

Specification

Part No.: DLC85C

DLC85C (.220" x .250")

◆ Product Features

High Q, high power, low ESR/ESL, low noise, high self-resonant frequency,
high reliability.

◆ Product Application

Typical functions: frequency tuning, bypass, coupling, responding, DC blocking and impedance matching.
Typical applications: semiconductor RF power, MRI, repeater, high speed railway signal responsor, wireless broadcasting and TV device.



DLC85C Capacitance Table

Cap.	Code	Tol.	Rated	Cap.	Code	Tol.	Rated	Cap.	Code	Tol.	Rated
pF			WVDC	pF			WVDC	pF			WVDC
2.2	2R2	A,B,C,D	3600V Code 362	22	220	F,G,J	3600V Code 362	220	221	F,G,J	3000V Code 302
2.4	2R4			24	240			240	241		
2.7	2R7			27	270			270	271		
3.0	3R0			30	300			300	301		
3.3	3R3			33	330			330	331		
3.6	3R6			36	360			360	361		
3.9	3R9			39	390			390	391		2000V Code 202
4.3	4R3			43	430			430	431		
4.7	4R7			47	470			470	471		
5.1	5R1			51	510			510	511		
5.6	5R6			56	560			560	561		
6.2	6R2			62	620			620	621		
6.8	6R8			68	680			680	681		
7.5	7R5			75	750			750	751		
8.2	8R2			82	820			820	821		
9.1	9R1			91	910			910	911		
10	100	F,G,J		100	101	3000V Code 302	1000	102	F,G,J	1000V Code 102	
11	110			110	111		1100	112			
12	120			120	121		1200	122			
13	130			130	131		1500	152			
15	150			150	151		1800	182			
16	160			160	161		2200	222			
18	180			180	181		2700	272			
20	200			200	201		3000	302			

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

◆ Part Numbering

DLC85:series
C:2225

Capacitor Code

Cap <10pF, e.g.:1R0=1.0pF, R denotes decimal point.;
Cap ≥10pF, e.g.:101=100pF, the third number is the power of 10.

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%

Packaging Type

T- Chip capacitor, Tape & Reel (7")

500 pcs/reel

TV- Chip capacitor Vertical Orientation Tape & Reel 300 pcs/reel

C- Lead capacitor, Waffle Packaging

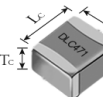
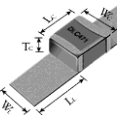
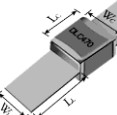
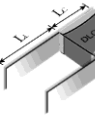
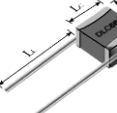
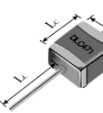
Laser Marking

Rated Voltage
e.g: 362=3600V

Termination Type

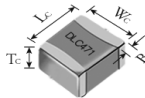
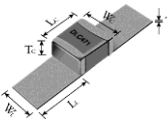
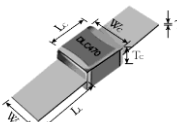
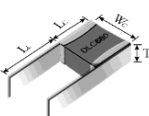
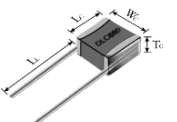
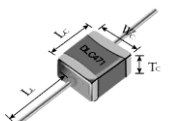
◆ DLC85C Lead Type and Dimensions

unit: inch (millimeter)

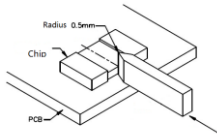
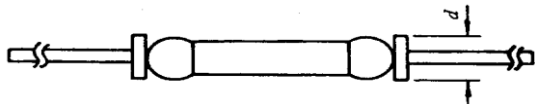
Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Lead Dimensions			Termina Material
			Length L _C	Width W _C	Thickness T _C	Overlap B	Length L _L	Width W _L	Thickness T _L	
85C	W		.225 -.010~+.020 (5.72 -0.25~+0.51)	.250 ±.015 (6.35 ±0.38)	.150 (3.81) max	.020~.047 (0.50~1.20)	—	—	—	100%Sn over Nickel Plating , RoHS Compliant
	L	Chip								10%Pb90%Sn over Nickel Plating
85C	MS					.500 (12.70) min	.240 ±.005 (6.1 ±0.13)	.008 ±.001 (0.2 ±0.025)	Silver-plated Copper	
85C	AR									.354 (9.00) min
85C	RR						.709 (18.00)min	.031 ±.004 (0.80 ± 0.10)		
85C	RW									.906 (23.00)min
85C	AW									

◆ **DLC85C Termination Type and Dimensions**

unit: inch (millimeter)

