



# 9001 V3.0, V3.1, and V3.5 Liquid Encapsulants

## Introduction

Version 3.0, 3.1, and 3.5 are upgrades of the flexible “instant curing” Dymax 9001 encapsulant. Environmental testing and reliability data are listed below.

## Procedure and Materials

One hundred (100), one hundred and eighty (180), and five hundred (500) mil dies bonded to FR-4 circuit boards with 1 mil gold wire were encapsulated under approximately 30 mils of Dymax 9001-V3.0 resin. Cures were accomplished on a UVC-6PT curing unit with the conveyor belt set at 2 feet per minute (30 seconds of curing time). The measured UV intensity at 365 nm was 150 mW/cm<sup>2</sup>.

## Thermal Cycling

Ten encapsulated chips were placed in a thermal cycling oven set to cycle between -40°C and +125°C with a thirty-minute dwell at each temperature and a ninety minute transition time between temperatures. After ten cycles and equilibration at room temperature for one hour, each wire was tested for conductivity. A 50% change in resistance was deemed a failure.

Thermal Cycle Range	Number of Cycles	Result
-40°C to +125°C	2,000	Pass

## Autoclave Resistance at 120°C, 30 psi

Ten encapsulated chips were suspended two inches above the surface of tap water in an autoclave at 30 lbs of pressure. Temperature was measured at 120°C. The chips were allowed to equilibrate for one hour at room temperature before testing.

Hours	Failures
300	0%
500	0%
1,000	0%

## Humidity Resistance at 85°C and 100% R.H.

Ten encapsulated chips were suspended one inch above the surface of the water in a sealed glass container. The container was placed in an isothermal oven and maintained at 85°C. The conductivity of each wire was tested after equilibrating at room temperature for thirty minutes.

Hours	Failures
500	0%
800	0%
1,000	0%

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