MEASUREMENT NOTICE FOR RF INDUCTORS

Measuring Method of Inductance

a. Residual elements and stray elements of test fixture can be described by F-parameter as shown in the following:



Measured open impedance: $Zom = \frac{A}{C}$

Measured short impedance: $Z_{SM} = \frac{B}{D} \approx -Z_{SC}$ (when uses short chip to short)

b. The relation between Zx and Zom, Zsm, Zxm is shown in the following:

$$Zx = \frac{V_2}{I_2} = \frac{D}{A} * \frac{\frac{V_1}{I_1} - \frac{B}{D}}{1 - \frac{V_1}{I_1} * \frac{C}{A}} = \frac{D}{A} * \frac{Zxm - \frac{B}{D}}{1 - Zxm * \frac{C}{A}} = \frac{D}{A} * \frac{Zxm - Zsm}{1 - Zxm / Zom}$$

c. Lx should be calculated with the following equation:

$$Lx = \frac{\mathrm{Im}(Zx)}{2\pi f} = \frac{\mathrm{Im}(Zxm + Zsc)}{2\pi f} = \frac{\mathrm{Im}(Zxm)}{2\pi f} + \frac{\mathrm{Im}(Zsc)}{2\pi f} = Lxm + Lsc$$

Lxm: Measured chip inductor inductance

Lsc: Measured short chip inductance

Lx: Nominal Inductance of chip inductor

Compensation Value (Lsc) of Short Chip

Series	Compensation Value
ASDCL1005/1608	OnH
ASDWL1005C/1608C	0nH
ASDWL1005C-M01/M11	0.68nH
ASDWL1608C-M01/M11	0.90nH
ASDWL1005C-M81	0.68nH