## **Chip On Glass**

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Study of Chip On Glass Bonding Method using Diode Laser M. H. Seo, K. H. Ryu, G. J. Nam (Institute for Advanced Engineering)

## **ABSTRACT**

A new chip on glass(COG) technique by making use of a high power diode laser for LCD driver IC packaging of LCD has been developed. A laser joining technology of the connection of IC chip to glass panel has several advantages over conventional method such as hot plate joining: shorter process time, high reliability of joining, and better for fine pitch joining. The reach time to cure temperature of ACF in laser joining is within 1 second. In this study, results show that the total process time of joining is reduced by halves than that of conventional method. The adhesion strength is mainly 100-250 N/cm. It is confirmed that the COG technology using high power diode laser joining can be applied to advanced LCDs with a fine pitch.

**Key Words**: Anisotropic Conductive Film(ACF), Chip On Glass(COG), Laser Transmission Bonding(), High Power Diode Laser()

1. hot plate 가 ACF 1 가 가 , 가 COG 가 가 COG IC . COG 1~2 **PDA** COG IC AMOLED LCD LCD **ACF** hot plate IC hot plate IC plate (bump) 가 ACF hot plate (curing) . COG 가 COG , COG 3~8 chip ACF **ACF** (4~7

(8~12 Fig. 1 LCD COG , Fig. 2 COG ACF pre-bonding (driver IC chip) alignment hot plate Fig. 1 Appearances of COG bonding Glass panel Electrode of ITO Conductive particle ACF (anisotropic conductive film) Bump Fig. 2 Scheme of developed COG bonding technology Hot plate ITO alignment 가 COG bump , ACF 가 hot plate

COG bump
, ACF

7t
hot plate

COG

COG
COG
COG
TTO
ACF
IC

7t
ACF 7t
IC
COG
COG
35 mm ×3 mm
(line beam)
IC

15~30W, 1~10

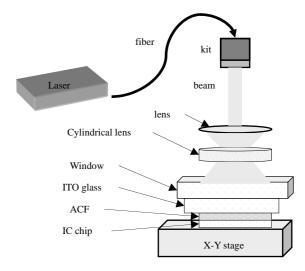


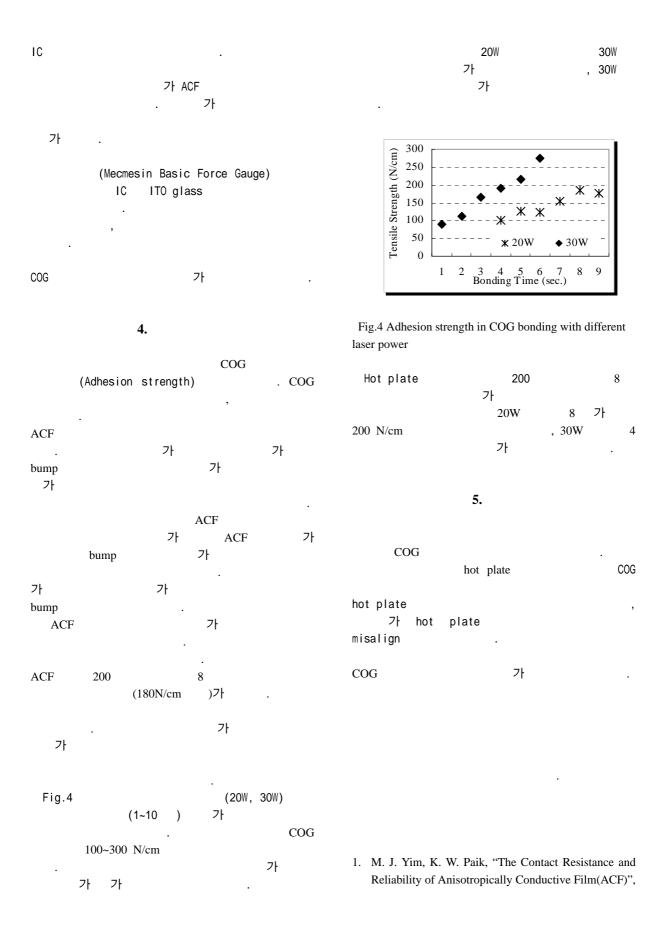
Fig. 3 Experimental Scheme of COG bonding system using high power diode laser

. ACF spec. Table. 1 .

Table.1 Standard speculation, Bonding and characteristic

Item		Unit	ACF
Standard	Smallest bump gap	um	10
spec.	Width	mm	3
	Thickness	um	25
	Length	m	50
Pre-bonding	Temp.		80
	Time	sec.	>2
Final	Temp.		190~210
bonding	Time	sec.	5~10

ACF . ITO glass, ACF



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