Specification

Part No.：DLC60D

DLC60D (.080" x .050")

◆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.

◆ DLC60D Capacitance Table

Cap. pF	Code	Tol.	Rated WVDC	Cap. pF	Code	Tol.	Rated WVDC
0.2	0R2	A,B,C,D	250V Code 251	10	100	F,G,J	250V Code 251
0.3	0R3			11	110		
0.4	0R4			12	120		
0.5	0R5			13	130		
0.6	0R6			15	150		
0.7	0R7			16	160		
0.8	0R8			18	180		
0.9	0R9			20	200		
1.0	1R0			22	220		
1.1	1R1			24	240		
1.2	1R2			27	270		
1.3	1R3			30	300		
1.4	1R4			33	330		
1.5	1R5			36	360		
1.6	1R6			39	390		
1.7	1R7			43	430		
1.8	1R8			47	470		
1.9	1R9			51	510		
2.0	2R0			56	560		
2.1	2R1			62	620		
2.2	2R2			68	680		
2.4	2R4			75	750		
2.7	2R7			82	820		
3.0	3R0			91	910		
3.3	3R3			100	101		
3.6	3R6			110	111		
3.9	3R9			120	121		
4.3	4R3			130	131		
4.7	4R7			150	151		
5.1	5R1			160	161		
5.6	5R6			180	181		
6.2	6R2			200	201		
6.8	6R8			220	221		
7.5	7R5						
8.2	8R2						
9.1	9R1						

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

◆ Part Numbering

DLC60D 100 J W 251 N T X 5 X

- DLC60D: DLC60:series, D:0805
- 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

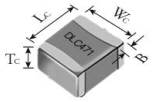
Capacitance Tolerance								
Code	A	B	C	D	F	G	J	K
Tol.	±0.05pF	±0.1pF	±0.25pF	±0.5pF	±1%	±2%	±5%	±10%

- W: Termination Type
- 251: Rated Voltage e.g:251=250V
- N: Laser Marking: N, No Marking
- T: Packaging Type T: Tape & Reel , 3000 pcs/reel
- X: Internal code(can be left blank)
- 5: Operating temperature
- X: Internal code(can be left blank)

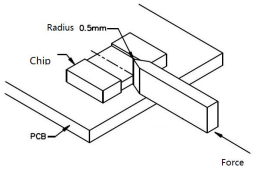
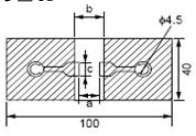
※Operating temperature： left blank ：-55℃~125℃；5： -55℃~150℃；

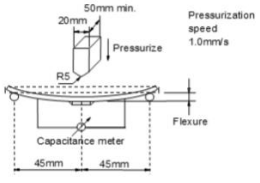
◆ DLC60D Termination Type and Dimensions

unit: inch（millimeter）

Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Termina Material
			Length Lc	Width Wc	Thickness Tc	Overlap B	
60D	W		.078±.010 (2.00±0.25)	.049±.010 (1.25±0.25)	.040±.006 (1.02±0.15)	.020±.010 (0.50±0.25)	100%Sn over Nickel Plating , RoHS Compliant

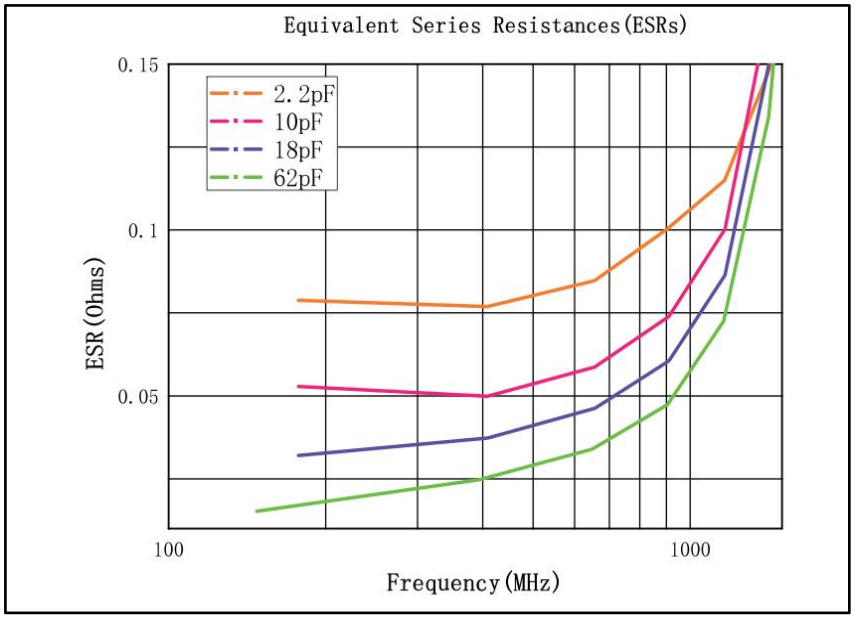
◆ Reliability Test Conditions.

