Specification

Part No.: DLC60P

DLC60P (.060" x .030")

◆Product Features

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

◆ Product Application

Typical applications:civil satellite communication,mobile communication base station,repeater,cluster communication.

◆ DLC60P Capacitance Table

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

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

◆ Part Numbering

DLC60P 100 J W 251 N T X 5 X

- DLC60P: DLC60:series, P:0603
- 100: Capacitor Code:
  Cap ＜10pF, e.g.: 1R0=1.0pF, R denotes decimal point.;
  Cap ≥10pF, e.g.: 100=10pF, the third number is the power of 10。
- J: Capacitance Tolerance: See below list

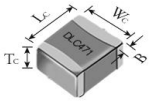
Capacitance Tolerance								
Code	A	B	C	D	F	G	J	K
Tol.	±0.05pF	±0.1pF	±0.25pF	±0.5pF	±1%	±2%	±5%	±10%

- W: Termination Type
- 251: Rated Voltage e.g:251=250V
- N: Laser Marking: N, No Marking
- T: Packaging Type T: Tape & Reel , 4000 pcs/reel
- X: Internal code(can be left blank)
- 5: Operating temperature
- X: Internal code(can be left blank)

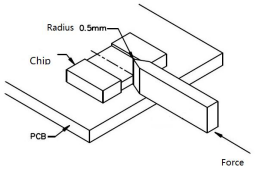
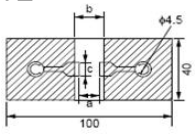
※Operating temperature： left blank ：-55℃~125℃；5： -55℃~150℃；7：-55℃~175℃.

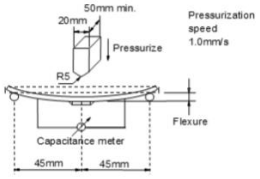
◆ DLC60P Termination Type and Dimensions

unit: inch（millimeter）

Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Termina Material
			Length Lc	Width Wc	Thickness Tc	Overlap B	
60P	W		.063±.006 (1.60±0.15)	.033±.006 (0.85±0.15)	.025±.006 (0.65±0.15)	.014±.006 (0.35±0.15)	100%Sn over Nickel Plating , RoHS Compliant

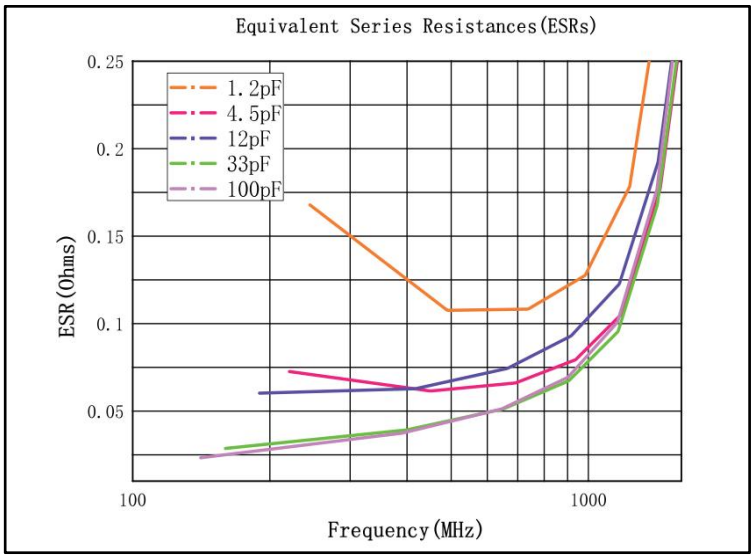
◆ Reliability Test Conditions.

