Figure 9.45  Phase detector
Figure 9.46 Charge pump
Figure 9.47 Filter
Figure 9.48  VCO
FIGURE 9.53  Flash circuit
of polysilicon for a 1-volt

...capacitor, (C1) a voltage

the inverter transistor 

FIGURE 9.54 Comparator:
(a) circuit; (b) frequency 

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FIGURE 9.55  Thermometer decode logic
FIGURE 9.57 Partial cell layout for A/D

clock and - clock run vertically

$V_{BB}$ (horizontal)

transmission gate auto zero switch

$V_{DD}$

inverter (NOTE: longer than minimum gate length)

$V_{SS}$

Capsulator

(this capacitor is rather large because the capacitor is formed between metal sandwiched between poly and metal. In a two-poly process, this capacitor would be much smaller)

Sampled input

$V_{DD}$ (only required here for well contacts)

Input switches

$V_{DD}$ (only required here for substrate contacts)

Resistor string (resistors run vertically)

two-bit section