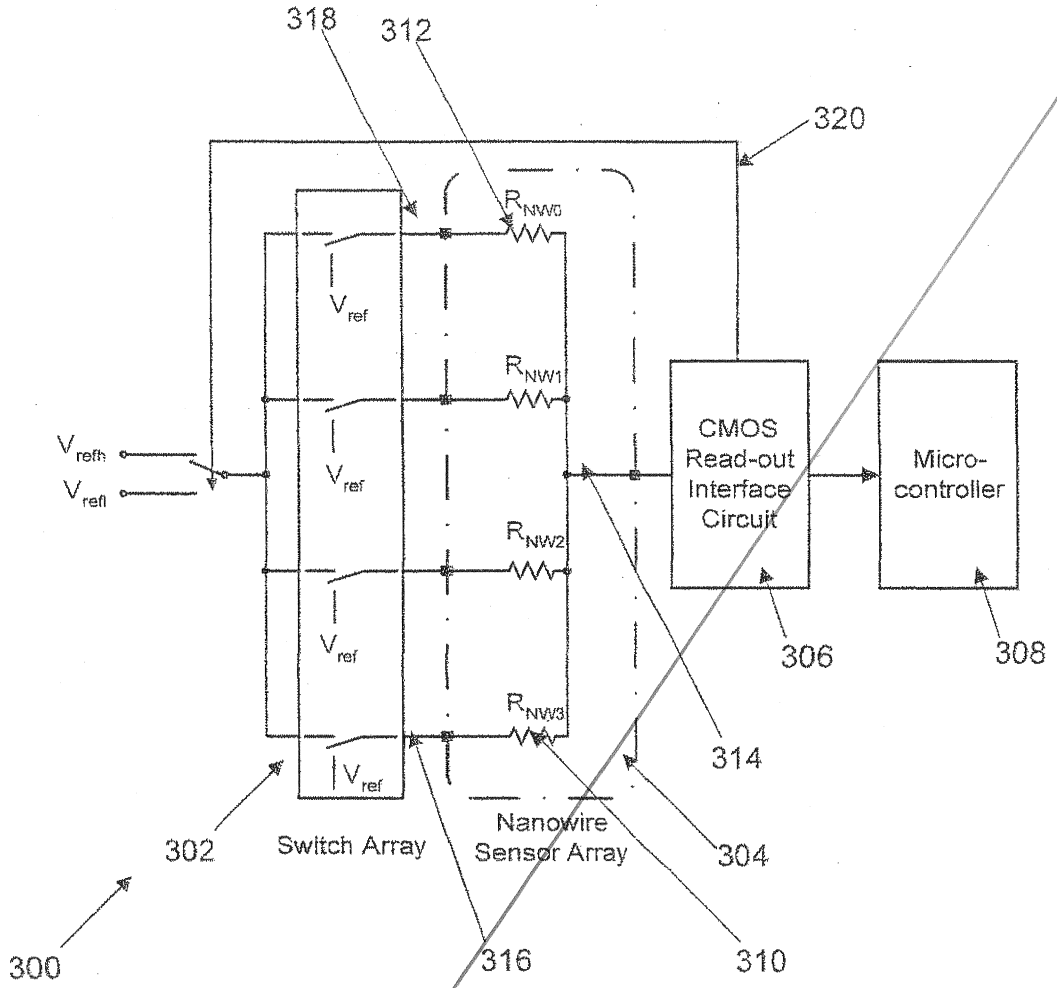

318
312
320
R_{NW0}
V_{ref}
R_{NW1}
V_{ref}
V_{refh}
V_{refl}
CMOS Read-out Interface Circuit
Micro-controller
R_{NW2}
V_{ref}
306
308
R_{NW3}
314
V_{ref}
302
Switch Array
Nanowire Sensor Array
304
300
316
310

