



DLC10C High Q. RF/Microwave Multilayer Chip Ceramic Capacitors

DLC10C(.220" x.250")

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◆ Product Features

High Q, High RF Current/Voltage, High RF Power, Low ESR/ESL,
Ultra- Stable Performance.

◆ Product Application

Typical Functional Applications: Bypass, Coupling, Tuning, Impedance Matching and D.C. Blocking.

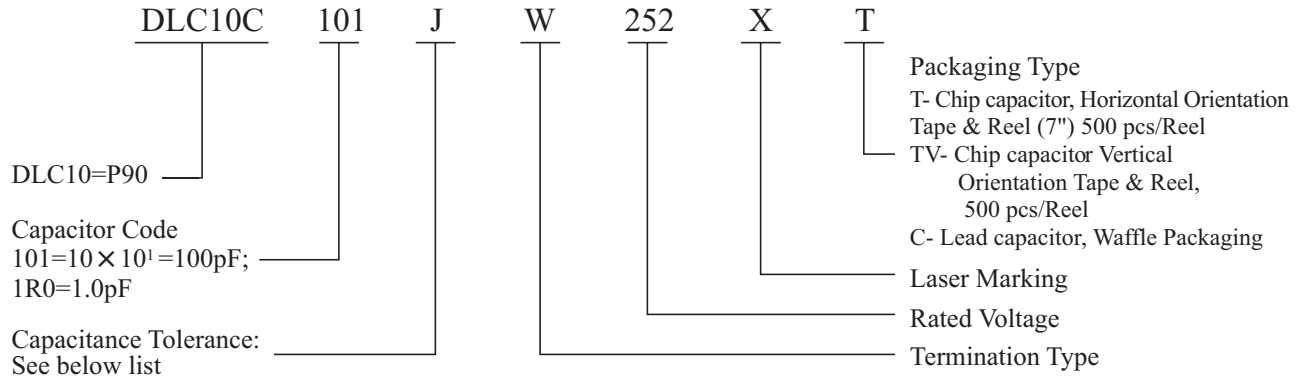
Typical Circuit Applications: UHF/VHF RF Power Amplifiers, Antenna Tuning, Plasma Chambers and Medical.

◆ DLC10C Capacitance Table

Cap.pF	Code	Tol.	Rated WVDC	Cap.pF	Code	Tol.	Rated WVDC	Cap.pF	Code	Tol.	Rated WVDC	Cap.pF	Code	Tol.	Rated WVDC
0.5	0R5			3.6	3R6			30	300			240	241		
0.6	0R6			3.9	3R9			33	330			270	271		
0.7	0R7			4.3	4R3			36	360			300	301		
0.8	0R8			4.7	4R7			39	390			330	331		
0.9	0R9			5.1	5R1			43	430			360	361		
1.0	1R0			5.6	5R6	B, C, D		47	470			390	391		
1.1	1R1			6.2	6R2			51	510			430	431		
1.2	1R2			6.8	6R8			56	560			470	471		
1.3	1R3		2500V	7.5	7R5		2500V	62	620	F, G, J		510	511		
1.4	1R4	B, C, D	Code 252	8.2	8R2		Code 252	68	680		3600V	560	561		
1.5	1R5		or 3600V	9.1	9R1		or 3600V	75	750		Code 362	620	621	F, G, J	
1.6	1R6		Code 362	10	100		Code 362	82	820			680	681		1000V
1.7	1R7			11	110			91	910			750	751		Code 102
1.8	1R8			12	120			100	101			820	821		or 1500V
1.9	1R9			13	130			110	111			910	911		Code 152
2.0	2R0			15	150	F, G, J		120	121		2500V	1000	102		
2.1	2R1			16	160			130	131		Code 252	1100	112		
2.2	2R2			18	180			150	151		or 3000V	1200	122		
2.4	2R4			20	200			160	161		Code 302	1500	152		
2.7	2R7			22	220			180	181			1800	182		500V
3.0	3R0			24	240			200	201			2200	222		Code 501
3.3	3R3			27	270			220	221			2700	272		

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


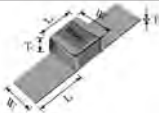
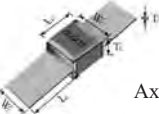
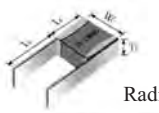

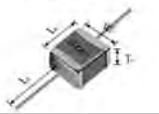
◆ **Part Numbering**



Code	A	B	C	D	F	G	J
Tolerance	± 0.05pF	± 0.1pF	± 0.25pF	± 0.5pF	± 1%	± 2%	± 5%

◆ **DLC10C Capacitor Dimensions**

unit:inch(millimeter)

