

## SolarMax Energy Systems

# Double glass component embedding



## Overview

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This article describes the fabrication process for 3D GPE, leading to demonstration of a technology using embedding of chips with all-Cu interconnections at 40- $\mu\text{m}$  I/O pitch with TGVs at 300- $\mu\text{m}$  pitch, thus enabling double-side RDL and assembly of chips to achieve three levels of device integration. Is 3D glass panel embedding a good choice for large package applications?

WLFO promises better performance and form factor at lower costs, but current WLFO packages are mold-based and hence are limited to small packages. This paper presents the first demonstration of 3D Glass Panel Embedding (GPE) technology for high-performance large package applications involving heterogeneous integration.

Can glass panel embedding be used for a large body size heterogeneous integration?

This article presents a 3D packaging technology using glass panel embedding (GPE) for high-performance with potential for large body size heterogeneous integration applications.

Is 3D glass panel embedded a viable solution for large body size integration?

By addressing the critical parameters of die drift and surface planarity, this paper presents the first demonstration of a 3D Glass Panel Embedded (GPE) package for large body size integration with better performance, cost, and reliability than existing technologies.

What is 3D glass panel embedded (GPE)?

This paper demonstrates an advanced 3D Glass Panel Embedded (GPE) packages for heterogeneous integration of digital applications requiring high-density interconnections and RF applications with Through-Glass-Vias (TGVs) integrated in the fan-out region.

What is 2.5D glass panel embedding (GPE)?

This paper presents the first demonstration of a revolutionary new concept in scaling power-efficient bandwidth, cost, large package size and board-level reliability, called 2.5D glass panel embedding (GPE). High temperature and low CTE glass reduces die shifts from tens of microns in current molded fan-out to less than 2 microns in GPE.

What is the best material for glass embedding?

For glass support, use of setting blocks made of SikaForce®-335 GG material used for the glass embedding is recommended. This can avoid stress concentration in the glass edge due to stiffness differences. Regular expansion gaps can reduce stresses in the system that occur out of thermal movement of the different components.

## Double glass component embedding

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### Demonstration of Glass-based 3D Package Architectures with

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This paper presents a technology demonstration of two novel 3D glass-based architectures for high performance computing applications. Current 3D technologies ar.

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### Design and Demonstration of Glass Panel Embedding for 3D

...

The article, published in 2019 in the Journal of Microelectronics and Electronic Packaging, introduces and demonstrates a novel 3D packaging technology called Glass Panel Embedding ...



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### Knowledge graph embedding with self adaptive double-limited loss

Many well-performing embedding models for knowledge graphs employ a negative sampling framework to complete the representation learning in which the loss function is a ...

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## Wafer-level manufacturing method for embedding passive element in glass

A wafer-level manufacturing method for embedding a passive element in a glass substrate is disclosed. A highly-doped silicon wafer is dry etched to form a highly-doped silicon mold wafer, ...



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## Glass Embedding: New Design Considerations

Presented by Florian Doebbel, Sika Jan. 2019 Learn about the latest glass embedding technologies and applications. Resources Presentation handouts

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## Microsoft PowerPoint

Traditional methods of setting monolithic glass in railings such as cement-based grouts may be incompatible with laminated glass. Bolted or clamped systems must be designed and installed ...

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## Variable angle photometric characterization of a laminated glass



Glazing units containing sunshading devices (vertical blades, roller shutters, Venetian blinds, etc.) are available on the market nowadays. These products are roughly divided into two families: ...

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## Design and Demonstration of Glass Panel Embedding for 3D

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This article describes the fabrication process for 3D GPE, leading to demonstration of a technology using embedding of chips with all-Cu interconnections at 40-um I/O pitch with

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Our Lifepo4 batteries can beconnected in parallels and in series for larger capacity and voltage.



