

Mm-wave PLL design, by Toshiya Mitomo, Research & Development Center, Toshiba Corp, Japan

Millimeter-wave phase-locked loop (PLL) is one of a key component to achieve low-cost CMOS millimeter-wave ICs for various applications such as a high-speed data communication and a 77-GHz radar. Issues and various design techniques for important components in millimeter-wave PLLs, voltage controlled oscillators (VCOs) and frequency dividers capable of operation at millimeter-wave band, will first be shown, followed by some discussion of wide-band PLLs for 60 GHz applications. Finally, PLLs for a 77 GHz frequency modulated continuous wave (FMCW) radar application will be presented.