DLC70C (.220" x .250")

◆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.

◆DLC70C 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	B, C, D	2500V Code 252 or 3600V Code 362	3.6	3R6	B, C, D	2500V Code 252 or 3600V Code 362	30	300	F, G, J	2500V Code 252 or 3600V Code 362	240	241	F, G, J	
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		1500V Code 152 or 2000V Code 202
0.9	0R9			5.1	5R1			43	430			360	361		
1.0	1R0			5.6	5R6			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			7.5	7R5			62	620			510	511		1000V Code 102 or 1500V Code 152
1.4	1R4			8.2	8R2			68	680			560	561		
1.5	1R5			9.1	9R1			75	750			620	621		
1.6	1R6			10	100	F, G, J		82	820			680	681		
1.7	1R7			11	110			91	910			750	751		
1.8	1R8			12	120			100	101			820	821		
1.9	1R9			13	130			110	111		2500V Code 252 or 3000V Code 302	910	911		
2.0	2R0			15	150			120	121			1000	102		
2.1	2R1			16	160			130	131			1100	112		
2.2	2R2			18	180			150	151			1200	122		
2.4	2R4			20	200			160	161			1500	152		500V Code 501
2.7	2R7			22	220			180	181			1800	182		
3.0	3R0			24	240			200	201			2200	222		
3.3	3R3			27	270			220	221			2700	272		

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

◆Part Numbering

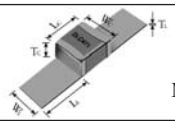
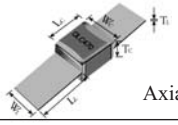
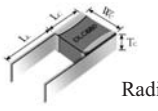
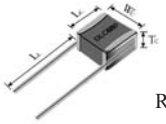
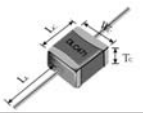
DLC70C 101 J W 252 X T

- DLC70C: DLC70=NP0
- 101: Capacitor Code 101=10×10¹=100pF; 1R0=1.0pF
- J: Capacitance Tolerance: See below list
- W: Termination Type
- 252: Rated Voltage
- X: Laser Marking
- T: Packaging Type
  - T- Chip capacitor, Horizontal Orientation Tape & Reel (7") 500 pcs/Reel
  - TV- Chip capacitor Vertical Orientation Tape & Reel, 500 pcs/Reel
  - C- Lead capacitor, Waffle Packaging

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

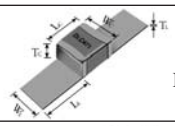
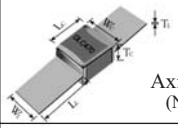
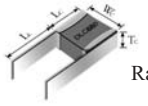
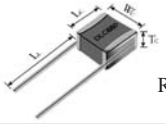
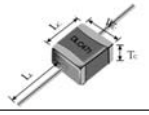
◆DLC70C Capacitor Dimensions

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)	
70C	W	 Chip	.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	–	–	–	100% Sn over Nickel Plating
	L									90 Sn10Pb over Nickel Plating
70C	MS	 Microstrip	.245 ± .025 (6.22 ±0.64)	.250 ± .015 (6.35 ±0.38)	.150 (3.81) max	–	.500 (12.70) min	.240 ± .005 (6.10 ±0.13)	.008 ± .001 (0.20 ±0.025)	Silver-plated Copper
70C	AR	 Axial Ribbon								
70C	RR	 Radial Ribbon					.354 (9.00) min	.118 ±.005 (3.00 ±0.13)	.012 ±.001 (0.30 ±0.025)	
70C	RW	 Radial Wire					.709 (18.00) min	Dia.=.031±.004 (0.80±0.10)		
70C	AW	 Axial Wire					.906 (23.00) min			

◆DLC70C Capacitor Dimensions

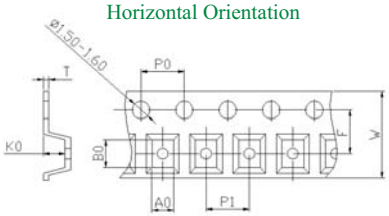
unit:inch(millimeter)

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)	
70C	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	–	–	–	100% Sn over Copper Plating RoHS Compliant
70C	MN	 Microstrip (Non-Mag)	.245 ± .025 (6.22 ±0.64)	.250 ± .015 (6.35 ±0.38)	.150 (3.81) max	–	.500 (12.70) min	.240 ± .005 (6.10 ±0.13)	.008 ± .001 (0.20 ±0.025)	Silver-plated Copper
70C	AN	 Axial Ribbon (Non-Mag)								
70C	FN	 Radial Ribbon (Non-Mag)					.354 (9.00) min	.118 ±.005 (3.00 ±0.13)	.012 ±.001 (0.30 ±0.025)	
70C	RN	 Radial Wire (Non-Mag)					.709 (18.00) min	Dia.=.031±.004 (0.80±0.10)		
70C	BN	 Axial Wire (Non-Mag)					.906 (23.00) min			

