Basic Properties of R, L and C
'Cheatsheet'

Property	*R*	*L*	*C*
i–υ relation	$i = \dfrac{\upsilon}{R}$	$i = \dfrac{1}{L}\displaystyle\int_{t_0}^{t} \upsilon\, dt' + i(t_0)$	$i = C\dfrac{d\upsilon}{dt}$
υ-i relation	$\upsilon = iR$	$\upsilon = L\dfrac{di}{dt}$	$\upsilon = \dfrac{1}{C}\displaystyle\int_{t_0}^{t} i\, dt' + \upsilon(t_0)$
p (power transfer in)	$p = i^2R$	$p = Li\dfrac{di}{dt}$	$p = C\upsilon\dfrac{d\upsilon}{dt}$
w (stored energy)	0	$w = \dfrac{1}{2}Li^2$	$w = \dfrac{1}{2}C\upsilon^2$
Series combination	$R_{eq} = R_1 + R_2$	$L_{eq} = L_1 + L_2$	$C_{eq} = \dfrac{C_1C_2}{C_1 + C_2}$
Parallel combination	$R_{eq} = \dfrac{R_1R_2}{R_1 + R_2}$	$L_{eq} = \dfrac{L_1L_2}{L_1 + L_2}$	$C_{eq} = C_1 + C_2$
dc behavior	no change	short circuit	open circuit
Can υ change instantaneously?	yes	yes	no
Can i change instantaneously?	yes	no	yes