Figure 3

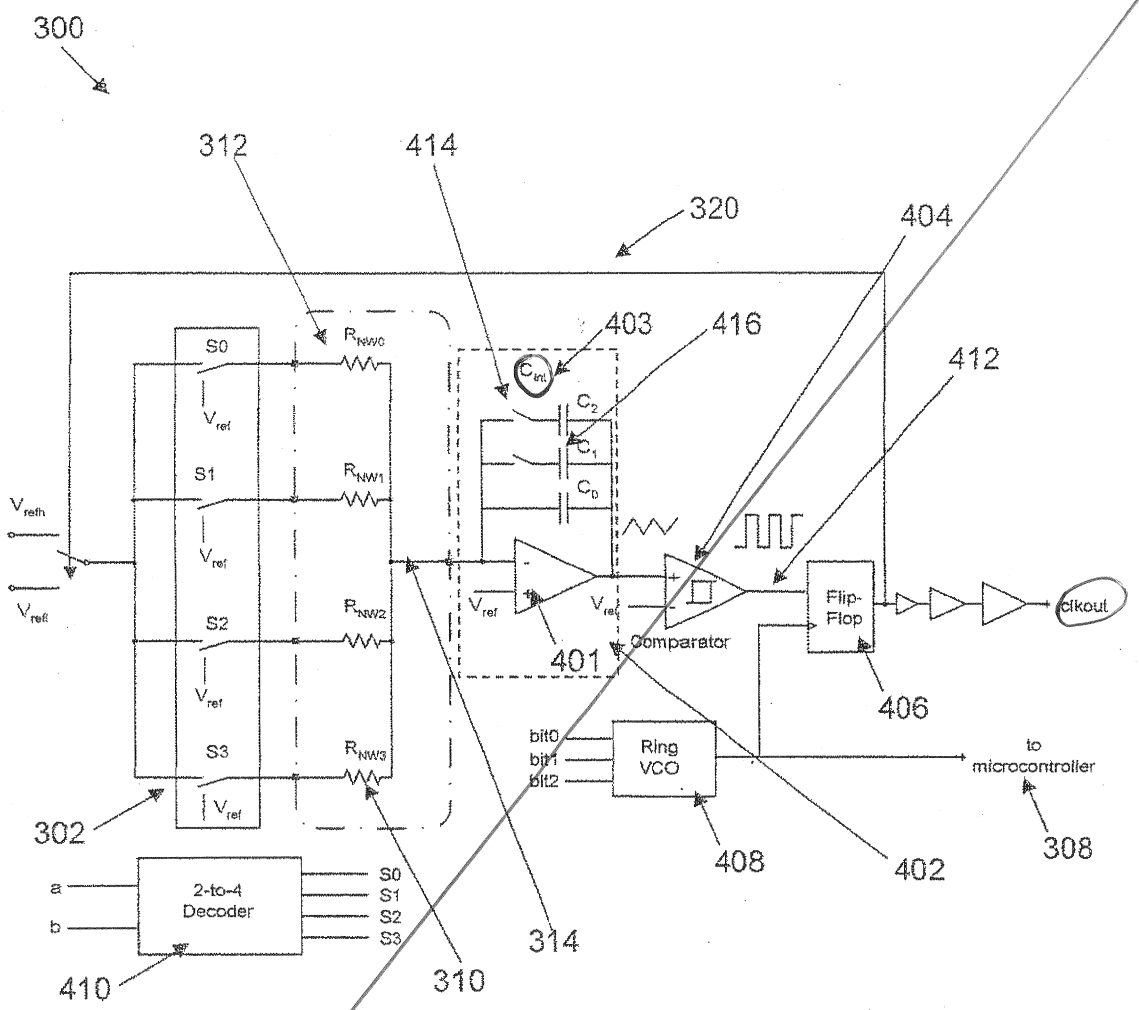

300
312
414
320
404
403
416
412
S0
S1
S2
S3
R_{NW0}
R_{NW1}
R_{NW2}
R_{NW3}
V_{ref}
V_{refh}
V_{refl}
C_{int}
C_2
C_1
C_0
Comparator
Flip-Flop
clkout
401
406
bit0
bit1
bit2
Ring VCO
to microcontroller
308
302
408
402
a
b
2-to-4 Decoder
S0
S1
S2
S3
410
310
314