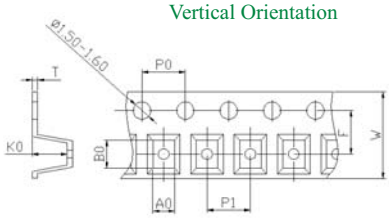
◆Tape & Reel Specifications

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

Horizontal Orientation



Vertical Orientation



◆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)	0±30 ppm/℃ (−55℃ to +125℃)
Capacitance Drift	±0.02% or ±0.02pF, whichever is greater.
Piezoelectric Effects	None
Termination Type	See Termination Type Table

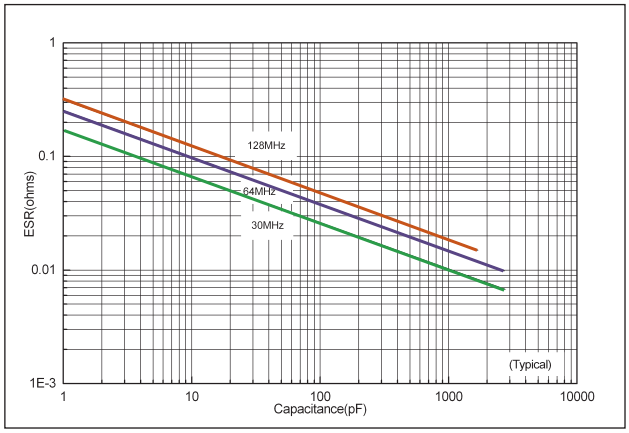
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

◆Environmental Tests

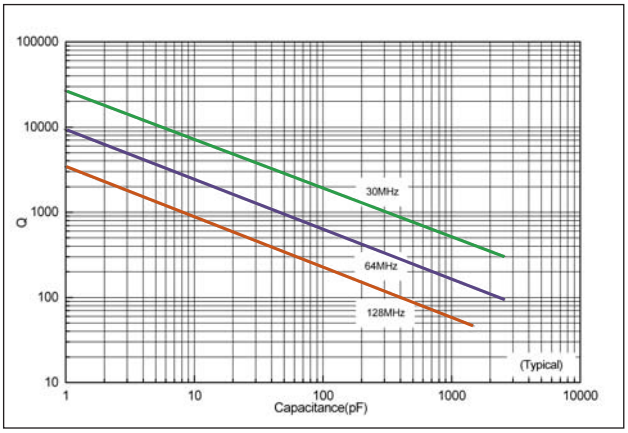
Item	Specifications	Method
Thermal Shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5pF. whichever is greater.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55℃ and 125℃) stay 30 minutes. The time of 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℃ 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℃. 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

◆DLC70C Performance Curve

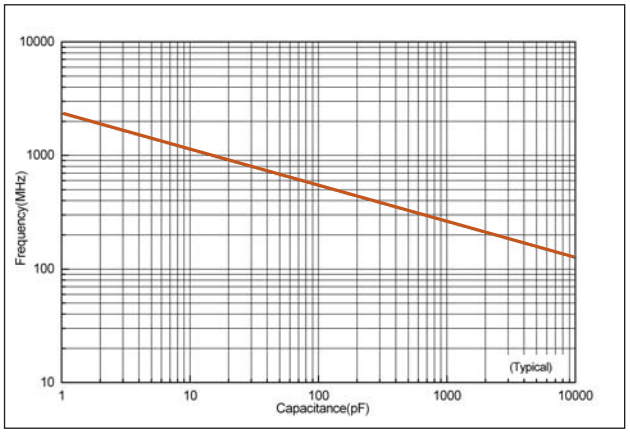
ESR vs Capacitance



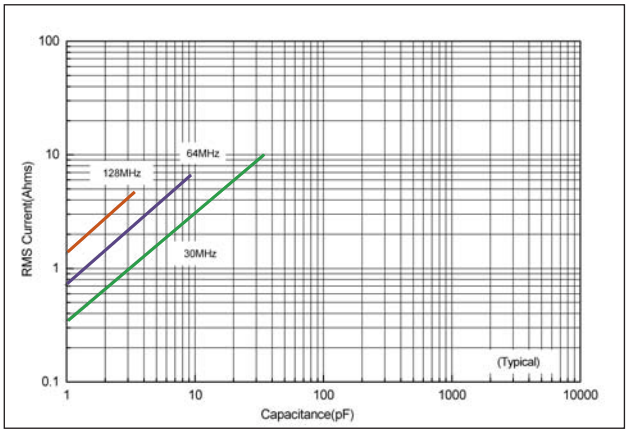
Q vs Capacitance



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 $I = \sqrt{\frac{P_{dissipation}}{ESR}}$