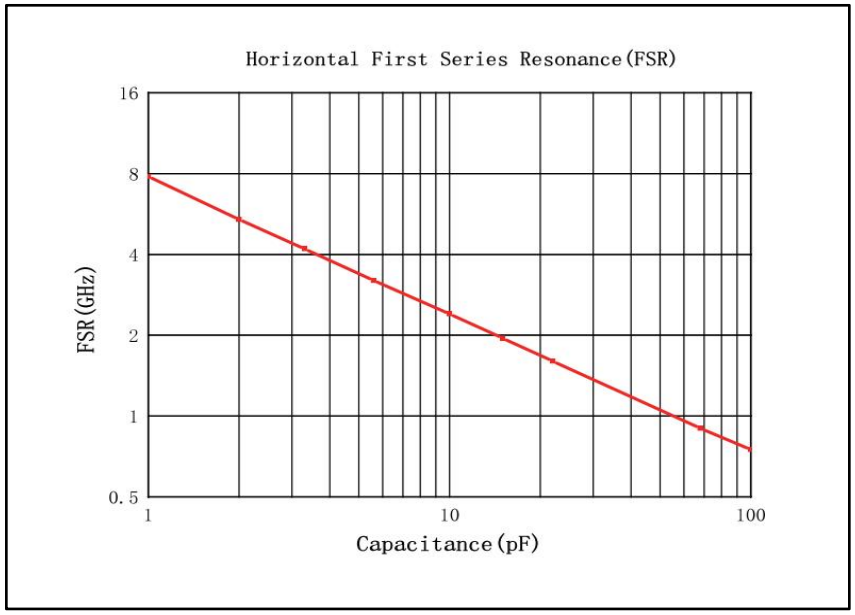
<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Test method</th></tr>
<tr><td>1</td><td>Operating temperature</td><td>-55℃～125℃
-55℃～150℃</td><td></td></tr>
<tr><td>2</td><td>Appearance</td><td>No defects or abnormality</td><td>Visual inspection: ×10 microscope.</td></tr>
<tr><td>3</td><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>1. Test Voltage:
Rated voltage: 200% of the rated voltage
2. Applied Time: 5 s
3.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: $10^{+1.0}_{0}$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：1.2mm
b：4.0mm
c：1.7mm
 
</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>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±1hours 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 1.5 Volts 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>

◆ DLC60D Performance Curve

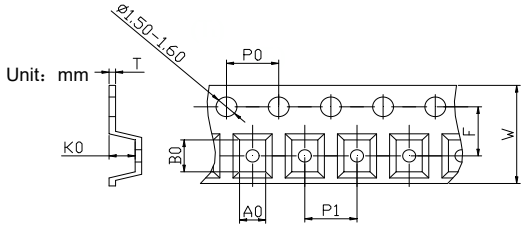




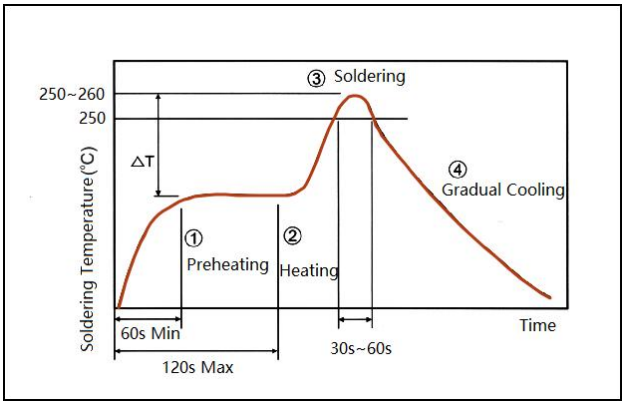
Definition and measurement conditions:
Definition: The capacitor is installed in series on the microstrip, that is, the capacitor is connected across the two ends of a 50Ω microstrip with a gap.
Measurement conditions: Ro4350 Rogers substrate with 3.48 dielectric constant, and characteristic impedance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

◆ Tape & Reel Specifications

EIA	A0	B0	K0	W	P0	P1	T	F	Qty/reel	Tape Material
0805	1.40	2.20	1.20	8.00	4.00	4.00	0.20	3.50	3000	Plastic



◆ Recommended soldering conditions



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

◆ Recommended Land Dimensions

EIA	A(mm)	B(mm)	C(mm)
0805	1.00	0.80	1.30