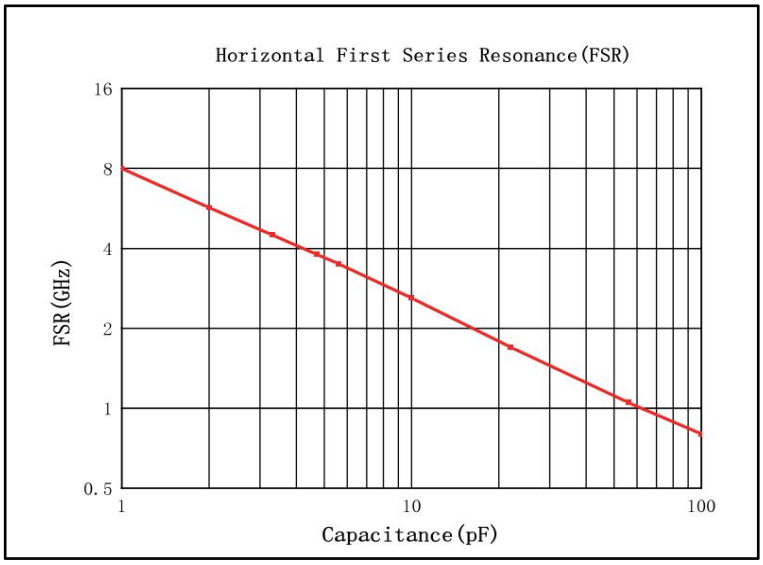
<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Test method</th></tr>
<tr><td>1</td><td>Operating temperature</td><td>-55℃～125℃
-55℃～150℃</td><td></td></tr>
<tr><td>2</td><td>Appearance</td><td>No defects or abnormality</td><td>Visual inspection: ×10 microscope.</td></tr>
<tr><td>3</td><td>Dimensions</td><td>See the previous page</td><td>Caliper inspection</td></tr>
<tr><td>4</td><td>Capacitance</td><td>Shall be within the applicable tolerance specified.</td><td rowspan="2">Test frequency:1MHz±10%
Test voltage: 1.0±0.2Vrms</td></tr>
<tr><td>5</td><td>D.F</td><td>DF≤0.05%</td></tr>
<tr><td>6</td><td>Insulation resistance</td><td>10^5 Megohms min. @ +25 ℃
10^4 Megohms min. @ +125 ℃</td><td>Voltage: DC Rated Voltage</td></tr>
<tr><td>7</td><td>Dielectric withstanding voltage (DWV)</td><td>Shall be no evidence of breakdown or visible evidence of arcing or damage.</td><td>Rated voltage: 200% of the rated voltage
Applied Time: 5 s
Charge/discharge current: 50mA max.</td></tr>
<tr><td>8</td><td>Temperature coefficient</td><td>(0±30)ppm/℃ （-55℃～150℃）</td><td rowspan="2">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><th>step</th><th>temperature(℃)</th></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>Tmax±3</td></tr>
<tr><td>5</td><td>25±2</td></tr>
</table>
$TC=\frac{C_x-C_3}{C_3 \times \triangle T} X10^6$ ppm/℃</td></tr>
<tr><td>9</td><td>Capacitance Drift</td><td>±0. 2% or ±0.05pF, whichever is larger.</td></tr>
<tr><td>10</td><td>Adhesive Strength of Termination</td><td>No removal of the terminations or other defect should occur.</td><td>Pressurizing force: $3.5^{+0.5}_{0}$N
Test time: 10±1 sec.
 
</td></tr>
<tr><td>11</td><td>Substrate Bending test</td><td>Appearance：No defects or abnormalities.
Capacitance Change： With in ±5% or ±0.3pF whichever is larger.</td><td>Mounting method: Reflow solder the capacitor on the test substrate.
Pressurization Method: Shown as below. Flexure 1mm. Holding Time 5±1s
 

