

# References

- [1] R. R. Tummala, E. J. Rymaszewski, and A. G. Klopfenstein, *Microelectronics Packaging Handbook* (Chapman and Hall, New York, 1997).
- [2] C. S. Chang, A. Oscilowski, and R. C. Bracken, IEEE Circuits Devices Mag. 14, 45 (1998).
- [3] The International Technology Roadmap for Semiconductor, Semiconductor Industry Association, 2003.
- [4] Donald P. Seraphim, Ronald C. Lasky, and Che-Yu Li. Principles of electronic packaging. McGraw-Hill, (1989).
- [5] John H. Lau. Flip chip technology. McGraw-Hill, (1995).
- [6] B. Imler, K. Scholz, M. Cobarruvia, R. Haitz, V. K. Nagesh, and C. Chao. ECTC aproc., 508, (1992).
- [7] International technology roadmap for semiconductors. Semiconductor Industry Association, <http://public.itrs.net> (2001).
- [8] K. N. Tu and K. Zeng, Materials Science and Engineering Reports, R34, 1-58 (2001).
- [9] C. Y. Liu, Chih Chen, C. N. Liao, and K. N. Tu, Appl. Phys. Lett., 75, 58 (1999).
- [10] K. Zeng and K. N. Tu, Materials Science and Engineering Reports, R38, pp. 55-105 (2002).
- [11] D. Suraski, K. Seelig, IEEE Transactions on Electronics Packaging Manufacturing, Volume: 24, 4, p. 244 (2001).
- [12] D.R. Frear, J.W. Jang, J.K. Lin, and C. Zhang: Pb-Free Solders for Flip-Chip
- [13] H. B. Huntington and A. R. Grone, J. Phys. Chem. Solids., 20, 76 (1961).

- [14] I. A. Blech, *Acta Mater.*, 46(11), 3717(1998)
- [15] P. F. Tang, John Wiley and Sons, N. Y., 64 (1993).
- [16] C. Y. Liu, Chih Chen, and K. N. Tu, *J. Appl. Phys.*, 88, 5703 (2000).
- [17] K. N. Tu, J. W. Mayer, and L. C. Feldman, *Electronic Thin Film Science: For Electrical Engineers and Materials Scientists*, Pearson Education POD 355, (1996).
- [18] T.Y.Lee,K.N.Tu, and D.R.Frear,J.Appl.Phys.,90,4502(2001)
- [19] Y. C. Hu, Y. H. Lin, and C. R. Kao, *J. Mater. Res.*, 18, 2544, (2003).
- [20] M.O.Alam, B.Y.Wu, Y.C.Chan, K.N.Tu. *Acta Materialia*, 54(2006)613-621
- [21] Judith Glazer, “Microstructure and Mechanical Properties of Pb-free Solder Alloys for Low-Cost Electronic Assembly: A Review,” *J. Electronic Materials* 23(8), 693 (1994)
- [22] E.A. Brandes, Smithells Metals Reference Book, 6<sup>th</sup> ed., p. 16-2 (Butterworths, London, 1983)
- [23] D.R. Frear, S.N. Burchett, H.S. Morgan, and J.H. Lau, eds., *The Mechanics of Solder Alloy Interconnects*, p. 60 (Van Nostrand Reinhold, New York, 1994)
- [24] Chen CM, Chen SW. *J. Electron Mater.* 1999;27:902–6.
- [25] Chen SW, Chen CM, Liu W-C. *J. Electron Mater.* 1998;27:1193–8.
- [26] Du MY, Chen CM, Chen SW. *Mater. Chem. Phys.* 2003;82:818–25.
- [27] Chen SW, Chen CM. *JOM-J Min Met. Mater. Soc* 2003;55:62–7.
- [28] Chen CM, Chen SW. *Acta. Mater.* 2002;50:2461–9.
- [29] Chen CM, Chen SW. *J Appl. Phys.* 2001;90:1208–14.
- [30] Chen CM, Chen SW. *J Electronic Mater.* 2000;29:1222–8.
- [31] Chen CM, Chen SW. *J Mater. Res.* 2003;18:1293–6.
- [32] H. L. Chao, S. H. Chae, X. F. Zhang, K. H. Lu, J. Im, and P. S. Ho, in International Reliability Physics Symposium, IRPS Proceedings (2006)
- [33] Min Ding,a\_ Guotao Wang, Brook Chao, and Paul S. Ho,Peng Su and Trent Uehling, *J Appl.Phys.* 2006;99:094906