Series	Term. Code	Type/Outlines	Capacitor Dimensions				Lead Dimensions			Plated Material
			Length (L _C)	Width (W _C)	Thick. (T _C)	Overlap (B)	Length (L _L)	Width (W _L)	Thickness (T _L)	
10C	W	 Chip	.230 +.025 to -.010 (5.84 to-0.25)	.250 ± .015 (6.35 ±0.38)	.165 (4.19) max	.047 (1.20) max	-	-	-	100% Sn over Nickel Plating 90 Sn10Pb over Nickel Plating
	L									
10C	MS	 Microstrip	.245 ±	.250 ±	.150 (3.81) max	-	.500 (12.70) min	.240 ± .005 (6.10 ±0.13)	.008 ± .001 (0.20 ±0.025)	Silver- plated Copper
10C	AR	 Axial Ribbon								
10C	RR	 Radial Ribbon								
10C	RW	 Radial Wire								
10C	AW	 Axial Wire								


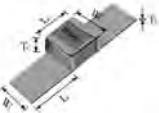

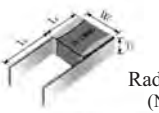

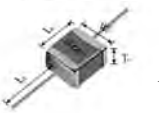


DLC10C High Q. RF/Microwave Multilayer Chip Ceramic Capacitors

DLC10C(.220" x.250")

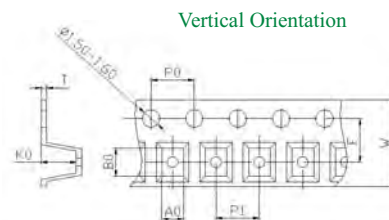
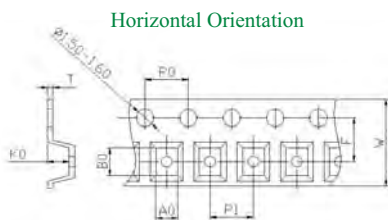
◆DLC10C Capacitor Dimensions

unit:inch(millimeter)

Series	Term. Code	Type/Outlines	Capacitor Dimensions				Lead Dimensions			Plated Material	
			Length (L _C)	Width (W _C)	Thick. (T _C)	Overlap (B)	Length (L _L)	Width (W _L)	Thickness (T _L)		
10C	P	 Chip (Non-Mag)	.230 +.025 to -.010 (5.84 +0.51 to-0.25)	.250 ± .015 (6.35 ±0.38)	.165 (4.19) max	.047 (1.20) max	—	—	—	Copper Plated 100% Sn RoHS Compliant	
10C	MN	 Microstrip (Non-Mag)	.245 ±	.250 ±	.150 (3.81) max	—	.500 (12.70) min	.240 ±	.008 ±	Silver-plated Copper	
10C	AN	 Axial Ribbon (Non-Mag)						.005 (6.10 ±0.13)	.001 (0.20 ±0.025)		
10C	FN	 Radial Ribbon (Non-Mag)						.354 (9.00) min	.118 ±.005 (3.00 ±0.13)		.012 ±.001 (0.30 ±0.025)
10C	RN	 Radial Wire (Non-Mag)						.709 (18.00) min	Dia.=.031±.004 (0.80±0.10)		
10C	BN	 Axial Wire (Non-Mag)						.906 (23.00) min			

◆Tape & Reel Specifications

Orientation	EIA	A0	B0	K0	W	P0	P1	T	F	Qty/reel	Tape Material
Horizontal	2225	6.70	6.20	3.40	16.00	4.00	12.00	0.30	7.50	500	Plastic
Vertical	2225	3.50	6.66	6.90	16.00	4.00	8.00	0.50	7.50	500	Plastic





DLC70C High Q. RF/Microwave Multilayer Chip Ceramic
DLC70C(.220" x.250")

◆ **Performance**

Item	Specifications
Quality Factor (Q)	Greater than 10,000 at 1 MHz.
Insulation Resistance (IR)	Test Voltage: 500V 10 ⁵ Megohms min. @ +25°C at rated WVDC. 10 ⁴ Megohms min. @ +125°C at rated WVDC.
Rated Voltage	See Rated Voltage Table
Dielectric Withstanding Voltage (DWV)	250% of Rated Voltage for 5 seconds, Rated Voltage ≤ 500VDC 150% of Rated Voltage for 5 seconds, 500VDC < Rated Voltage ≤ 1250VDC 120% of Rated Voltage for 5 seconds, Rated Voltage > 1250VDC
Operating Temperature Range	-55°C to +200°C
Temperature Coefficient (TC)	+90 ± 20 ppm/°C (-55°C to +125°C)
Capacitance Drift	± 0.02% or ± 0.02pF, whichever is greater.
Piezoelectric Effects	None
Termination Type	See Termination Type Table

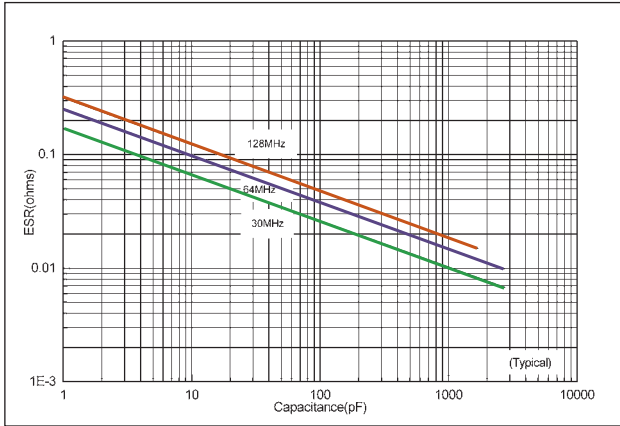
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

