DLC70E (.380" x .380")

◆Product Features

High Q, High RF Current/Voltage, High RF Power, Low ESR/ESL, Low Noise,

Ultra-Stable Performance.

◆Product Application

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

Typical Circuit Applications: HF/RF Power Amplifiers, Transmitters, Antenna Tuning,

Plasma Chambers, and Medical.

◆DLC70E 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	3600V Code 362 or 7200V Code 722	4.3	4R3	B, C, D	3600V Code 362 or 7200V Code 722	43	430	F, G, J	3600V Code 362 or 7200V Code 722	430	431	F, G, J	2500V Code 252
0.6	0R6			4.7	4R7			47	470			470	471		
0.7	0R7			5.1	5R1			51	510			510	511		
0.8	0R8			5.6	5R6			56	560			560	561		
0.9	0R9			6.2	6R2			62	620			620	621		
1.0	1R0			6.8	6R8			68	680			680	681		
1.1	1R1			7.5	7R5			75	750			750	751		
1.2	1R2			8.2	8R2			82	820			820	821		1000V Code 102
1.3	1R3			9.1	9R1			91	910			910	911		
1.4	1R4			10	100	F, G, J		100	101			1000	102		
1.5	1R5			11	110			110	111			1100	112		
1.6	1R6			12	120			120	121			1200	122		
1.7	1R7			13	130			130	131			1500	152		
1.8	1R8			15	150			150	151			1800	182		
1.9	1R9			16	160			160	161			2200	222		
2.0	2R0			18	180			180	181			2400	242		
2.1	2R1			20	200			200	201		3600V Code 362	2700	272		500V Code 501
2.2	2R2			22	220			220	221			3000	302		
2.4	2R4			24	240			240	241			3300	332		
2.7	2R7			27	270			270	271			3600	362		
3.0	3R0			30	300			300	301			3900	392		
3.3	3R3			33	330			330	331			4300	432		
3.6	3R6			36	360			360	361			4700	472		
3.9	3R9			39	390			390	391			5100	512		

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DLC70E High Q. RF/Microwave Multilayer Chip Ceramic Capacitors

DLC70E(.380" x.380")

◆Part Numbering

DLC70E 101 J W 362 X T

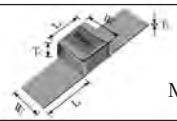
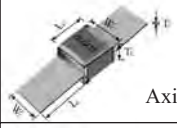
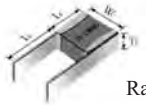
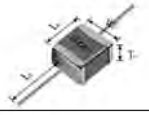
- DLC70=NP0
- Capacitor Code 101=10×10¹=100pF; 1R0=1.0pF
- Capacitance Tolerance: See below list
- Termination Type
- Rated Voltage
- Laser Marking
- Packaging Type
  - T- Chip capacitor, Tape & Reel (7") 300 pcs/Reel
  - C- Lead capacitor, Waffle Packaging

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

Note: Tolerance of ±0.02pF is a possibility. Please contact Dalicap

◆DLC70E 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)	
70E	W	 Chip	.380+.015 to −.010 (9.65+0.38 to −0.25)	.380 ± .010 (9.65 ±0.25)	.170 (4.32) max	.063 (1.60) max	–	–	–	100% Sn over Nickel Plating
	L									90 Sn10Pb over Nickel Plating
70E	MS	 Microstrip	.380 +.015 to −.010 (9.65 +0.38 to −0.25)	.380 ±.010 (9.65± 0.25)	.177 (4.50) max	–	.750 (19.05) min	.350 ± .010 (8.89 ±0.25)	.008 ± .001 (0.20 ±0.025)	Silver-plated Copper
70E	AR	 Axial Ribbon								
70E	RR	 Radial Ribbon					.354 (9.00) min	.118 ±.005 (3.00 ±0.13)	.012 ±.001 (0.30 ±0.025)	
70E	RW	 Radial Wire					.709 (18.00) min	Dia.=.031±.004 (0.80±0.10)		
70E	AW	 Axial Wire					.906 (23.00) min			

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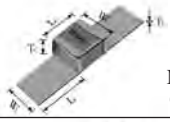
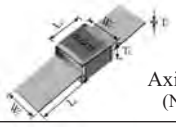
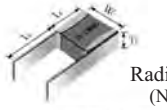
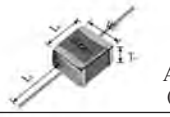
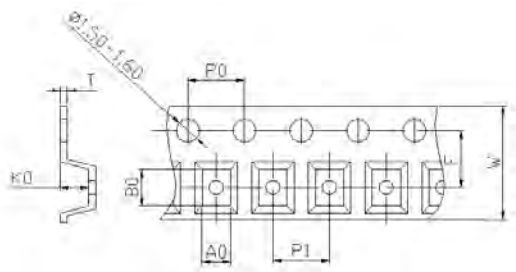
◆DLC70E Capacitor Dimensions

