Surface Mount Multilayer Ceramic Capacitors for RF Power Applications

FEATURES

- Case size 0505, 1111, 2525, and 3838
- Ultra-stable, high Q dielectric material
- Lead (Pb)-free terminations code “X”
- Tin / lead termination code “L”
- Non-magnetic copper termination code “C”
- Reliable Noble Metal Electrode (NME) system
- High frequency
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Available
RoHS* Available
HALOGEN FREE GREEN (5-2008) Available

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

APPLICATIONS

- MRI coils and generators
- RF instruments
- Lasers, CATV, UHF / microwave RF power amplifiers
- Filter networks, timing circuits
- Mixers, oscillators impedance matching networks

ELECTRICAL SPECIFICATIONS

Note

- Electrical characteristics at 25 °C unless otherwise specified

Operating Temperature:
full range: -55 °C to +125 °C

Capacitance Range:
0505: 0.1 pF to 1000 pF
1111: 0.2 pF to 5100 pF
2525: 1.0 pF to 3000 pF
3838: 1.0 pF to 12 nF

Voltage Rating:
0505: 50 V_{DC} to 250 V_{DC}
1111: 50 V_{DC} to 1500 V_{DC}
2525: 300 V_{DC} to 3600 V_{DC}
3838: 300 V_{DC} to 7200 V_{DC}

Temperature Coefficient of Capacitance (TCC):

C0G (D):0 ppm/°C ± 30 ppm/°C from -55 °C to +125 °C with zero (0) V_{DC} applied

Dissipation Factor (DF):

C0G (D): 0.05 % max. at 1.0 V_{RMS} and 1 MHz
for values ≤ 1000 pF

C0G (D): 0.05 % max. at 1.0 V_{RMS} and 1 kHz
for values > 1000 pF

Aging Rate: 0 % maximum per decade

Insulation Resistance (IR):

at +25 °C and rated voltage 100 000 MΩ minimum or 1000 ΩF, whichever is less

at +125 °C and rated voltage 10 000 MΩ minimum or 100 ΩF, whichever is less

Dielectric Strength Test:
performed per method 103 of EIA-198-2-E.

Applied test voltages:
≤ 250 V_{DC}-rated: min. 250 % of rated voltage
300 V_{DC}-rated: min. 150 % of rated voltage
630 V_{DC}- to 1000 V_{DC}-rated: 150 % of rated voltage
1500 V_{DC} and up: 120 % rated voltage

QUICK REFERENCE DATA

DIELECTRIC	CASE	MAXIMUM VOLTAGE (V)	CAPACITANCE	
			MINIMUM	MAXIMUM
D = NP0	0505	250	0.1 pF	1000 pF
	1111	1500	0.2 pF	5100 pF
	2525	3600	1.0 pF	3000 pF
	3838	7200	1.0 pF	12 nF

Note

- For values below 0.4 pF and tolerance ± 0.05 pF, contact mlccrf@vishay.com
  Detail ratings see “Selection Chart”

ORDERING INFORMATION

VJ0505	D	1R0	B	X	C	A	C
CASE CODE	DIELECTRIC	CAPACITANCE NOMINAL CODE	CAPACITANCE TOLERANCE	TERMINATION	DC VOLTAGE RATING (1)	MARKING	PACKAGING
0505 1111 2525 3838	D = HIFREQ	Expressed in picofarads (pF). The first two digits are significant, the third is a multiplier. An “R” indicates a decimal point. Examples: 1R0 = 1.0 pF	V = ± 0.05 pF B = ± 0.10 pF C = ± 0.25 pF D = ± 0.50 pF F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % M = ± 20 % **Note** Details see “Selection Chart”	C = non-magnetic copper barrier 100 % tin plate matte finish X = Ni barrier 100 % tin plate matte finish L = Ni barrier with tin lead plated finish min. 4 % lead	A = 50 V B = 100 V K = 150 V C = 200 V P = 250 V D = 300 V E = 500 V L = 630 V I = 800 V G = 1000 V R = 1500 V F = 2000 V O = 2500 V H = 3000 V W = 3600 V M = 5000 V S = 7200 V	A = unmarked Q = marked	T = 7" reel / plastic tape J = 7" reel (low quantity) R = 11 1/4" / 13" reel / plastic tape W = waffle pack

