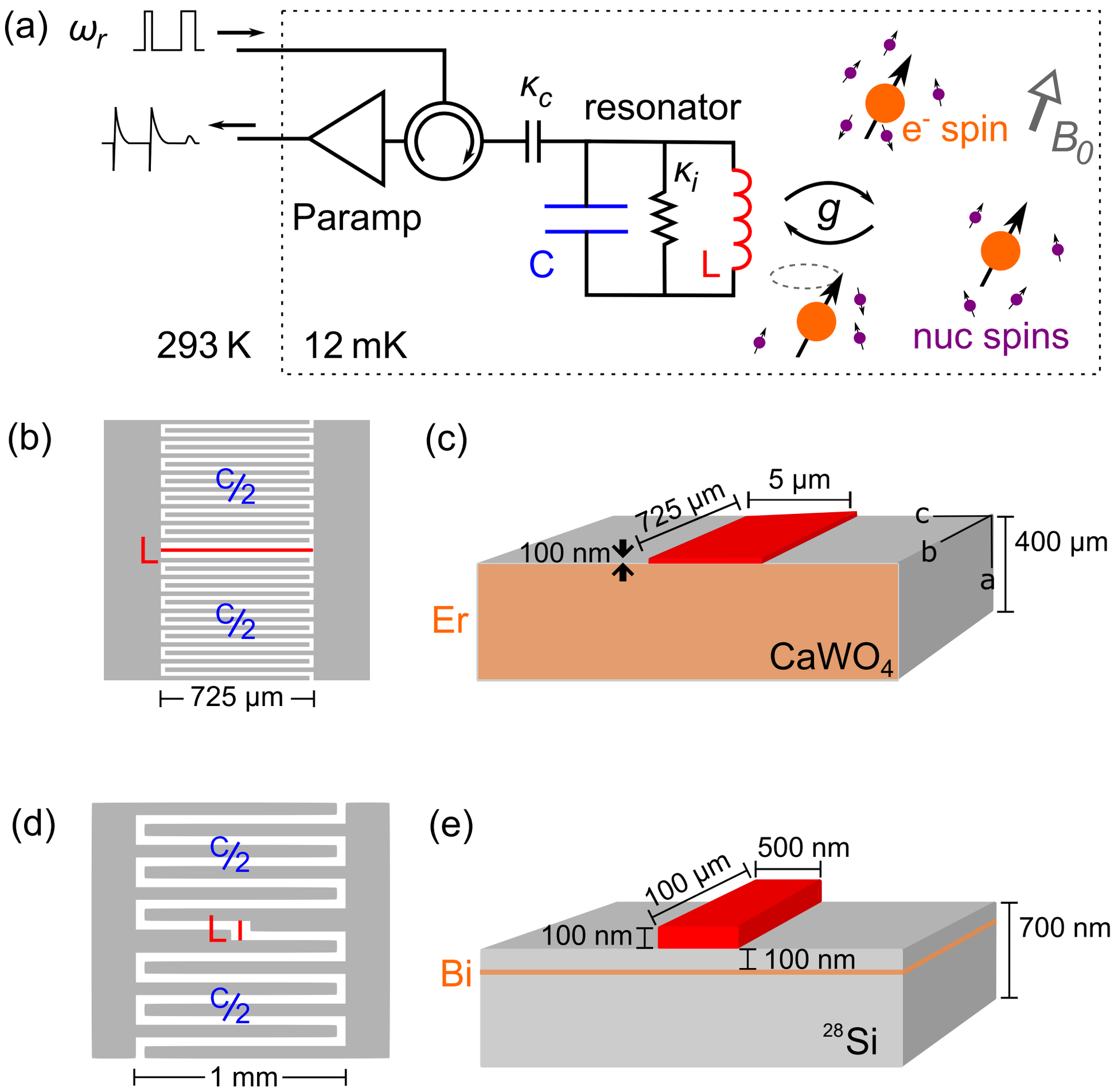
(a)
ω_r
κ_c
resonator
κ_i
Paramp
C
L
g
e⁻ spin
B_0
nuc spins
293 K
12 mK
(b)
C/2
L
C/2
725 μm
(c)
5 μm
725 μm
100 nm
c
b
a
400 μm
Er
$CaWO_4$
(d)
C/2
L
C/2
1 mm
(e)
500 nm
100 μm
100 nm
100 nm
700 nm
Bi
^{28}Si