3838C/P (.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 Equipment.

◆ 3838C/P Capacitance Table NP0= C; P90=P

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

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

◆ Part Numbering

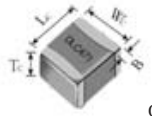
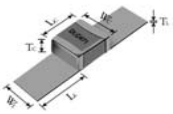
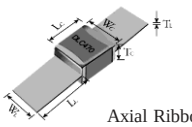
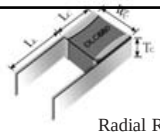
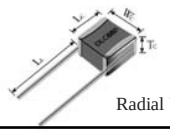
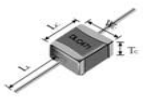
3838C 101 J W 362 X

- 3838C: C=NP0; P=P90
- 101: Capacitor Code 101=10x10¹=100pF; 1R0=1.0pF
- J: Capacitance Tolerance: See below list
- W: Termination Type
- 362: Rated Voltage
- X: Laser Marking

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

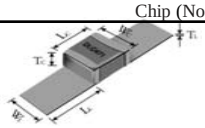
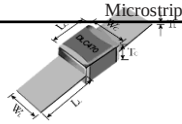
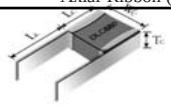
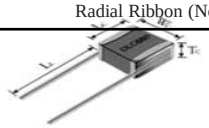
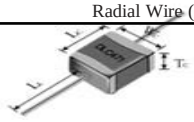
◆ 3838C/P Lead Type and Dimensions

unit:inch(millimeter)

Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Lead Dimensions			Plated Material
			Length Lc	Width Wc	Thick-ness Tc	Overlap B	Length LL	Width WL	Thick-ness TL	
3838C 3838P	W / L	 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 Solder over Nickel Plating RoHS Compliant / 90%Sn10%Pb Tin/Lead Solder over Nickel Plating
3838C 3838P	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	.35 ± .01 (8.89± 0.25)	.008 ± .001 (0.20± 0.025)	Silver-plated Copper
3838C 3838P	AR	 Axial Ribbon							.004 ± .001 (0.10± 0.025)	100% Silver
3838C 3838P	RR	 Radial Ribbon					.394 (10.00) Min	.118± .005 (3.0± 0.13)	.012± .001 (0.3± 0.025)	Silver-plated Copper
3838C 3838P	RW	 Radial Wire					.787 (20.00) Min	Dia.=.031±.004 0.80 ± 0.10		
3838C 3838P	AW	 Axial Wire					.984 (25.00) min			

◆ 3838C/P Non-Magnetic Lead Type and Dimensions

unit: inch (millimeter)

Series	Term. Code	Type/ Outlines	Capacitor Dimensions				Lead Dimensions			Plated Material
			Length Lc	Width Wc	Thick-ness Tc	Overlap B	Length L_L	Width W_L	Thick-ness T_L	
3838C 3838P	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 Solder over Copper Plating Non-Mag, RoHS Compliant
3838C 3838P	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
3838C 3838P	AN	 Axial Ribbon (Non-Mag)							.004 ± .001 (0.10± 0.025)	100% Silver
3838C 3838P	FN	 Radial Ribbon (Non-Mag)					.394 (10.00) min	.118 ±.005 (3.0± 0.13)	.012± .001 (0.3± 0.025)	Silver-plated Copper
3838C 3838P	RN	 Radial Wire (Non-Mag)					.787 (20.00) min	Dia.=.031±.004 (0.80 ± 0.10)		
3838C 3838P	BN	 Axial Wire (Non-Mag)					.984 (25.00) min			

Note: "Non-Mag" means no magnetic materials. All leads are attached with high temperature solder and parts are RoHS Compliant.

◆Performance

Item	Specifications
Quality Factor (Q)	Greater than 10,000 at 1MHz.
Insulation Resistance (IR)	Test Voltage: 500V 10^5 Megohms min. @ +25℃ at rated WVDC. 10^4 Megohms min. @ +125℃ at rated WVDC.
Rated Voltage	See Rated Voltage Table.
Dielectric Withstanding Voltage (DWV)	250% of Voltage for 5seconds, Rated Voltage≦500VDC 150% of Voltage for 5seconds, 500VDC<RatedVoltage≦1250VDC 120% of Voltage for 5 seconds, Rated Voltage>1250VDC
Operating Temperature Range	-55℃ to +200℃
Temperature coefficient (TC)	C: 0±30ppm/℃ ; P: +90±20ppm/℃
Capacitance Drift	±0.02% or ±0.02pF, whichever is greater.
Piezoelectric Effects	None
Termination Type	See Termination Type Table.