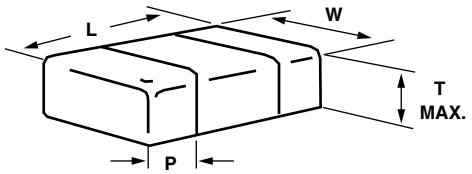
Note

(1) DC voltage rating should not be exceeded in application

ENVIRONMENTAL STATUS

TERMINATION CODE	TERMINATION DESCRIPTION	RoHS COMPLIANT	VISHAY GREEN
X	Ni barrier 100 % tin plated matte finish	Yes	Yes
L	Ni barrier with tin lead plated finish min. 4 % lead	No	No
C	Cu barrier 100 % tin plated matte finish (non-magnetic)	Yes	Yes

DIMENSIONS in inches (millimeters)



CASE CODE	STYLE	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATIONS PAD (P)	
					MINIMUM	MAXIMUM (1)
0505	VJ0505	0.055 + 0.015 / - 0.010 (1.40 + 0.382 / - 0.254)	0.055 ± 0.015 (1.40 ± 0.38)	0.057 (1.45)	0.004 (0.10)	0.016 (0.41)
1111	VJ1111	0.117 + 0.015 / - 0.010 (2.98 + 0.382 / - 0.254)	0.110 + 0.015 / - 0.020 (2.79 + 0.382 / - 0.509)	0.102 (2.59)	0.012 (0.30)	0.018 (0.46)
2525	VJ2525	0.250 + 0.020 / - 0.025 (6.35 + 0.508 / - 0.63)	0.250 ± 0.015 (6.35 ± 0.381)	0.102 (2.59)	0.010 (0.25)	0.030 (0.76)
3838	VJ3838	0.381 ± 0.015 (9.7 ± 0.40)	0.381 + 0.017 / - 0.015 (9.7 + 0.45 / - 0.40)	0.118 (3.00)	0.010 (0.25)	0.030 (0.76)

Note

(1) For copper terminations add 0.01 mm to maximum termination pad

SELECTION CHART							
DIELECTRIC (VISHAY CODE)		C0G (D)					
STYLE		VJ0505					
CASE CODE		0505					
VOLTAGE (V_{DC})		50	100	150	200	250	TOLERANCE
VOLTAGE CODE		A	B	K	C	P	
CAP. CODE	CAP.						
0R1	0.1 pF	•	•	•	•	•	V, B, C, D
0R2	0.2 pF	•	•	•	•	•	V, B, C, D
0R3	0.3 pF	•	•	•	•	•	V, B, C, D
0R4	0.4 pF	•	•	•	•	•	V, B, C, D
0R5	0.5 pF	•	•	•	•	•	V, B, C, D
0R6	0.6 pF	•	•	•	•	•	V, B, C, D
0R7	0.7 pF	•	•	•	•	•	V, B, C, D
0R8	0.8 pF	•	•	•	•	•	V, B, C, D
0R9	0.9 pF	•	•	•	•	•	V, B, C, D
1R0	1.0 pF	•	•	•	•	•	V, B, C, D
1R1	1.1 pF	•	•	•	•	•	V, B, C, D
1R2	1.2 pF	•	•	•	•	•	V, B, C, D
1R3	1.3 pF	•	•	•	•	•	V, B, C, D
1R4	1.4 pF	•	•	•	•	•	V, B, C, D
1R5	1.5 pF	•	•	•	•	•	V, B, C, D
1R6	1.6 pF	•	•	•	•	•	V, B, C, D
1R7	1.7 pF	•	•	•	•	•	V, B, C, D
1R8	1.8 pF	•	•	•	•	•	V, B, C, D
1R9	1.9 pF	•	•	•	•	•	V, B, C, D
2R0	2.0 pF	•	•	•	•	•	V, B, C, D
2R1	2.1 pF	•	•	•	•	•	V, B, C, D
2R2	2.2 pF	•	•	•	•	•	V, B, C, D
2R4	2.4 pF	•	•	•	•	•	V, B, C, D
2R7	2.7 pF	•	•	•	•	•	V, B, C, D
3R0	3.0 pF	•	•	•	•	•	V, B, C, D
3R3	3.3 pF	•	•	•	•	•	V, B, C, D
3R6	3.6 pF	•	•	•	•	•	V, B, C, D
3R9	3.9 pF	•	•	•	•	•	V, B, C, D
4R3	4.3 pF	•	•	•	•	•	V, B, C, D
4R7	4.7 pF	•	•	•	•	•	V, B, C, D
5R1	5.1 pF	•	•	•	•	•	V, B, C, D
5R6	5.6 pF	•	•	•	•	•	B, C, D
6R2	6.2 pF	•	•	•	•	•	B, C, D
6R8	6.8 pF	•	•	•	•	•	B, C, D
7R5	7.5 pF	•	•	•	•	•	B, C, D
8R2	8.2 pF	•	•	•	•	•	B, C, D
9R1	9.1 pF	•	•	•	•	•	B, C, D
100	10 pF	•	•	•	•	•	F, G, J, K, M
110	11 pF	•	•	•	•	•	F, G, J, K, M
120	12 pF	•	•	•	•	•	F, G, J, K, M
130	13 pF	•	•	•	•	•	F, G, J, K, M
150	15 pF	•	•	•	•	•	F, G, J, K, M
160	16 pF	•	•	•	•	•	F, G, J, K, M
180	18 pF	•	•	•	•	•	F, G, J, K, M