Figure 4

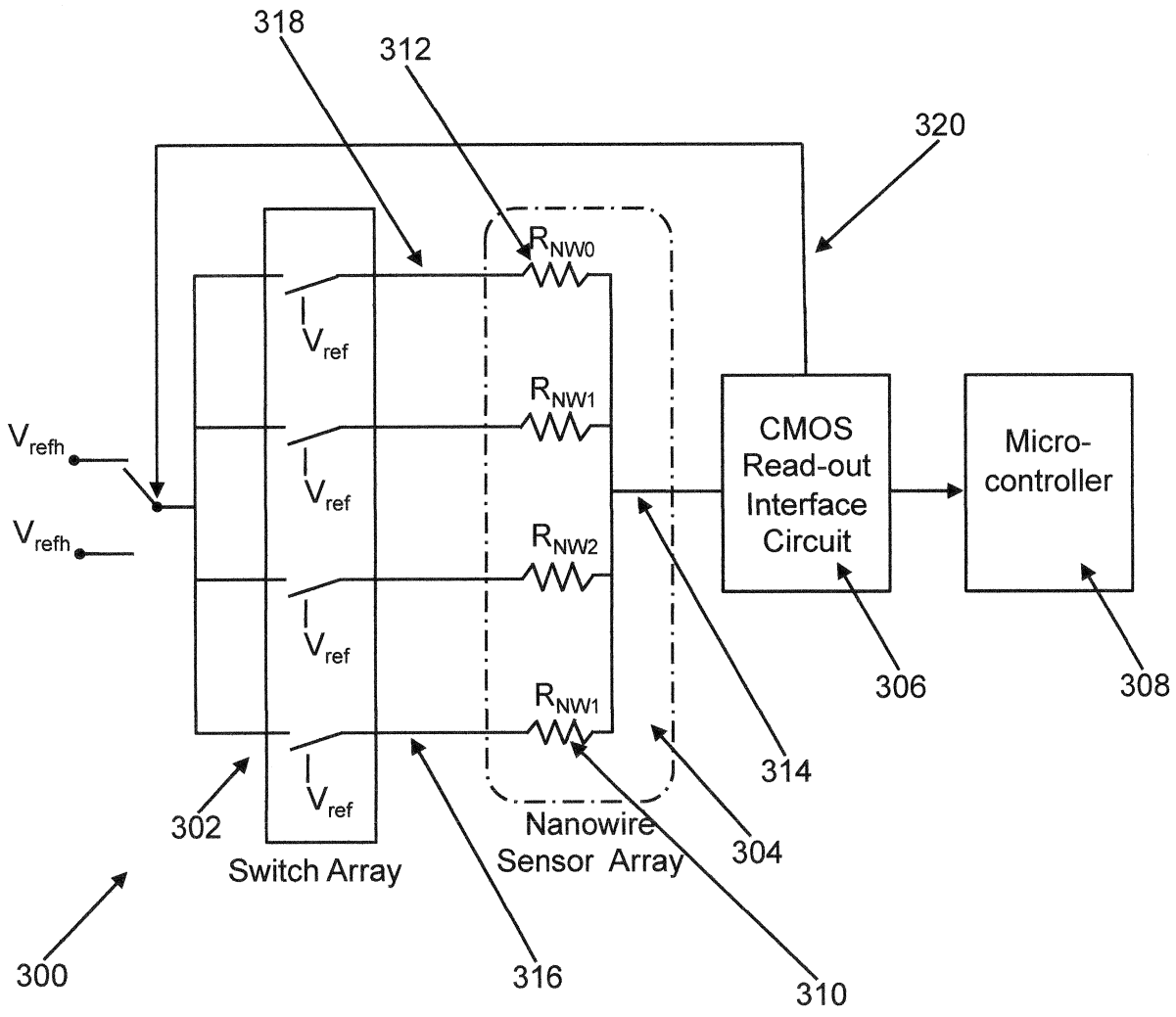

318
312
320
R_{NW0}
V_{ref}
R_{NW1}
V_{ref}
V_{refh}
V_{refh}
R_{NW2}
V_{ref}
R_{NW1}
V_{ref}
CMOS Read-out Interface Circuit
Micro-controller
306
308
314
302
Switch Array
Nanowire Sensor Array
304
300
316
310

