

Specification

Part No.: DLC75D

DLC75D (.080" x .050")

◆ Product Features

Ultra-low ESR value, high working voltage, high RF power, high self-resonant frequency.



◆ Product Application

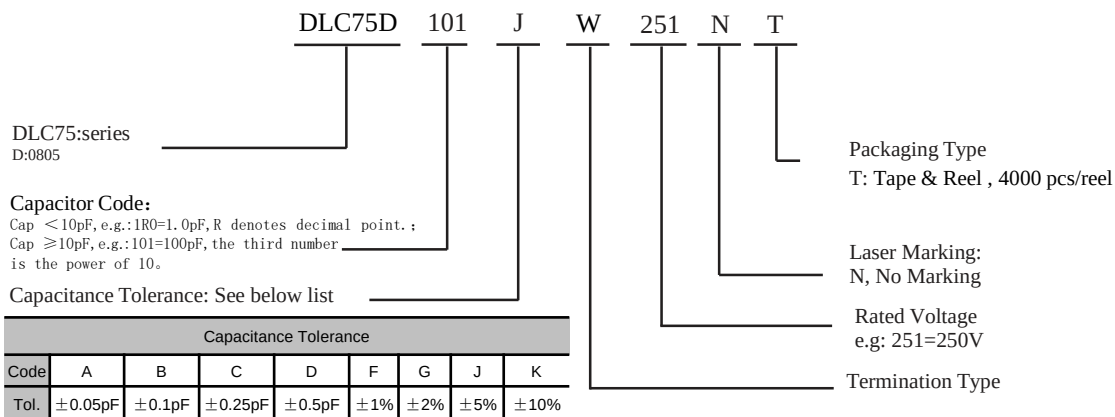
Typical applications : mobile communication base station, repeater, cluster communication,MRI.

◆ DLC75D Capacitance Table

Cap.	Code	Tol.	Rated	Cap.	Code	Tol.	Rated	Cap.	Code	Tol.	Rated	Cap.	Code	Tol.	Rated
pF			WVDC	pF			WVDC	pF			WVDC	pF			
0.1	0R1	A,B, C,D	250V Code 251	2.4	2R4	A,B, C,D	250V Code 251	20	200	F,G,J	250V Code 251	200	201	F,G,J	250V Code 251
0.2	0R2			2.7	2R7			22	220			220	221		
0.3	0R3			3.0	3R0			24	240						
0.4	0R4			3.3	3R3			27	270						
0.5	0R5			3.6	3R6			30	300						
0.6	0R6			3.9	3R9			33	330						
0.7	0R7			4.3	4R3			36	360						
0.8	0R8			4.7	4R7			39	390						
0.9	0R9			5.1	5R1			43	430						
1.0	1R0			5.6	5R6			47	470						
1.1	1R1			6.2	6R2	51		510							
1.2	1R2			6.8	6R8	56		560							
1.3	1R3			7.5	7R5	62		620							
1.4	1R4			8.2	8R2	68		680							
1.5	1R5			9.1	9R1	75		750							
1.6	1R6			10	100	82		820							
1.7	1R7			11	110	91		910							
1.8	1R8			12	120	100		101							
1.9	1R9			13	130	120		121							
2.0	2R0			15	150	150		151							
2.1	2R1			16	160	160		161							
2.2	2R2			18	180	180		181							

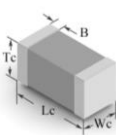
Remark: special capacitance, tolerance and WVDC are available, consult with DALICAP.

◆ Part Numbering

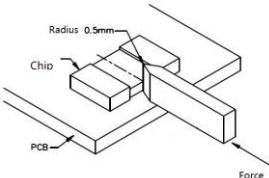


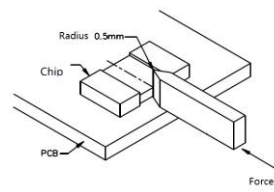
◆ DLC75D Termination Type and Dimensions

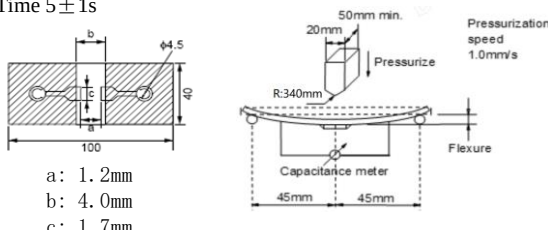
unit: inch (millimeter)

Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Termina Material
			Length Lc	Width Wc	Thickness Tc	Overlap B	
75D	W		.078±0.010 (2.00±0.25)	.049±.0.010 (1.25±0.25)	.041±0.008 (1.05±0.20)	.200~.010 (0.50±0.25)	100%Sn over Nickel Plating , RoHS Compliant
	L						10%Pb90%Sn over Nickel Plating ,

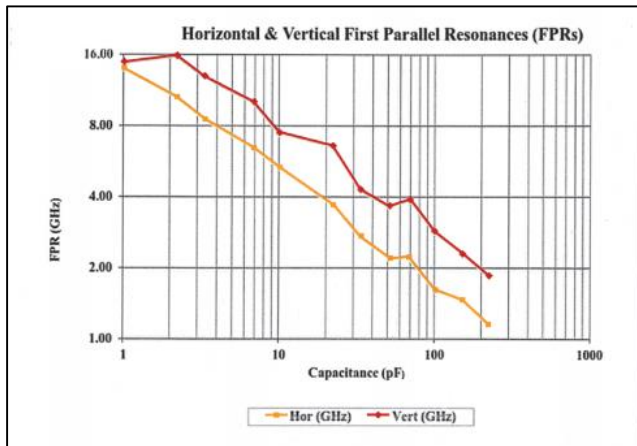
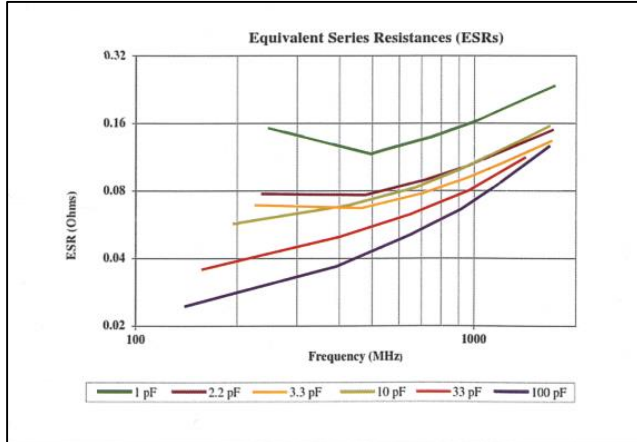
◆ **Reliability Test Conditions.**

No.	Item	Specification	Test method												
1	Operating temperature	-55℃～150℃	-												
2	Appearance	No defects or abnormality	Visual inspection: ×10 microscope.												
3	Dimensions	See the previous page	Caliper inspection												
4	Capacitance	Shall be within the applicable tolerance specified.	Test frequency: C≤1000pF: 1MHz±10% C>1000pF: 1KHz±10% Test voltage: 1.0±0.2Vrms												
5	D.F	D.F≤0.05%													
6	Insulation resistance	10 ⁵ Megohms min. @ +25 ℃ 10 ⁴ Megohms min. @ +125 ℃	Voltage: DC Rated Voltage												
7	Dielectric withstanding voltage (DWV)	Shall be no evidence of breakdown or visible evidence of arcing or damage.	Test Voltage: 250% of the rated voltage Applied Time: 5 s Charge/discharge current: 50mA max.												
8	Temperature coefficient	(0±30)ppm/℃	The capacitance change should be measured after 5 min. at each specified temp. stage. Capacitance value as a reference is the value in step 3. <table><tr><td>step</td><td>temperature (℃)</td></tr><tr><td>1</td><td>25±2</td></tr><tr><td>2</td><td>-55±3</td></tr><tr><td>3</td><td>25±2</td></tr><tr><td>4</td><td>150±3</td></tr><tr><td>5</td><td>25±2</td></tr></table> $TC = \frac{C_5 - C_3}{C_3 \times \Delta T} \times 10^6 \text{ ppm/}^\circ\text{C}$	step	temperature (℃)	1	25±2	2	-55±3	3	25±2	4	150±3	5	25±2
step	temperature (℃)														
1	25±2														
2	-55±3														
3	25±2														
4	150±3														
5	25±2														
9	Capacitance Drift	±0.2% or ±0.05pF, whichever is larger.													
10	Adhesive Strength of Termination	No removal of the terminations or other defect should occur.	Pressurizing force: 10 ⁺¹ ₀ N Test time: 10±1 sec. 												



