

### Degree of Cure of ACF depending on variation in ultrasonic bonding process

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NCP, ACP and ACF are the material developed to enable to carry out the bonding process at 200°C or below. Furthermore, the study on ultrasonic bonding process and equipment which will allow the bonding process at 100°C or below or at room temperature has been in process. This study was intended to monitor and evaluate the variation in degree of cure of ACF adhesive resin depending on time for bonding process, using ultrasonic bonding equipment. Degree of cure of adhesive resin was measured using DSC with ACF taken from bonding sample. Considering physical properties of adhesive resin of ACF, temperature range for DSC was set as 30~200°C which was then increased by 10°C/min. Evaluation was made over two different cases, putting semiconductor chip on top while PCB at the bottom and putting semiconductor chip at the bottom while PCB on top. Consequently, degree of cure of ACF adhesive resin was 50% or less in 10 ~ 30 seconds of bonding time and 90% in 40 seconds. Degree of cure of adhesive resin was not significantly affected by position of semiconductor chip, but reproducibility of degree of cure data was superior when the chop was placed at the bottom.