Figure 3

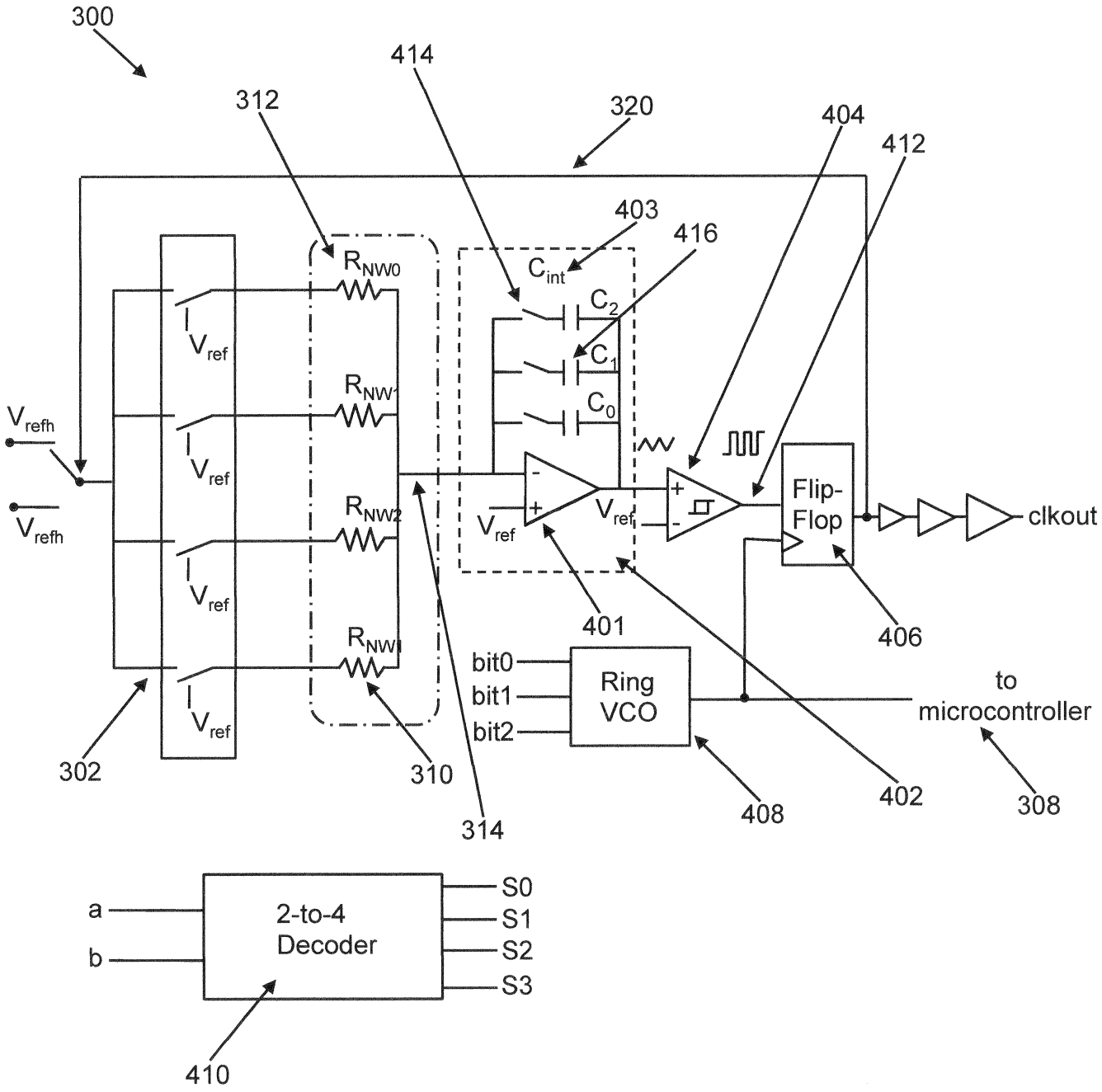

300
414
312
320
404
412
403
416
C_{int}
C_2
C_1
C_0
R_{NW0}
R_{NW1}
R_{NW2}
R_{NW3}
V_{ref}
V_{refh}
V_{refh}
V_{ref}
V_{ref}
V_{ref}
V_{ref}
V_{ref}
Flip-
Flop
clkout
401
406
bit0
bit1
bit2
Ring
VCO
to
microcontroller
302
310
314
408
402
308
a
b
2-to-4
Decoder
S0
S1
S2
S3
410

Figure 4