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)	
70E	P	 Chip (Non-Mag)	.380+.015 to −.010 (9.65+0.38 to −0.25)	.380 ± .010 (9.65 ±0.25)	.170 (4.32) max	.063 (1.60) max	–	–	–	100% Sn over Copper Plating RoHS Compliant
70E	MN	 Microstrip (Non-Mag)	.380 +.015 to −.010 (9.65 +0.38 to −0.25)	.380 ±.010 (9.65± 0.25)	.177 (4.50) max	–	.750 (19.05) min	.350 ± .010 (8.89 ±0.25)	.008 ± .001 (0.20 ±0.025)	Silver-plated Copper
70E	AN	 Axial Ribbon (Non-Mag)								
70E	FN	 Radial Ribbon (Non-Mag)					.354 (9.00) min	.118 ±.005 (3.00 ±0.13)	.012 ±.001 (0.30 ±0.025)	
70E	RN	 Radial Wire (Non-Mag)					.709 (18.00) min	Dia.=.031±.004 (0.80±0.10)		
70E	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	3838	10.10	10.10	3.30	16.00	4.00	16.00	0.30	7.50	300	Plastic



◆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
TemperatureCoefficient (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

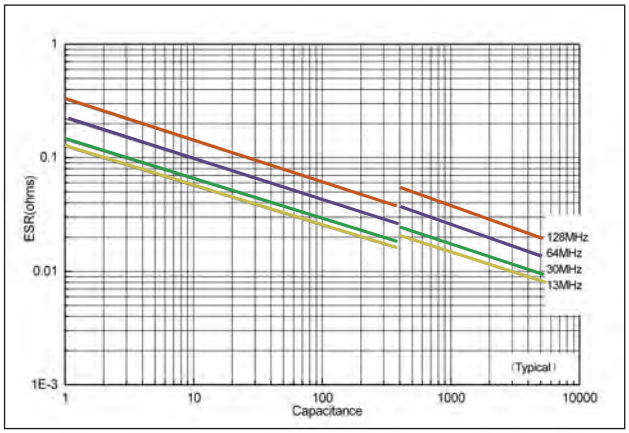
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

◆Environmental Tests

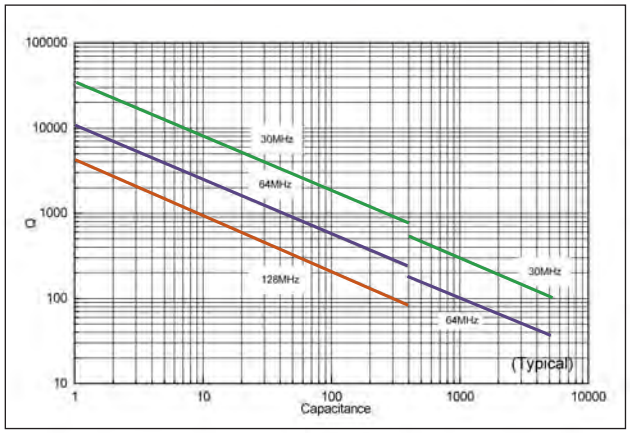
Item	Specifications	Method
Thermal Shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5pF. whichever is greater.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55℃ and 125℃) stay 30 minutes. The time of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

◆DLC70E Performance Curve

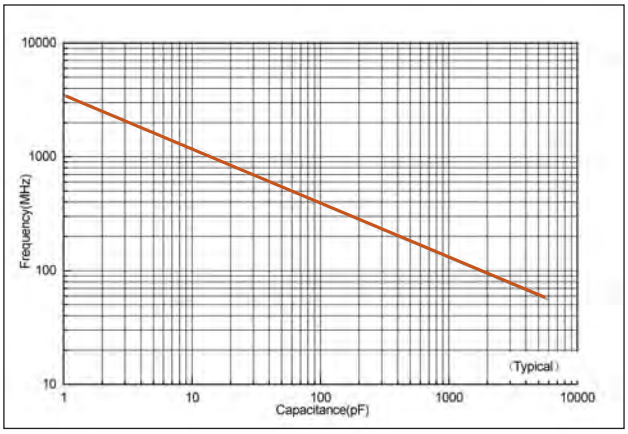
ESR vs Capacitance



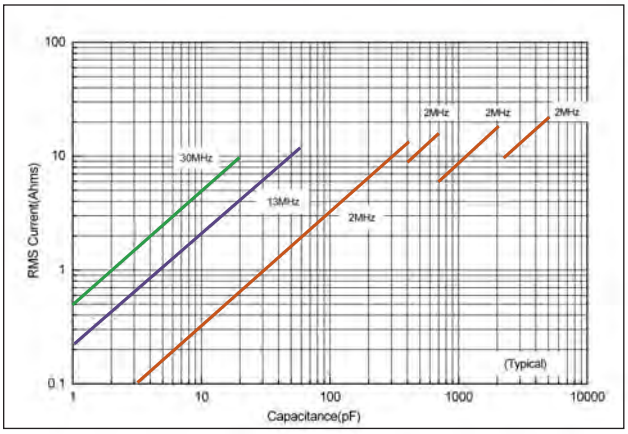
Q vs Capacitance



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 12°C/W.

then a power dissipation of 5 W will result in the current limited

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