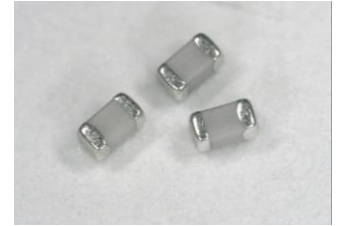


Specification

Part No.: DLC75H

DLC75H (.040" x .020")



◆ **Product Features**

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

◆ **Product Application**

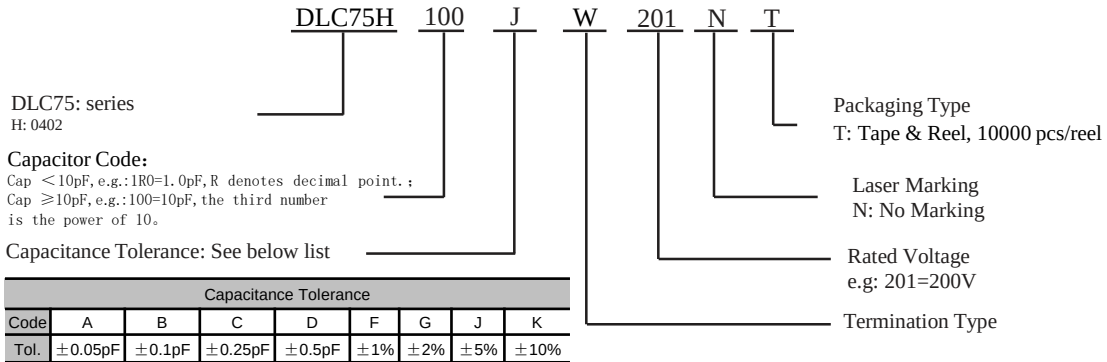
Typical applications : mobile communication base station, repeater, cluster
communication, MRI.

◆ **DLC75H Capacitance Table**

Cap. pF	Code	Tol.	Rated WVDC	Cap. pF	Code	Tol.	Rated WVDC	Cap. pF	Code	Tol.	Rated WVDC
0. 1	0R1	A, B, C, D	50V Code 500 or 200V Code 201 or 250V Code 251	1. 8	1R8	A, B, C, D	50V Code 500 or 200V Code 201 or 250V Code 251	7. 5	7R5	A, B, C, D	50V Code 500 or 200V Code 201
0. 2	0R2			1. 9	1R9			8. 2	8R2		
0. 3	0R3			2. 0	2R0			9. 1	9R1		
0. 4	0R4			2. 1	2R1			10	100	F, G, J	
0. 5	0R5			2. 2	2R2			11	110		
0. 6	0R6			2. 4	2R4			12	120		
0. 7	0R7			2. 7	2R7			13	130		
0. 8	0R8			3. 0	3R0			15	150		
0. 9	0R9			3. 3	3R3			16	160		
1. 0	1R0			3. 6	3R6		18	180			
1. 1	1R1			3. 9	3R9		20	200			
1. 2	1R2			4. 3	4R3		22	220			
1. 3	1R3			4. 7	4R7		24	240			
1. 4	1R4			5. 1	5R1		27	270			
1. 5	1R5			5. 6	5R6		30	300	50V Code 500		
1. 6	1R6			6. 2	6R2		33	330			
1. 7	1R7			6. 8	6R8						

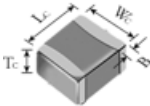
Remark: special capacitance, tolerance and WVDC are available, consult with DALICAP.

◆ Part Numbering

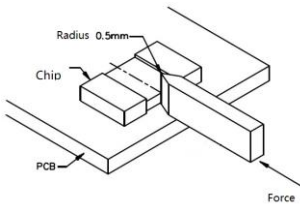


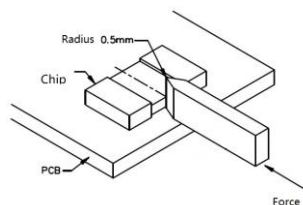
◆ DLC75H Termination Type and Dimensions

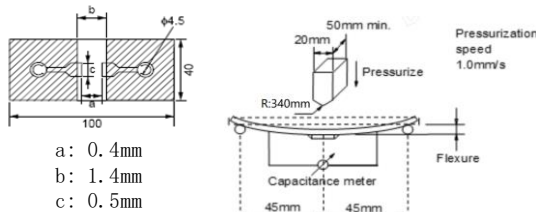
unit: inch (millimeter)

Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Termina Material
			Length Lc	Width Wc	Thickness Tc	Overlap B	
75H	W		0.041±0.004 (1.05±0.10)	0.021±0.004 (0.55±0.10)	0.021±0.004 (0.55±0.10)	0.010±0.006 (0.25±0.15)	100%Sn over Nickel Plating , RoHS Compliant
	L						10%Pb90%Sn over Nickel Plating ,
	P						100%Sn over Copper Plating (Non-Mag), RoHS Compliant

