



TSV Packaging Service

NEMOTEK is the first provider of **SHELLCASE® MVP** technology providing a complete wafer-level chip scaled packaging solution to all types of image sensors for today's growing demand.

SHELLCASE® MVP is based on the core SHELLCASE® technologies serving more than 40% of the image sensors market.

- The image sensor is protected by glass
- Flexible design
- Applicable in both cavity and non-cavity format
- Applicable for the newest sensors designs: bond pitch from 70 µm, standard bond pads and scribe line dimensions
- Package thickness lower than initial Silicon, true X/Y dimensions

Cover glass µm	Min scribe line, µm	Cavity type package thickness, µm	Non-cavity type package thickness, µm
300	70	470	435
400	100	570	535
500	100	670	635

Main process steps

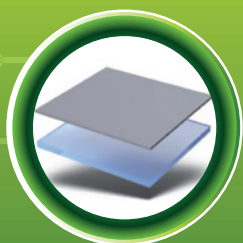
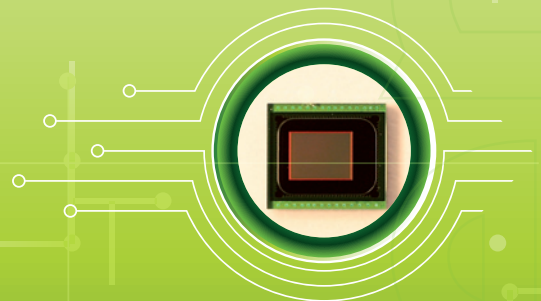
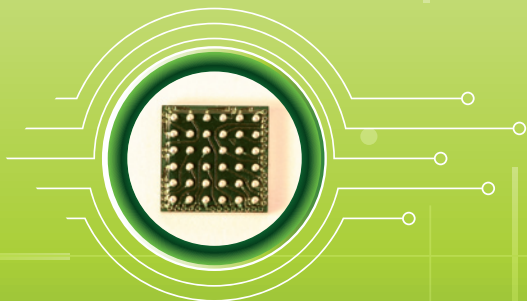
- Mature manufacturing technology
- Incorporation of Through Silicon Via technology
- Low cost
- Short cycle time

- Available with BGA or LGA termination, applicable for standard SMT assembly
- Applicable for probe card/ image socket testing
- Applicable for Wafer-level-Camera assembly
- Unique encapsulation technique enables Reliability level that meets Automotive standards
- Meets all environmental conditions

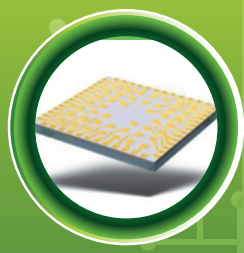
BGA pitch, µm	Max. ball Ø, µm
450	200 (hemisphere)
500	200
650 - 800	350
1000 - 1300	500

Reliability Tests Conditions	Duration	Status
Pb-free reflow	20 cycles	100% PASS
JEDEC MSL level I	Full loop	
Temperature and Humidity 85 °C / 85%Rh	1000 hours	
High Temperature Storage 150 °C	1000 hours	
Temperature cycle -40 °C / + 125 °C	1000 cycles	

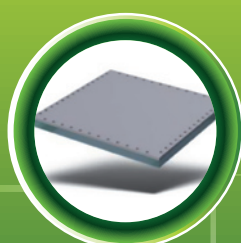
Reliability tests: Conditions and Results



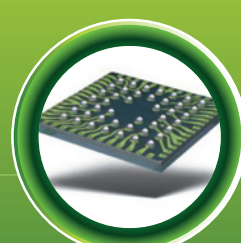
Protective cover glass is attached from the beginning



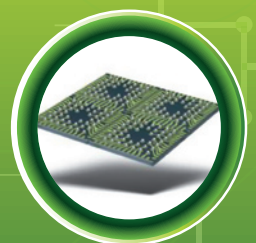
Through silicon via creation and dielectric encapsulation



Electrical contacts routing



BGA formation



Wafer singulated into individually packaged dies