

**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**

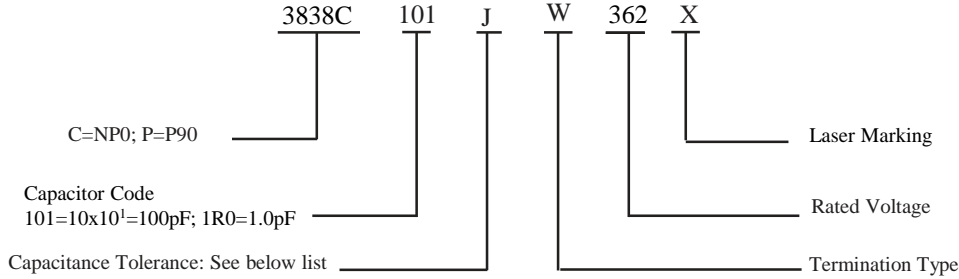
Typical Functional Applications: Bypass, Coupling, Tuning, Impedance Matching and D.C. Blocking.  
Typical Circuit Applications: HF/RF Power Amplifiers, Transmitters, Antenna Tuning, Plasma Chambers, and Medical Equipment.

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

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

◆ Part Numbering



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


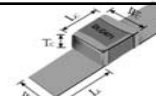
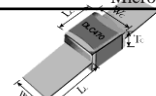
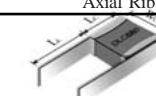
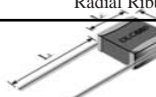
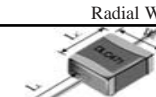
◆ 3838C/P Lead Type and Dimensions

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
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							.012± .001 (0.3± 0.025)	Silver- plated Copper
3838C 3838P	RW	 Radial Wire					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 LL	Width WL	Thick- ness TL	
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)
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 <sup>5</sup> Megohms min. @ +25°C at rated WVDC. 10 <sup>4</sup> Megohms min. @ +125°C 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 < Rated Voltage ≤ 1250VDC 120% of Voltage for 5 seconds, Rated Voltage > 1250VDC
Operating Temperature Range	-55°C to +200°C
Temperature coefficient (TC)	C: 0 ± 30ppm/°C ; P: +90 ± 20ppm/°C
Capacitance Drift	± 0.02% or ± 0.02pF, whichever is greater.
Piezoelectric Effects	None
Termination Type	See Termination Type Table.

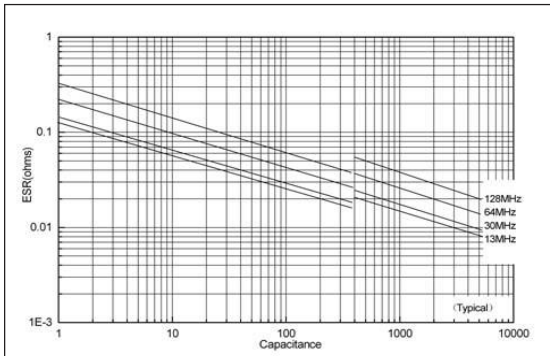
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

**◆ Environmental Tests**

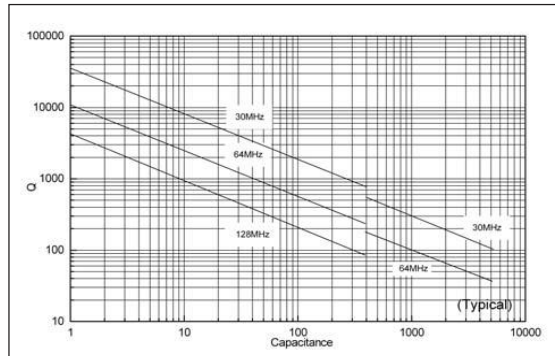
Item	Specifications	Method
Thermal shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5 pF. whichever is greater.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and 125°C) stay 30 min, the time of 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°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 Voltage for Capacitors, Rated Voltage ≤ 500VDC; 120% of Voltage for Capacitors, 500VDC < Rated Voltage ≤ 1250VDC; 100% of Voltage for Capacitors, Rated Voltage > 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

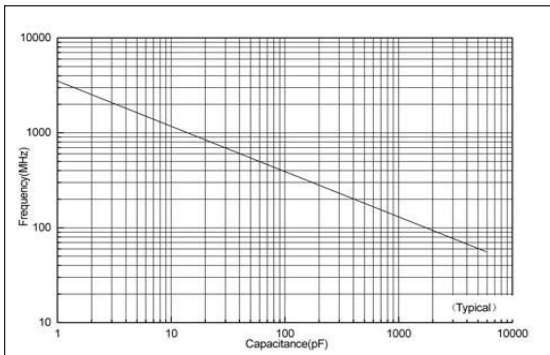
ESR vs Capacitance



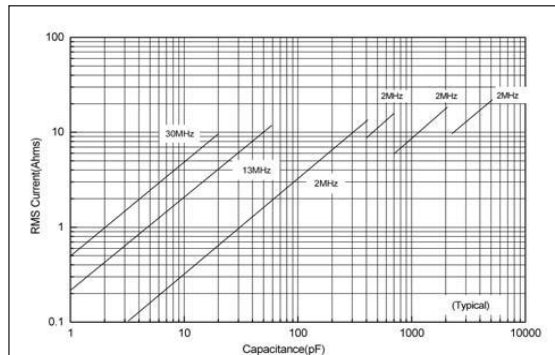
Q vs Capacitance



Series Resonance vs Capacitance



Current Rating vs Capacitance



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

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.

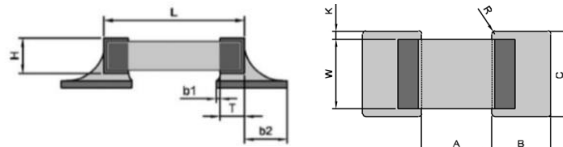
◆ **Recommended Land Pattern Dimensions**

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.

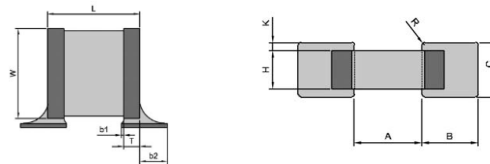
● **Horizontal Mounting**

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**