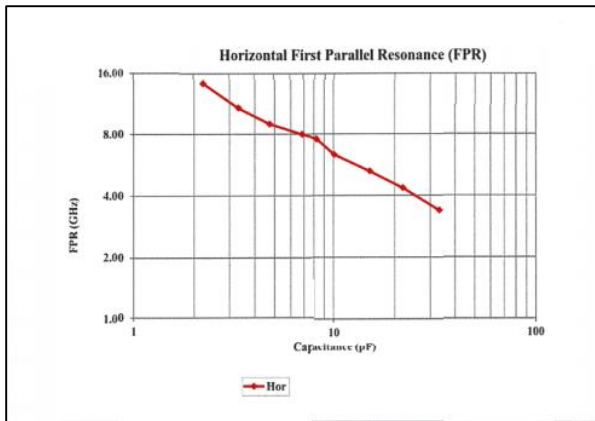
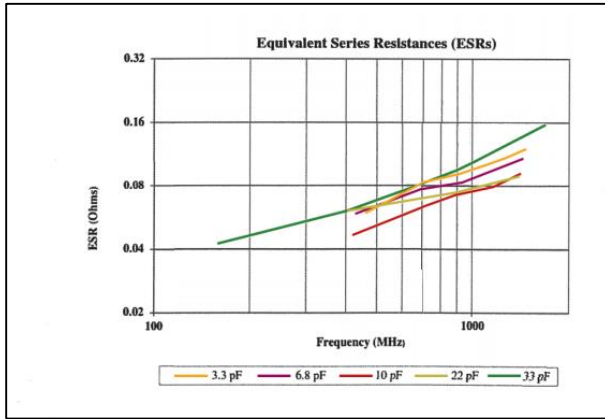
◆ **Reliability Test Conditions.**

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: 1MHz±10% Test voltage: 1.0±0.2Vrms												
5	D.F	D.F≤0.05%													
6	Insulation resistance	10 ⁵ Megohms min. @ +25 °C 10 ⁴ Megohms min. @ +125 °C	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> $TC=\frac{C_1-C_3}{C_3 \times \Delta T} \times 10^6 \text{ ppm/}^\circ\text{C}$	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:2.0 ^{+0.5} ₀ N Test time: 10±1 sec. 												



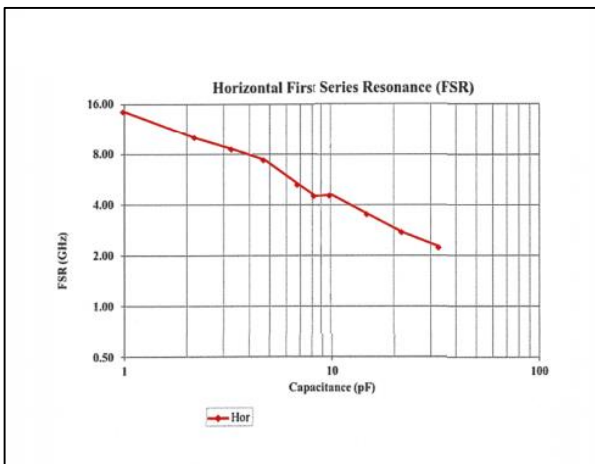
No.	Item	Specification	Test method															
11	Substrate Bending test	Appearance: No defects or abnormalities. Capacitance Change: With in $\pm 5\%$ or $\pm 0.3\text{pF}$ whichever is larger.	Mounting method: Reflow solder the capacitor on the test substrate. Pressurization Method: Shown as below. Flexure 1mm. Holding Time $5 \pm 1\text{s}$  a: 0.4mm b: 1.4mm c: 0.5mm Pressurization speed 1.0mm/s															
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>$-55(-3 \sim 0)$</td><td>≥ 30</td></tr><tr><td>2</td><td>25 ± 10</td><td>≤ 5</td></tr><tr><td>3</td><td>$125(0 \sim +3)$</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	$-55(-3 \sim 0)$	≥ 30	2	25 ± 10	≤ 5	3	$125(0 \sim +3)$	≥ 30	4	25 ± 10	≤ 5
step	Temperature($^\circ\text{C}$)	Time(Min)																
1	$-55(-3 \sim 0)$	≥ 30																
2	25 ± 10	≤ 5																
3	$125(0 \sim +3)$	≥ 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.															

◆ DLC75H 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

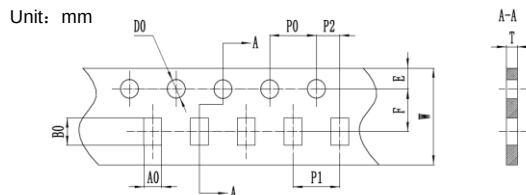
On the input impedance $[Z_i]$ curve of a capacitor, there are several series resonance points (V-shaped attenuation points). The first series resonance frequency (FSR) refers to the frequency of the lowest series resonance point, where the imaginary part of the input impedance is zero ($\text{Im}[Z_{in}] = 0$) with the reference plane at the capacitor edge. Below FSR, the real part ($\text{Re}[Z_{in}]$) and 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, the mounting direction of the capacitor on the substrate, and the dimensions of the substrate pad.

Measurement Conditions:

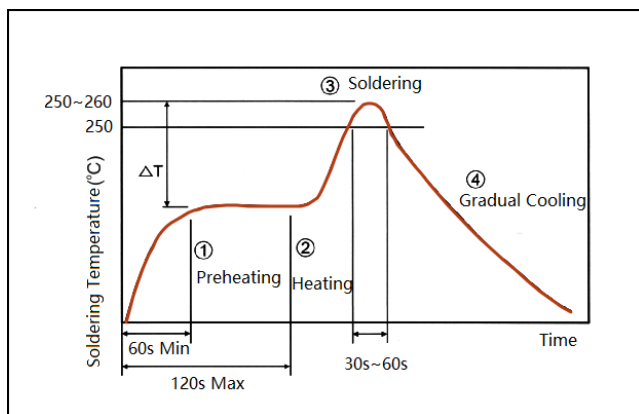
Roger's RO4350 board with a dielectric constant of 3.48, substrate thickness of 10 mils, microstrip gap of 15 mils, horizontally mounted microstrip width of 22 mils, and the reference plane at the sample edge.

◆ Tape & Reel Specifications

EIA	A0	B0	W	P0	P1	T	F	Qty/reel	Tape Material
0402	0.70	1.20	8.00	4.00	2.00	0.65	3.50	10000	Paper



◆ 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)
0402	0.3-0.5	0.35-0.45	0.4-0.6

