

**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**

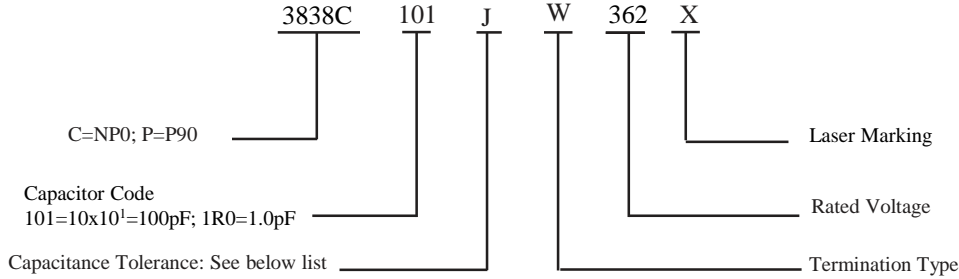
Typical Functional Applications: Bypass, Coupling, Tuning, Impedance Matching and D.C. Blocking.  
Typical Circuit Applications: HF/RF Power Amplifiers, Transmitters, Antenna Tuning, Plasma Chambers, and Medical Equipment.

**◆ 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			4.7	4R7			51	510			560	561		
0.6	0R6			5.1	5R1			56	560			620	621		2500V
0.7	0R7			5.6	5R6			62	620			680	681		Code 252
0.8	0R8			6.2	6R2	B,C,D		68	680			750	751		
0.9	0R9			6.8	6R8			75	750			820	821		
1.0	1R0			7.5	7R5			82	820			910	911		
1.1	1R1			8.2	8R2			91	910			1000	102		1000V
1.2	1R2			9.1	9R1			100	101			1100	112		Code 102
1.3	1R3			10	100			110	111			1200	122		or 2000V
1.4	1R4		3600V	11	110		3600V	120	121			1500	152		Code 202
1.5	1R5		Code	12	120		Code	130	131			1800	182		
1.6	1R6		362	13	130		362	150	151			2200	222		
1.7	1R7	B,C,D	or	15	150		or	160	161	F,G, J,K		2400	242	F,G, J,K	
1.8	1R8		7200V	16	160		7200V	180	181			2700	272		
1.9	1R9		Code	18	180		Code	200	201			3000	302		500V
2.0	2R0		722	20	200		722	220	221			3300	332		Code 501
2.1	2R1			22	220	F,G, J,K		240	241			3600	362		or 2000V
2.2	2R2			24	240			270	271			3900	392		Code 202
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						
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



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)
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 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)	
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.

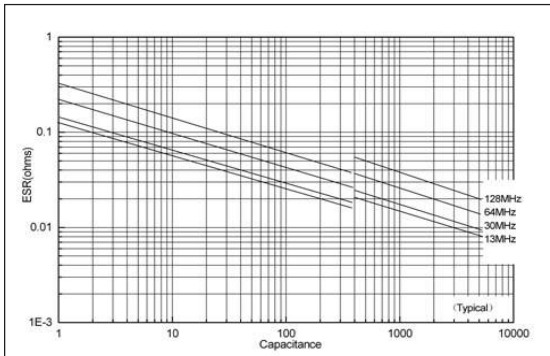
Capacitors are designed and manufactured to meet the requirements of MIL-PRF-55681 and MIL-PRF-123.

**◆ Environmental Tests**

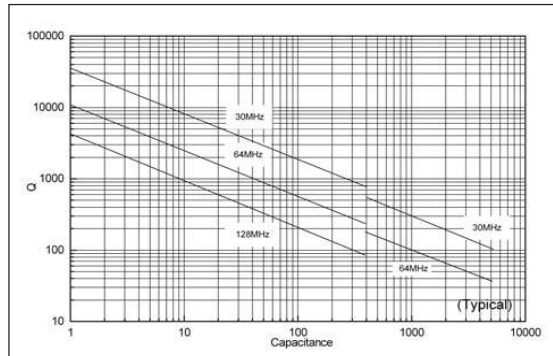
Item	Specifications	Method
Thermal shock	DWV: the initial value IR: Shall not be less than 30% of the initial value Capacitance change: no more than 0.5% or 0.5 pF. whichever is greater.	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and 125°C) stay 30 min, the time of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

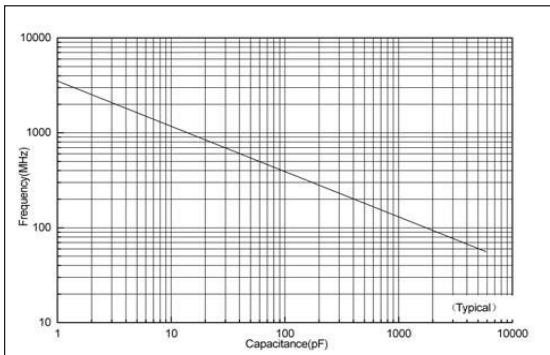
ESR vs Capacitance



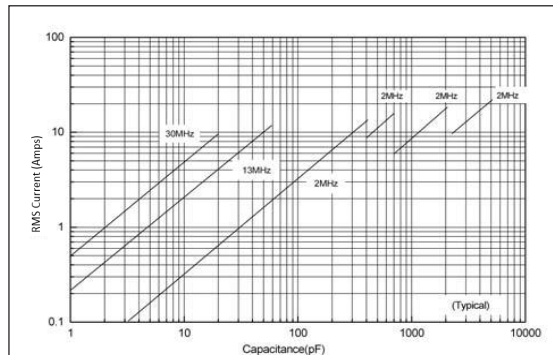
Q vs Capacitance



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.

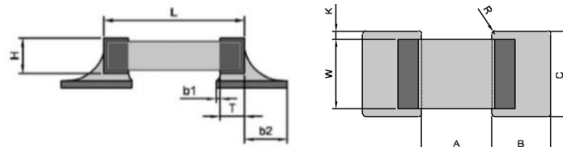
◆ **Recommended Land Pattern Dimensions**

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.

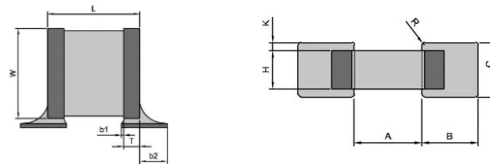
● **Horizontal Mounting**

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**