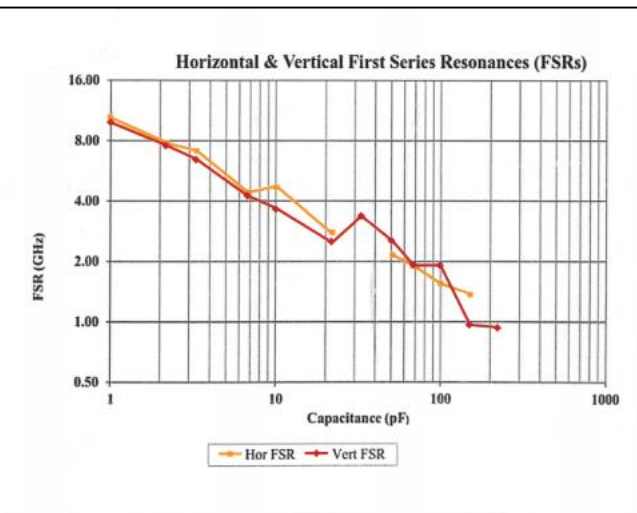
No.	Item	Specification	Test method															
11	Substrate Bending test	Appearance: No defects or abnormalities. Capacitance Change: With in $\pm 5\%$ or $\pm 0.3\text{pF}$ whichever is larger.	Mounting method: Reflow solder the capacitor on the test substrate. Pressurization Method: Shown as below. Flexure 1mm. Holding Time $5 \pm 1\text{s}$  a: 1.2mm b: 4.0mm c: 1.7mm															
12	Solderability of termination	Shall be at least 95 percent covered with a smooth solder coating.	Immerse the capacitor in a eutectic solution requirement temperature $245 \pm 2^\circ\text{C}$ for 2 ± 0.5 seconds. Capacitor shall be immersed to a depth of 10mm.															
13	Resistance to soldering Heat	Appearance: No evidence of mechanical damage or delamination or exposed. Cap change: within $-1.0\% \sim +2.0\%$ or $\pm 0.5\text{pF}$ whichever is larger. Q: No less than initial requirement. IR(25°C): No less than initial requirement.	Preheat for 1 minute at 150°C to 180°C before immerse the capacitor in a eutectic solution at $260 \pm 5^\circ\text{C}$ for 10 ± 1 seconds. Capacitor shall be immersed to a depth of 10mm. And following a 24 ± 2 hours cooling period.															
14	Temperature Cycle	Appearance: No evidence of mechanical damage . Cap change: within $\pm 0.5\%$ or $\pm 0.5\text{pF}$ whichever is larger. Q: No less than initial requirement. IR(25°C): No less than 30% initial requirement. DWV: To meet initial requirement.	Perform the 5 cycles according to the four heat treatments listed in the following table. Set it for 24 ± 2 hours at room temperature. <table><tr><th>step</th><th>Temperature($^\circ\text{C}$)</th><th>Time(min)</th></tr><tr><td>1</td><td>-55(-3~0)</td><td>≥ 30</td></tr><tr><td>2</td><td>25+10</td><td>≤ 5</td></tr><tr><td>3</td><td>125(0~+3)</td><td>≥ 30</td></tr><tr><td>4</td><td>25+10</td><td>≤ 5</td></tr></table>	step	Temperature($^\circ\text{C}$)	Time(min)	1	-55(-3~0)	≥ 30	2	25+10	≤ 5	3	125(0~+3)	≥ 30	4	25+10	≤ 5
step	Temperature($^\circ\text{C}$)	Time(min)																
1	-55(-3~0)	≥ 30																
2	25+10	≤ 5																
3	125(0~+3)	≥ 30																
4	25+10	≤ 5																
15	Humidity, steady state	Appearance: No evidence of mechanical damage . Cap change: within $\pm 0.3\%$ or $\pm 0.3\text{pF}$ whichever is larger. IR(25°C): No less than initial requirement.	With 1.5 Volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours minimum. Removed and sit 3.5 ± 0.5 hours at room temperature.															
16	High Temperature Load (Life)	Appearance: No evidence of mechanical damage . Cap change: within $\pm 2\%$ or $\pm 0.5\text{pF}$ whichever is larger. Q: No less than 50% initial requirement. IR(25°C): No less than 30% initial requirement.	Test Voltage: 200% of the rated voltage. The charge/discharge current is less than 50mA. Temperature: 150°C . Time: 2000h. Measurement: Set it for 48 hours at room temperature, then measure.															