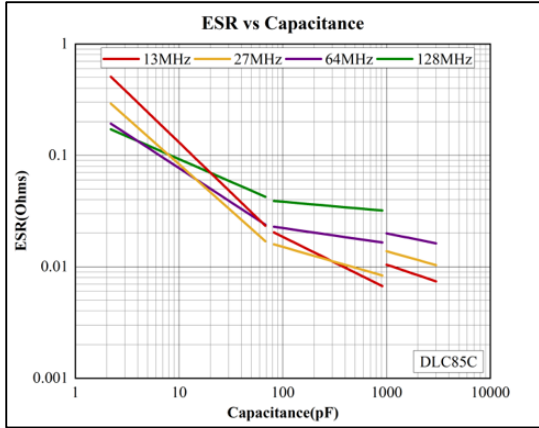
Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Lead Dimensions			Terminals Material	
			Length Lc	Width Wc	Thickness Tc	Overlap B	Length LL	Width WL	Thickness TL		
85C	P	 Chip(Non-Mag)	.225 -.010~+.020 (5.72 -0.25~+0.51)	.250 ± .015 (6.35 ± 0.38)	.150 (3.81)max	.020~.047 (0.50~1.20)	—	—	—	100%Sn over Copper Plating , RoHS Compliant	
85C	MN	 Microstrip(Non-Mag)				—	.500 (12.70) min	.240 ± .005 (6.10 ± 0.13)	.008 ± .001 (0.20 ± .025)	Silver- plated Copper	
85C	AN	 Axial Ribbon (Non-Mag)					.354 (9.00) min	.118 ± .010 (3.00 ± 0.25)	.012 ± .001 (0.30 ± .025)		
85C	FN	 Radial Ribbon (Non-Mag)									
85C	RN	 Radial Wire(Non-Mag)					.709 (18.00) min	.031 ± .004 (0.80 ± 0.10)			Silver wire
85C	BN	 Axial Wire (Non-Mag)				.906 (23.00) min					

◆ **Reliability Test Conditions.**

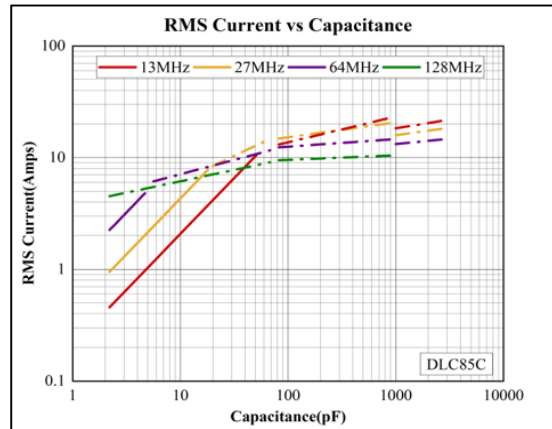
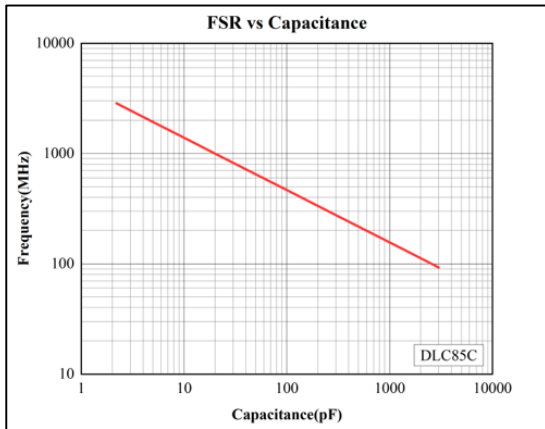
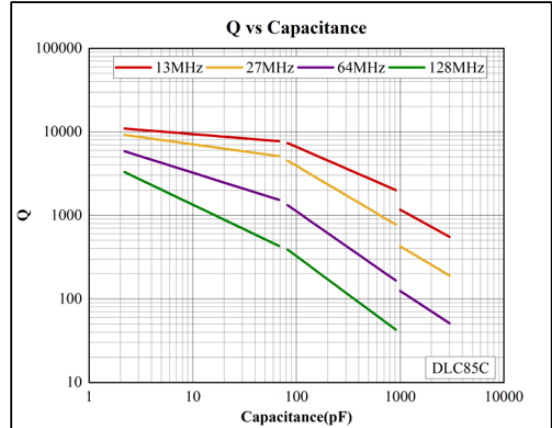
No.	Item	Specification	Test method												
1	Operating temperature	-55℃~150℃													
2	Appearance	No defects or abnormality	Visual inspection: ×10 microscope.												
3	Dimensions	See the previous page	Caliper inspection												
4	Capacitance	Shall be within the applicable tolerance specified.	Test frequency: C≤1000pF: 1MHz±10% C>1000pF: 1KHz±10% Test voltage: 1.0±0.2Vrms												
5	D.F	D.F≤0.02%													
6	Insulation resistance	10 ⁵ Megohms min. @ +25℃ 10 ⁴ Megohms min. @ +125℃	Voltage: DC Rated Voltage (500V max)												
7	Dielectric withstanding voltage (DWV)	Shall be no evidence of breakdown or visible evidence of arcing or damage.	Test Voltage: Rated voltage≤500V: 250% of the rated voltage 500V<Rated voltage≤1250V: 150% of the rated voltage Rated voltage>1250V: 120% 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><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>150±3</td></tr><tr><td>5</td><td>25±2</td></tr></table> $TC = \frac{C_x - C_3}{C_3 \times \Delta T} \times 10^6 \text{ ppm/}^\circ\text{C}$	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: 25.0^{+1.0}₀N Test time: 10±1 sec. 												
11	Terminal strength	Visual examination for loosening, rupturing, and permanent damage to the terminals.	Solder the capacitor on test jig as below . Then apply a horizontal force. Holding time: 5~10s Force: 10 N minimum. d= (1.02±0.15) mm; 												