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART							
DIELECTRIC (VISHAY CODE)		C0G (D)					
STYLE		VJ0505					
CASE CODE		0505					
VOLTAGE (V_{DC})		50	100	150	200	250	TOLERANCE
VOLTAGE CODE		A	B	K	C	P	
CAP. CODE	CAP.						
200	20 pF	•	•	•	•	•	F, G, J, K, M
220	22 pF	•	•	•	•	•	F, G, J, K, M
240	24 pF	•	•	•	•	•	F, G, J, K, M
270	27 pF	•	•	•	•	•	F, G, J, K, M
300	30 pF	•	•	•	•	•	F, G, J, K, M
330	33 pF	•	•	•	•	•	F, G, J, K, M
360	36 pF	•	•	•	•	•	F, G, J, K, M
390	39 pF	•	•	•	•	•	F, G, J, K, M
430	43 pF	•	•	•	•	•	F, G, J, K, M
470	47 pF	•	•	•	•	•	F, G, J, K, M
510	51 pF	•	•	•	•	•	F, G, J, K, M
560	56 pF	•	•	•	•	•	F, G, J, K, M
620	62 pF	•	•	•	•	•	F, G, J, K, M
680	68 pF	•	•	•	•	•	F, G, J, K, M
750	75 pF	•	•	•	•		F, G, J, K, M
820	82 pF	•	•	•	•		F, G, J, K, M
910	91 pF	•	•	•	•		F, G, J, K, M
101	100 pF	•	•	•	•		F, G, J, K, M
111	110 pF	•	•	•	•		F, G, J, K, M
121	120 pF	•	•	•	•		F, G, J, K, M
131	130 pF	•	•	•	•		F, G, J, K, M
151	150 pF	•	•	•	•		F, G, J, K, M
161	160 pF	•	•	•	•		F, G, J, K, M
181	180 pF	•	•	•	•		F, G, J, K, M
201	200 pF	•	•	•	•		F, G, J, K, M
221	220 pF	•	•	•	•		F, G, J, K, M
241	240 pF	•	•	•	•		F, G, J, K, M
271	270 pF	•	•	•			F, G, J, K, M
301	300 pF	•	•	•			F, G, J, K, M
331	330 pF	•	•	•			F, G, J, K, M
361	360 pF	•	•	•			F, G, J, K, M
391	390 pF	•	•	•			F, G, J, K, M
431	430 pF	•	•	•			F, G, J, K, M
471	470 pF	•	•	•			F, G, J, K, M
511	510 pF	•					F, G, J, K, M
561	560 pF	•					F, G, J, K, M
621	620 pF	•					F, G, J, K, M
681	680 pF	•					F, G, J, K, M
751	750 pF	•					F, G, J, K, M
821	820 pF	•					F, G, J, K, M
911	910 pF	•					F, G, J, K, M
102	1000 pF	•					F, G, J, K, M
112	1100 pF						
122	1200 pF						