a：0.7mm
b：3.0mm
c：1.2mm
 
</td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Test method</th></tr>
<tr><td>12</td><td>Solderability of termination</td><td>Shall be at least 95 percent covered with a smooth solder coating.</td><td>Immerse the capacitor in a eutectic solution requirement temperature 245±2℃ for 2±0.5 seconds. Capacitor shall be immersed to a depth of 10mm.</td></tr>
<tr><td>13</td><td>Resistance to soldering Heat</td><td>Appearance:
No evidence of mechanical damage or delamination or exposed.
Cap change:
within -1.0%～+2.0% or ±0.5pF whichever is larger.
Q: No less than initial requirement.
IR(25℃): No less than initial requirement.</td><td>Preheat for 1 minute at 150℃ to 180℃ before immerse the capacitor in a eutectic solution at 260±5℃ for 10±1 seconds.
Capacitor shall be immersed to a depth of 10mm.
And following a 24±2 hours cooling period.</td></tr>
<tr><td>14</td><td>Temperature Cycle</td><td>Appearance:
No evidence of mechanical damage .
Cap change:
within ±0.5% or ±0.5pF whichever is larger.
Q: No less than initial requirement.
IR(25℃): No less than 30% initial requirement.
DWV: To meet initial requirement.</td><td>Perform the 100 cycles according to the four heat treatments listed in the following table. Set it for 24±2hours at room temperature.
<table>
<tr><th>step</th><th>Temperature(℃)</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>Tmax(0～+3)</td><td>≥30</td></tr>
<tr><td>4</td><td>25+10</td><td>≤5</td></tr>
</table></td></tr>
<tr><td>15</td><td>Humidity, steady state</td><td>Appearance:
No evidence of mechanical damage .
Cap change:
within ±0.3% or ±0.3pF whichever is larger.
IR(25℃): No less than initial requirement.</td><td>With 1.5Volts D.C. applied while subjected to an environment of 85℃ with 85% relative humidity for 240 hours minimum.
Removed and sit 3.5±0.5 hours at room temperature.</td></tr>
<tr><td>16</td><td>High Temperature Load (Life)</td><td>Appearance:
No evidence of mechanical damage .
Cap change:
within ±2% or ±0.5pF whichever is larger.
Q: No less than 50% initial requirement.
IR(25℃): No less than 30% initial requirement.</td><td>Test Voltage: 200% of the rated voltage.
The charge/discharge current is less than 50mA.
Temperature: Tmax℃.
Time: 2000h.
Measurement：
Set it for 48 hours at room temperature, then measure.</td></tr>
</table>

◆ DLC60P Performance Curve



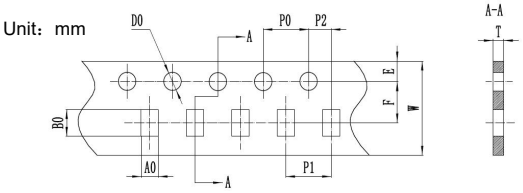


Definition and measurement conditions:
Definition: The capacitor is installed in series on the microstrip, that is, the capacitor is connected across the two ends of a 50Ω microstrip with a gap.
Measurement conditions: Ro4350 Rogers substrate with 3.48 dielectric constant, and characteristic impedance is 50Ω.

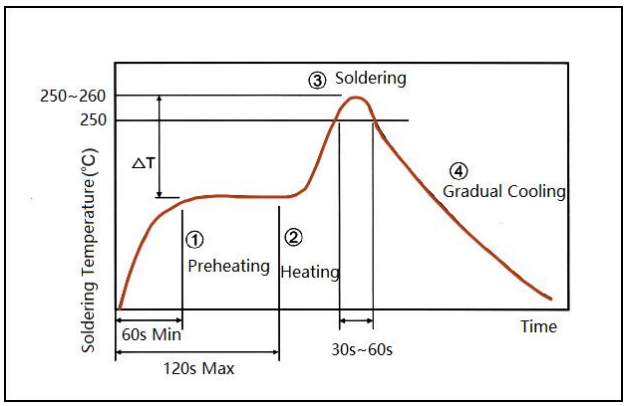
◆ Tape & Reel Specifications

EIA	A0	B0	W	P0	P1	T	F	Qty/reel	Tape Material
0603	1.10	1.80	8.00	4.00	4.00	0.95	3.50	4000	Paper

Unit：mm



◆ Recommended soldering conditions



△T≤190℃；
Maximum temperature：255℃±5℃；
Heating rate：≤4℃/s。

◆ Recommended Land Dimensions

EIA	A(mm)	B(mm)	C(mm)
0603	0.70	0.90	0.90