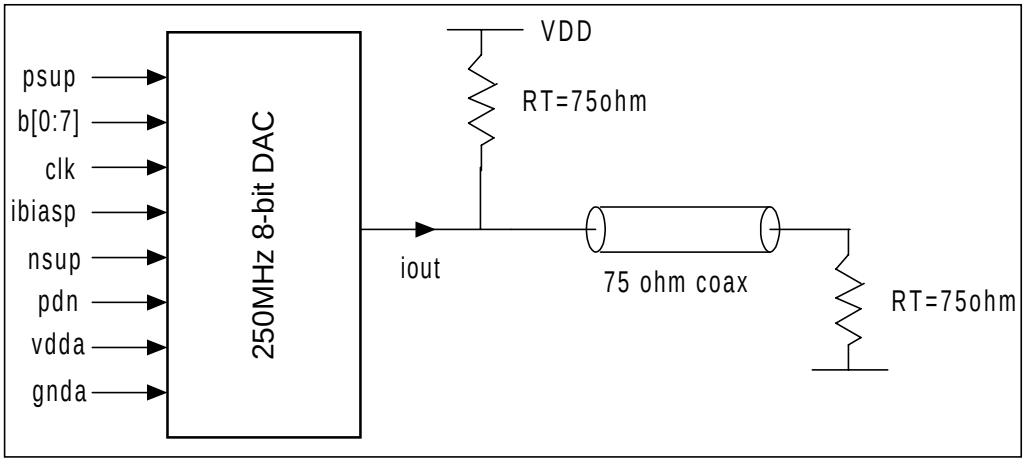
8140: 250MHz 8-bit Video DAC

DESCRIPTION

This is a multi purpose 8-bit current scaling DAC. No more than 1 poly and 2 metal layers are required. Minimum supply voltage while guaranteeing the performance specifications is 2.2V. Digital and analog supply pins and grounds are separated up to to the periphery of the cell. The cell size is 1130ux1060u in 0.25u and 1300ux 1060u in 0.35u processes. The DAC operates on a single clock that can run up to 300MHz. Input digital word is latched internally (with the rising edge of the CLK) for better speed response and reduced glitches. The reference current to the DAC is externally programmable to allow flexibility in driving various loads. The minimum resistive load that the cell can drive without any performance degradation is 37ohms (75ohmtermination resistance in parallel with a 75-ohm coaxial cable). Under this condition, the full-scale voltage is 1.25V. The cell can drive up to 10pF capacitive load without speed degradation. The cell can also be independently powered down via a power-down pin.



SPECIFICATIONS

- Sample = 250MHz maximum, 100MHz measured
- Resolution = 8 bits
- Cell Area = Approx. 1.2mm2
- Technoloy = 0.25u or 0.35u Standard CMOS
  Single poly, Double metal
- INL = +/- 0.75LSB
- DNL = +/-0.15LSB
- Input Word = BCD
- Full-scale Output Voltage = 1.8Vpp differential
- Supply Voltage = 2.2-3V
- Current Dissipation = 35mA @ 37 ohm load resistance
- Minimum Drive Capability = 37ohms/10pF
- Input Reference Current = 100-150uA

APPLICATIONS

- Graphics/Video

DAC Interface Signals

psup: Digital supply voltage.
nsup: Digital ground.
vdda: Analog supply voltage
gnda: Analog ground.
b[0;7]: Input Digital Word (BCD, static CMOS levels).
clk: Sampling clock.
Ibiasp: Reference bias current (sunk from the pin to ground).
pdn: power down (Active high).
iout: Output current driving the external load resistor (from load to ground).

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