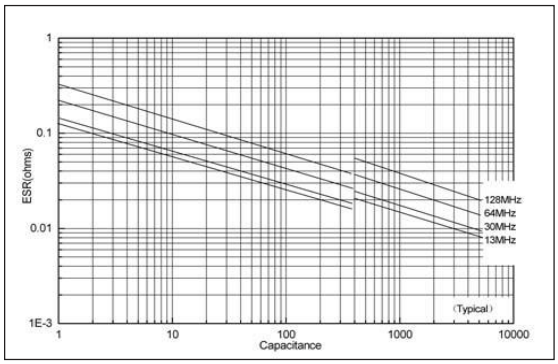
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

◆ Environmental Tests

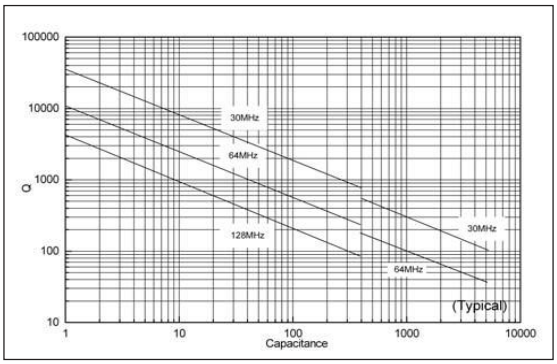
Item	Specifications	Method
Thermal shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5 pF. whichever is greater.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55℃ and 125℃) stay 30 min, the time of removing 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,for2000hours,at125℃, 200% of Voltage for Capacitors, RatedVoltage≦500VDC; 120% of Voltage for Capacitors, 500VDC< Rated Voltage ≦ 1250VDC; 100% of Voltage for Capacitors, RatedVoltage>1250VDC.
Terminal strength	Force : 25lbs typical, 10 lbs min., Duration time: 5 to 10 seconds.	MIL-STD-202, Method 211A, Test condition A. Applied a force and maintained for a period of 5 to 10 seconds. The force shall be in the direction of the axes of the terminations.

◆ 3838C/P Performance Curves

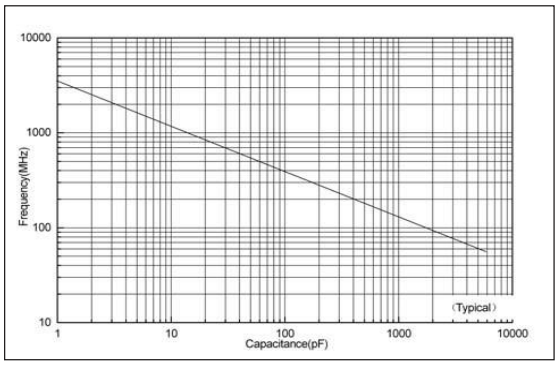
ESR vs Capacitance



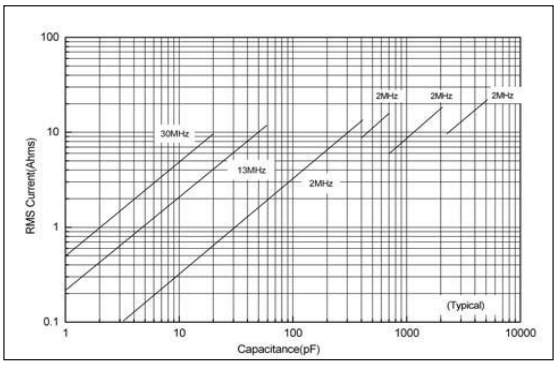
Q vs Capacitance



Series Resonance vs Capacitance



Current Rating vs Capacitance



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

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.

◆ Recommended Land Pattern Dimensions

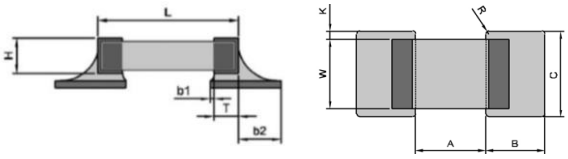
When mounting the capacitor to substrate, it's important to carefully consider that the amount of solder (size of fillet) used has a direct effect upon the capacitor once it's mounted.

1) The greater the amount of solder, the greater the stress to the elements. This may cause the substrate to break or crack.

2) In the situation where two or more devices are mounted onto a common land, be sure to separate the device into exclusive pads by using soldering resist.

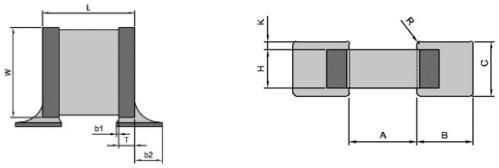
● Horizontal Mounting

Orientation	EIA	A	B	C
Horizontal	3838	7.1	3.0	10.2



● Vertical Mounting

Orientation	EIA	A	B	C
Vertical	3838	7.1	3.0	5.0



◆ Tape & Reel Specifications

Orientation	EIA	A0	B0	K0	W	P0	P1	T	F	Qty Min	Qty /reel	Tape material
Horizontal	3838	10.10	10.10	3.30	16.00	4.00	16.00	0.30	7.50	50	200	Plastic

● Horizontal Orientation