◆ DLC75D Performance Curve



Definitions and Measurement conditions:

On the S21 curve of a capacitor, there are several parallel resonance points (V-shaped attenuation points). The first parallel resonance frequency (FPR) is the frequency of the lowest-frequency parallel resonance point. It is not affected by the thickness and dielectric constant of the substrate, but it is affected by the installation direction of the capacitor. A horizontal direction means that the internal electrode plates of the capacitor are parallel to the substrate.



Definition and Measurement Conditions

On the input impedance $[Z_{in}]$ curve of a capacitor, there are several series resonance points (V-shaped attenuation points). The first series resonance frequency (FSR) is the frequency of the series resonance point with the lowest frequency, where the imaginary part of the input impedance is zero ($\text{Im}[Z_{in}] = 0$). Below the FSR, the real part ($\text{Re}[Z_{in}]$) and the imaginary part ($\text{Im}[Z_{in}]$) of the input impedance do not vary linearly with frequency. The value of FSR is related to the following factors: the internal electrode structure of the capacitor, substrate material, substrate thickness, substrate dielectric constant, mounting orientation of the capacitor on the substrate, and substrate pad size.

Definition and Measurement Conditions

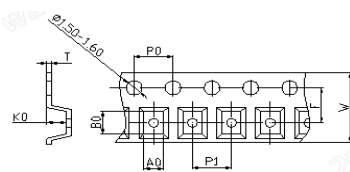
Definition: The capacitor is mounted in series on a microstrip line, that is, the capacitor is bridged across the two ends of a 50-ohm microstrip line with a gap.

Measurement Conditions: The substrate is Rogers RO3003 with a dielectric constant of 3.00. For horizontal mounting, the substrate thickness is 23 mils, the microstrip gap is 23.6 mils, and the microstrip width is 57.1 mils. The reference plane is at the edge of the sample.

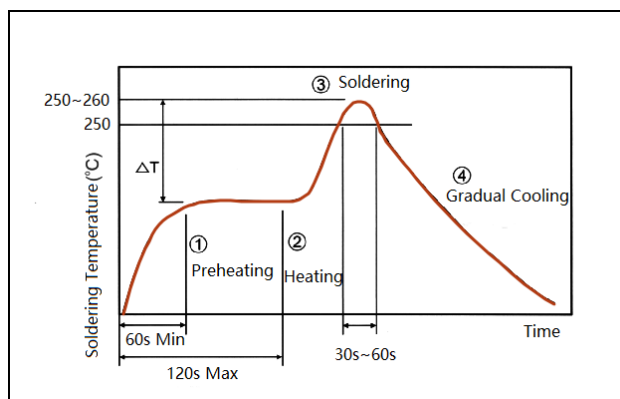
◆ Tape & Reel Specifications

Orientation	EIA	A0	B0	K0	W	P0	P1	T	F	Qty/reel	Tape Material
Horizontal	0805	1.40	2.20	1.20	8.00	4.00	4.00	0.22	3.50	3000	Paper
Vertical	0805	1.35	2.25	1.35	8.00	4.00	4.00	0.22	3.50	1000	Paper

Unit: mm



◆ Recommended soldering conditions



$\Delta T \leq 190^{\circ}\text{C}$;

Maximum temperature: $255^{\circ}\text{C} \pm 5^{\circ}\text{C}$;

Heating rate: $\leq 4^{\circ}\text{C/s}$.

◆ Recommended Land Dimensions

EIA	A(mm)	B(mm)	C(mm)
0805	1.0	0.8	1.3