No.	Item	Specification	Test method															
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±2℃) 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%～+2.0% or± 0.5pF whichever is larger. Q: No less than initial requirement. IR(25℃): No less than initial requirement.	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.															
14	Temperature Cycle	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.	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><td>step</td><td>Temperature(℃)</td><td>Time(min)</td></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(℃)	Time(min)	1	-55(-3~0)	≥30	2	25+10	≤5	3	125(0~+3)	≥30	4	25+10	≤5
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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 ±0.3% or ±0.3pF whichever is larger. IR(25℃): No less than initial requirement.	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.															
16	High Temperature Load (Life)	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.	Test Voltage: Rated voltage≤500V: 200% of the rated voltage 500V<Rated voltage≤1250V: 120% of the rated voltage Rated voltage>1250V: 100% of the rated voltage。 The charge/discharge current is less than 50mA. Temperature: 150℃; Time: 2000h. Measurement: Set it for 48 hours at room temperature, then measure.															

◆ DLC85C Performance Curve



ESR Measurement: Coaxial Resonant Cavity Method.



The current determined by rated voltage (max voltage products). (Solid line)·

$$I_{RMS} = \frac{\sqrt{2}}{2} I_{peak} = \frac{\sqrt{2}}{2} \times \frac{V_{rated}}{X_C} = \sqrt{2} \pi F C V_{rated}$$

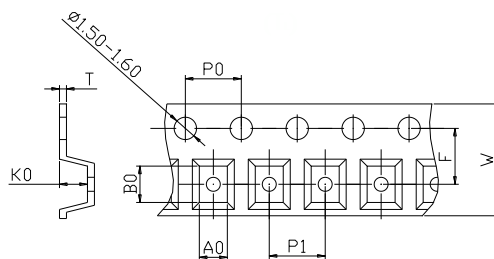
The current determined by dissipated power. (Dashed line)·

$$I_{RMS} = \sqrt{\frac{P_{dmax}}{ESR}}$$

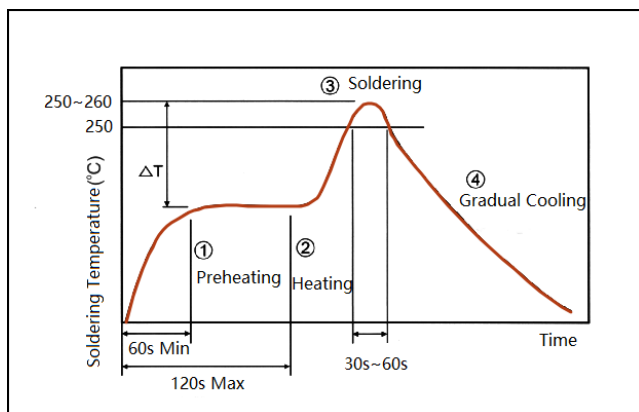
If the rated current is based on a temperature rise(ΔT) of 60°C (Ambient Temperature at 65°C), with a thermal resistance(θ) of 17.1°C/W, the maximum power dissipation of the capacitor is 3.5W.

◆ Tape & Reel Specifications

Orientation	EIA	A0	B0	K0	W	P0	P1	T	F	Qty/r eel	Tape Material
Horizontal	2225	6.70	6.20	3.40	16.00	4.00	12.00	0.30	7.50	500	Plastic
Vertical	2225	4.1	6.15	6.55	16.00	4.00	8.00	0.40	7.50	300	Plastic



◆ Recommended soldering conditions



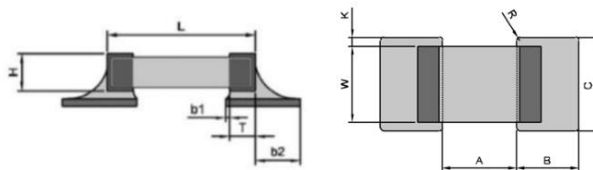
$\Delta T \leq 150^\circ\text{C}$;

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

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

◆ Horizontal Mounting

Orientation	EIA	A(mm)	B(mm)	C(mm)
Horizontal	2225	4.00	2.30	7.00



◆ Vertical Mounting

Orientation	EIA	A(mm)	B(mm)	C(mm)
Vertical	2225	3.90	2.50	4.00

