# PLL Passive Components

# E

The Phase Locked Loop circuit requires several passive components for proper operation, which are connected to **PLLCap0**, **PLLCap1**, **VccP**, and **VssP**, as illustrated in Figure E-1.

In addition, the capacitors for **PLLCap0** (**Cp**) and **PLLCap1** (**Cp**) can be connected to either **VssP** (as shown), **VccP**, or one to **VssP** and one to **VccP**. Note that **C2** and the **Cp** capacitors are incorporated into both the 179PGA and 447PGA package designs as surface-mounted chip capacitors.

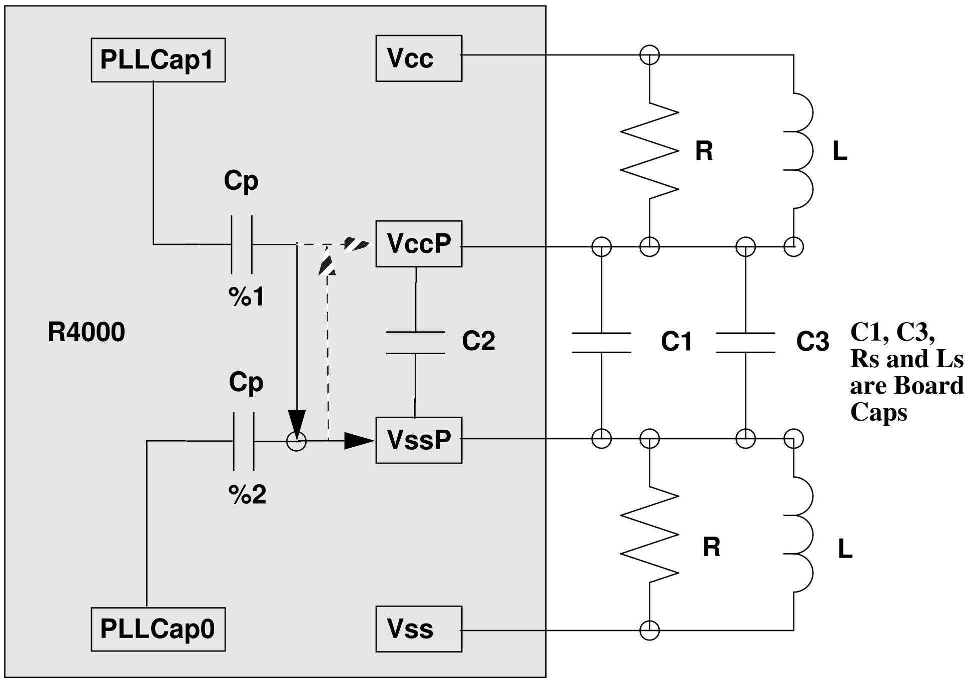


*Figure E-1 PLL Passive Components*

Figure E-2 shows a top view of the 179-pin package with capacitors.

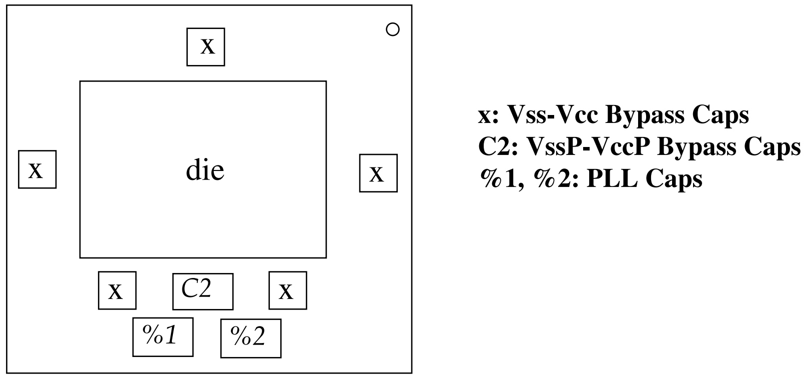


*Figure E-2 179-Pin Package*

Figure E-3 shows a top view of the 447-pin package with chip capacitors.

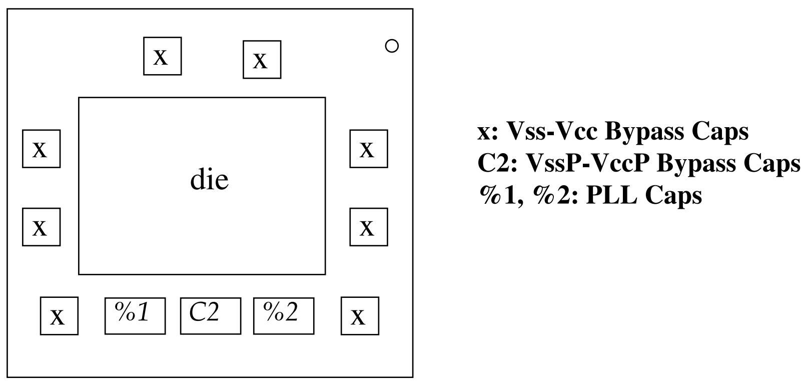


*Figure E-3 447-Pin Package*

It is essential to isolate the analog power and ground for the PLL circuit (**VccP/VssP**) from the regular power and ground (**Vcc/Vss**). Initial evaluations have yielded good results with the following values:

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R = 5 ohms        C1 = 1 nF    C2 = 82 nF

C3 = 10 µF        Cp = 470 pF
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Since the optimum values for the filter components depend upon the application and the system noise environment, these values should be considered as starting points for further experimentation within your specific application. In addition, the chokes (inductors: *L*) can be considered for use as an alternative to the resistors (*R*) for use in filtering the power supply.