◆ **Environmental Tests**

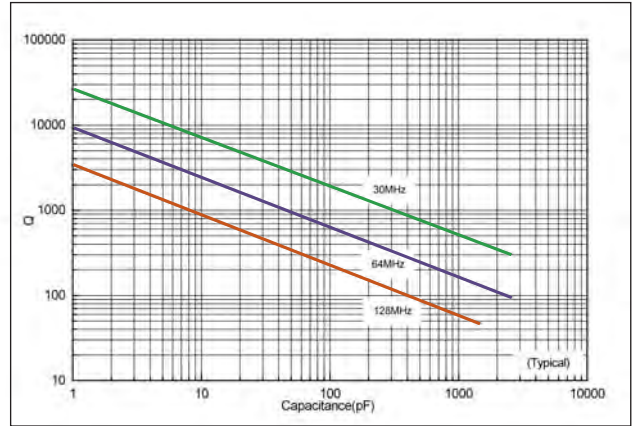
Item	Specifications	Method
Thermal Shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5pF, whichever is greater.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and 125°C) stay 30 minutes. The time of removing shall not be more than 3 minutes. Perform the five cycles.
Moisture Resistance		MIL-STD-202, Method 106.
Humidity (steady state)	DWV: the initial value IR: the initial value Capacitance change: no more than 0.3% or 0.3pF, whichever is greater.	MIL-STD-202, Method 103, Condition A, with 1.5 Volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours minimum.
Life	IR: Shall not be less than 30% of the initial value Capacitance change: no more than 2.0% or 0.5pF, whichever is greater.	MIL-STD-202, Method 108, for 2000 hours, at 125°C. 200% of Rated Voltage for Capacitors, Rated Voltage ≤ 500VDC 120% of Rated Voltage for Capacitors, 500VDC < Rated Voltage ≤ 1250VDC 100% of Rated Voltage for Capacitors, Rated Voltage > 1250VDC

◆ **DLC10C Performance Curve**

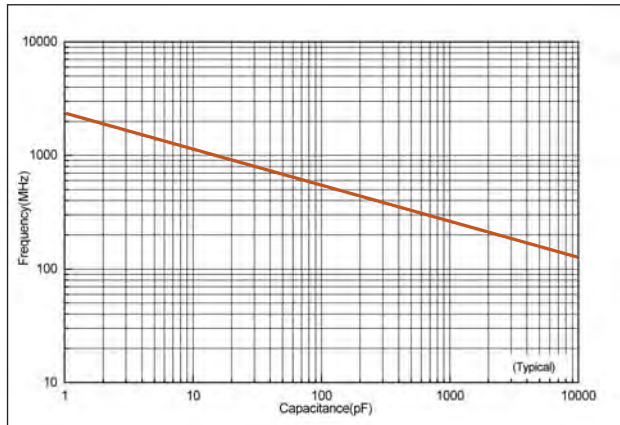
ESR vs Capacitance



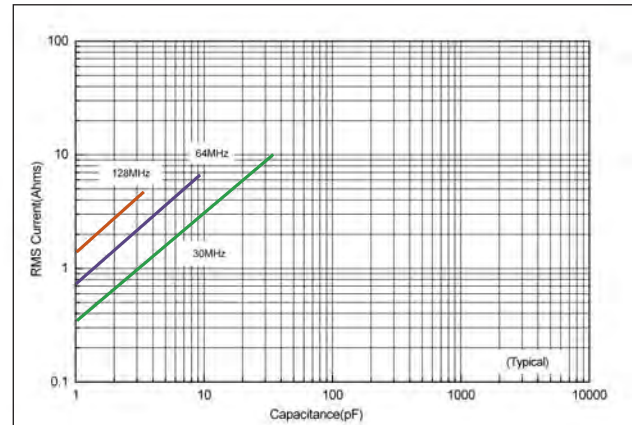
Q vs Capacitance



Series Resonance vs Capacitance



Current Rating vs Capacitance



The current depends on voltage limited: $I = \frac{\sqrt{2}}{2} I_{peak} = \frac{\sqrt{2}}{2} \times \frac{V_{rated}}{X_C} = \sqrt{2} \pi f C V_{rated}$

The current depends on power dissipation limited: $I = \sqrt{\frac{P_{dissipation}}{ESR}}$

Note: If the thermal resistance of mounting surface is 15°C/W.

then a power dissipation of 4 W will result in the current limited

we can calculate the current limited $I = \sqrt{\frac{P_{dissipation}}{ESR}}$