

ST25DV-I2C, ST25DV-PWM, M24LR and M24SR dynamic tag antenna reference design matrix



For customer reference only :

- Target chip capacitance is about 28.5pF. Please check the datasheet of the chip you select.
- Single layer PCB antenna is not sensitive with substrate thickness, which customer can fine tune.
- Double layer PCB antenna is SENSITIVE with substrate thickness. It cannot be changed. Otherwise, a new design needs to be done.
- NFC antenna inductance is not only decided by design but also customer system environment. The antenna design needs to be validated in customer system before the design to be fixed.
- Customer may refer to the ST25 Dynamic tag demo board for double layer antenna layout, available on www.st.com/st25d

Title	Rectangle or circular	Antenna length (mm)	Antenna Width (mm)	Antenna turns	Width (mm)	Spacing (mm)	Thickness (um)	Substrate thickness (mm)	Number of PCB layer	Antenna inductance (uH)	Parallel capacitor Cp on tag AC0 & AC1 pin (pF)
ANT_D15_circular_Double layer	Circular	15/Diameter	-	10	0.254	0.2	35	0.8 only	2	4.67	Not required
ANT_D20_circular_Double layer	Circular	20/Diameter	-	8	0.3	0.3	35	1.6 only	2	4.58	Not required
ANT_D25_circular_Single layer	Circular	25/Diameter	-	13	0.2	0.25	35	0.8 or any	1	4.62	Not required
ANT_D30_circular_Single layer	Circular	30/Diameter	-	9	0.2	0.2	35	0.8 or any	1	4.4	3.9pF
ANT14x14_Double layer	Rectangle	14	13.5	9	0.2	0.2	35	1.6 only	2	ANT8	Not required
ANT15x15_Double layer	Rectangle	15	15	7	0.2	0.2	35	0.8 only	2	4.48	Not required
ANT17x17_Double layer	Rectangle	17	17	7	0.3	0.25	35	0.8 only	2	4.53	Not required
ANT20x10_Double layer	Rectangle	20	10	8	0.25	0.2	35	0.8 only	2	4.41	3.9pF
ANT20x15_Double layer	Rectangle	20	15	6	0.2	0.2	35	0.8 only	2	4.62	Not required
ANT20x20_Single layer	Rectangle	20	20	15	0.2	0.2	35	0.8 or any	1	3.9	6.8pF
ANT22x18_Single layer	Rectangle	22.5	18.5	15	0.2	0.2	35	0.8 or any	1	ANT_C6	Not required
ANT25x20_Single layer	Rectangle	25	20	12	0.2	0.2	35	0.8 or any	1	4.3	4.7pF
ANT25x25_Single layer	Rectangle	25	25	10	0.2	0.2	35	0.8 or any	1	4.44	Not required
ANT30x20_Single layer	Rectangle	30	20	13	0.254	0.3	35	0.8 or any	1	4.37	Not required
ANT30x25_Single layer	Rectangle	30	25	9	0.2	0.2	35	0.8 or any	1	4.47	Not required
ANT31x30_Double layer	Rectangle	31	30	5	0.6	0.6	35	1.6 only	2	ANT14	Not required
ANT40x20_Single layer	Rectangle	40	20	9	0.3	0.15	35	0.8 or any	1	ANT2	Not required
ANT40x25_Single layer	Rectangle	40	25	8	0.3	0.2	35	0.8 or any	1	4.55	Not required
ANT40x30_Single layer	Rectangle	40	30	7	0.2	0.2	35	0.8 or any	1	4.47	Not required
ANT40x40_Single layer	Rectangle	40	40	7	0.4	0.25	35	0.8 or any	1	4.44	Not required
ANT50x50_Single layer	Rectangle	50	50	7	0.7	0.4	35	0.8 or any	1	4.8	Not required
ANT60x60_Single layer	Rectangle	60	60	6	0.8	0.5	35	0.8 or any	1	4.8	Not required
ANT70x70_Single layer	Rectangle	70	70	6	1.4	0.6	35	0.8 or any	1	4.7	Not required
ANT75x40_Single layer	Rectangle	75	40	6	0.6	0.6	35	0.8 or any	1	ANT1	Not required
ANT80x80_Single layer	Rectangle	80	80	5	1.4	0.5	35	0.8 or any	1	4.8	Not required