## Aschenbrenner MRS 2016 Power Embedding

Chip embedding - The key for efficient power electronic solutions R.  
Aschenbrenner Fraunhofer Institute for Reliability and Microintegration Gustav-Meyer-Allee 25, D - 13355 Berlin, ...

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## A 1-min double embedding method for small tissue ...

Primary embedding process for a corneum plug: (A) A drop of primary embedding liquid was placed on a glass slide containing the corneum plug; (B and C) the ...

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## PVI19\_Front\_Cover dd

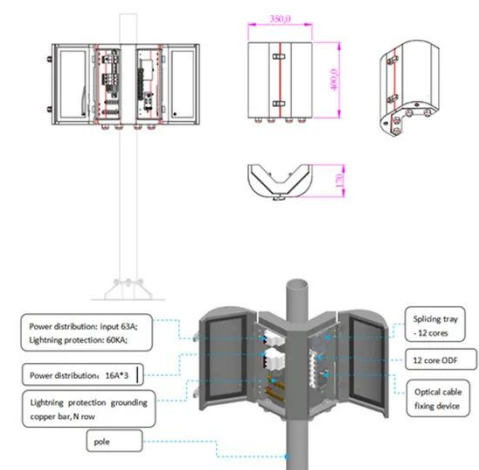
Introduction protection of the cells and other module Of the various module production components from exterior impacts. steps, the embedding process requires PV module set-up ...

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## Demonstration of Glass-based 3D Package Architectures with Embedded

This paper presents a technology demonstration of two novel 3D glass-based architectures for high performance computing applications. Current 3D technologies ar.

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## General Guideline Glass Embedding

This document contains recommendations and hints for the



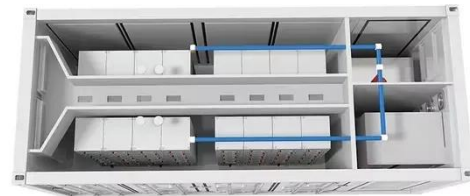


application of SikaForce®-335 GG, a self-levelling polymer grout based on polyurethane resin, for the embedding of monolithic or ...

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## GLASS EMBEDDING SAFE AND FAST GLASS ...

With SikaGlaze® GG-735 the bottom glass edge is embedded in standard U-profiles, and loads are securely transferred through the glass elements thus results in uniform stress distribution.



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## Sealing & Bonding in Facades

The glasses can be single panes (e.g. laminated glass in the outer skin of the double skin facade) or insulating units with UV-resistant silicone edge sealing and even with argon filling (Sikasil® ...

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## 2.5D Glass Panel Embedded (GPE) Packages with Better I/O

...

This paper demonstrates for the first



time a next generation high-bandwidth 2.5D glass panel embedding (GPE) architecture with better I/O density, performance,

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## Designing flexible SERS platforms by embedding double ...

The main component of SERS enhancement is the double-plasmonic Ag/Au bilayer structure, with the ZIF-8 framework serving as a porous shell to collect target molecules.

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## Krannich Solar Germany: Double glass solar panels

Double glass solar panels replace traditional polymer backsheets with a glass layer on the back of the module. This design encapsulates the ...

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## Glass Package With Multiple Embedded Dies for mmWave ...

This article presents a multiple-die-embedded glass package that supports a



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## Design and Demonstration of Glass Panel Embedding ...

The article, published in 2019 in the Journal of Microelectronics and Electronic Packaging, introduces and demonstrates a novel 3D packaging technology ...

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## Design and demonstration of Glass Panel Embedding for 3D ...

This paper describes the fabrication process for 3D GPE, leading to demonstration of a technology using embedding of chips with all-Cu interconnections at 40um I/O pitch while ...

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## Window Frame Parts Diagram and Breakdown

Explore the components and structure of

a window frame through a detailed diagram, understanding the parts and their functions for better window installation and repair.

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### **Component carrier with component embedded in cavity and with double**

A component carrier includes a base structure with component carrier material and forming a cavity, a component embedded in the cavity, a first electrically insulating layer structure ...

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