

IP Data Sheet

Quadruple Capacitor Switch

The TS_SW_4Cap_X8 is a quadruple capacitor switch that is primarily used for resonator/transducer trimming.

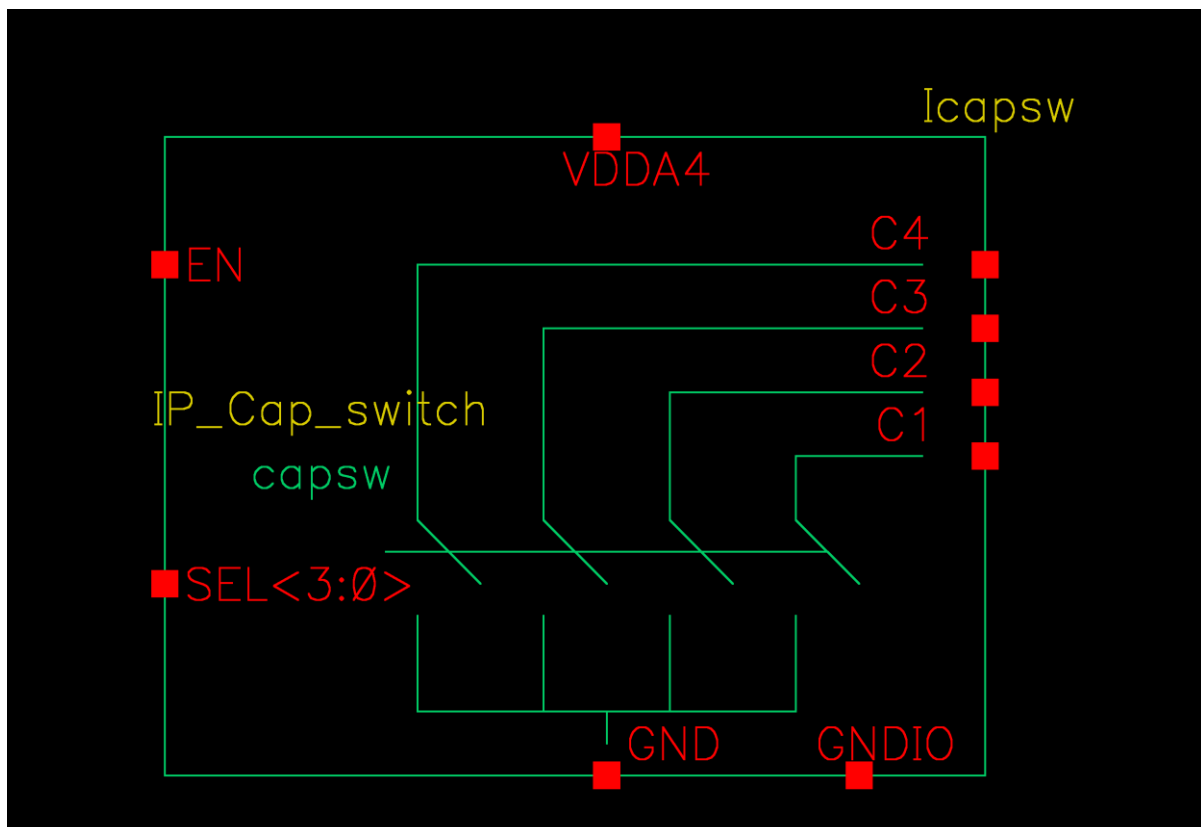
Large off-chip capacitors can be connected to the terminals C1 through C4: for example, 680pF (C4), 510pF (C3), 330pF (C2), 180pF (C1). When an NMOS switch is on, it pulls the terminal voltage down to ground through a low series drain-source resistance. When it is off, the terminal voltage is left floating

with an 800-kiloohm series resistor pulling up to the built-in voltage at 2.5V and must stay within the range from 0V to 5V.

This IP complies with 2kV electrostatic discharges on its analog terminals C1 through C4.

The minimum continuous operation lifetime spans 100000 hours.

Technology: XFAB XT018 - 0.18µm HV SOI CMOS



Operating conditions

Parameters	Values
Junction temperature range	20°C to +80°C
Supply voltages	VDDA4: 3.9V to 4.1V (supplied by the additional IP TS_VR_4V00_X8)
EN logic-high voltage level	VDDA4
SEL<3:0> logic-high voltage level	3.2V to 5.1V

Specification

Parameters	Values
On-Resistance for Switch 1 $r_{ON,C1}$ EN = H, SEL<3:0> = LLLH	25.69Ω max
On-Resistance for Switch 2 $r_{ON,C2}$ EN = H, SEL<3:0> = LLHL	14.01 Ω max
On-Resistance for Switch 3 $r_{ON,C3}$ EN = H, SEL<3:0> = LHLL	9.07 Ω max
On-Resistance for Switch 4 $r_{ON,C4}$ EN = H, SEL<3:0> = HLLL	6.80 Ω max
Operating power consumption EN = H, SEL<3:0> = HHHH	410μW max
Powerdown-mode current consumption Enable EN low	100nA max
Area	0.044mm ²

LAYOUT VIEW

