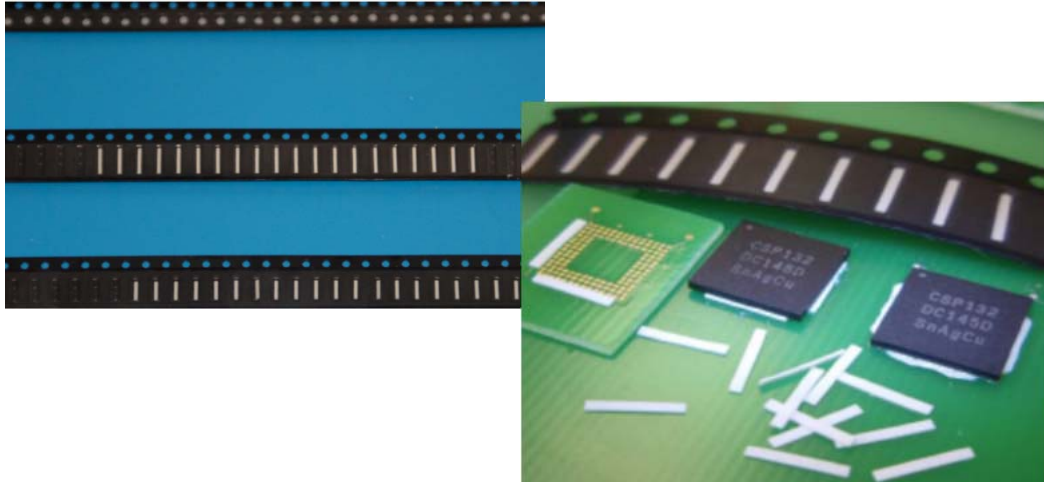


Place-N-Bond Underfilm



- Reduces solder ball/joint fatigue failures.
- Integrates seamlessly in manufacturing processes utilizing existing SMT lines and tape and reel feeders.
- Tested and implemented on applications using Lead-Free solders and Lead-Free assembly processes.
- No additional equipment purchase necessary or machine maintenance required.
- No PCB pre-bake required.
- No additional cure cycle required.
- 100% re-workable.
- 10+ Year shelf-life



Significantly Improve Solder Ball/Joint and Shock-Drop Reliability

Application

Pick and Place Underfilm technology was developed to reduce solder joint fatigue failures caused from drop and shock associated with brittle lead free solder joints and reduced joint size due to BGA miniaturization.

Simplified application utilizing existing tape and reel feeders plus high volume pick and place equipment on a current SMT assembly line.

- Underfilm does not interact with solder or flux
- Over one billion units in service
- Patented in USA and other countries

Features

- Enhances CSP and BGA solder joint reliability
- Reduces cost by combining pick and place plus soldering in one heating pass (no dispensing).
- No capital expense or equipment required
- Compatible with existing lead and Pb-free materials and reflow profiles.
- Air or nitrogen reflow compatible
- Requires no pre-baking of boards
- Reworkable
- RoHS compatible
- AOI easy recognition

Introduction

- Residue and solvent free, requires no post cleaning
- Migration free, will not interfere with solder or flux
- Micro precision technology allows for other SMT components to be placed in close proximity.

Reliability

Underfilm offers excellent adhesion to BGA/CSP devices.

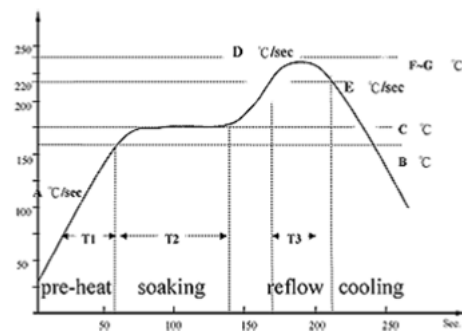
Edge weighted 6 foot drop test* results show a minimum of 10x improvement in solder joint reliability over BGA alone. 50x improvement has been obtained.

Packaging

- Supplied on reel per EIA 481 carrier tape.
- Utilization of precision carrier tape, cover tape and standard reels
- Standard moisture barrier bags and vacuum sealing

Process Recommendations

- Screen print solder paste, pick and place Underfilm, pick and place BGA, reflow
- No dehydration bake required / no clean
- Standard Pb-free reflow profiles can be used



Rework

Underfilm is 100% reworkable

Storage and Handling

- No special storage or handling required
- Outstanding shelf life

Mechanical

Hardness Shore	A 94A
Tensile Modulus	1200 PSI
Vicat Softening Point	177 F
Specific Gravity	1.22 g/cc
CTE 85	uin/in-F