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART

DIELECTRIC (VISHAY CODE)		C0G (D)								
STYLE		VJ1111								
CASE CODE		1111								
VOLTAGE (V_{DC})		50	100	200	300	500	630	1000	1500	TOLERANCE
VOLTAGE CODE		A	B	C	D	E	L	G	R	
CAP. CODE	CAP.									
0R2	0.2 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R3	0.3 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R4	0.4 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R5	0.5 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R6	0.6 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R7	0.7 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R8	0.8 pF	•	•	•	•	•	•	•	•	V, B, C, D
0R9	0.9 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R0	1.0 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R1	1.1 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R2	1.2 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R3	1.3 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R4	1.4 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R5	1.5 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R6	1.6 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R7	1.7 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R8	1.8 pF	•	•	•	•	•	•	•	•	V, B, C, D
1R9	1.9 pF	•	•	•	•	•	•	•	•	V, B, C, D
2R0	2.0 pF	•	•	•	•	•	•	•	•	V, B, C, D
2R1	2.1 pF	•	•	•	•	•	•	•	•	V, B, C, D
2R2	2.2 pF	•	•	•	•	•	•	•	•	V, B, C, D
2R4	2.4 pF	•	•	•	•	•	•	•	•	V, B, C, D
2R7	2.7 pF	•	•	•	•	•	•	•	•	V, B, C, D
3R0	3.0 pF	•	•	•	•	•	•	•	•	V, B, C, D
3R3	3.3 pF	•	•	•	•	•	•	•	•	V, B, C, D
3R6	3.6 pF	•	•	•	•	•	•	•	•	V, B, C, D
3R9	3.9 pF	•	•	•	•	•	•	•	•	V, B, C, D
4R3	4.3 pF	•	•	•	•	•	•	•	•	V, B, C, D
4R7	4.7 pF	•	•	•	•	•	•	•	•	V, B, C, D
5R1	5.1 pF	•	•	•	•	•	•	•	•	V, B, C, D
5R6	5.6 pF	•	•	•	•	•	•	•	•	B, C, D
6R2	6.2 pF	•	•	•	•	•	•	•	•	B, C, D
6R8	6.8 pF	•	•	•	•	•	•	•	•	B, C, D
7R5	7.5 pF	•	•	•	•	•	•	•	•	B, C, D
8R2	8.2 pF	•	•	•	•	•	•	•	•	B, C, D
9R1	9.1 pF	•	•	•	•	•	•	•	•	B, C, D
100	10 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
110	11 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
120	12 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
130	13 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
150	15 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
160	16 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
180	18 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
200	20 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
220	22 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
240	24 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
270	27 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
300	30 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
330	33 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
360	36 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
390	39 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
430	43 pF	•	•	•	•	•	•	•	•	F, G, J, K, M

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART

DIELECTRIC (VISHAY CODE)		C0G (D)								
STYLE		VJ1111								
CASE CODE		1111								
VOLTAGE (V_{DC})		50	100	200	300	500	630	1000	1500	TOLERANCE
VOLTAGE CODE		A	B	C	D	E	L	G	R	
CAP. CODE	CAP.									
470	47 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
510	51 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
560	56 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
620	62 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
680	68 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
750	75 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
820	82 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
910	91 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
101	100 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
111	110 pF	•	•	•	•	•	•	•	•	F, G, J, K, M
121	120 pF	•	•	•	•	•	•	•		F, G, J, K, M
131	130 pF	•	•	•	•	•	•	•		F, G, J, K, M
151	150 pF	•	•	•	•	•	•	•		F, G, J, K, M
161	160 pF	•	•	•	•	•	•	•		F, G, J, K, M
181	180 pF	•	•	•	•	•	•	•		F, G, J, K, M
201	200 pF	•	•	•	•	•	•	•		F, G, J, K, M
221	220 pF	•	•	•	•	•	•			F, G, J, K, M
241	240 pF	•	•	•	•	•	•			F, G, J, K, M
271	270 pF	•	•	•	•	•	•			F, G, J, K, M
301	300 pF	•	•	•	•	•	•			F, G, J, K, M
331	330 pF	•	•	•	•	•	•			F, G, J, K, M
361	360 pF	•	•	•	•	•	•			F, G, J, K, M
391	390 pF	•	•	•	•	•	•			F, G, J, K, M
431	430 pF	•	•	•	•	•	•			F, G, J, K, M
471	470 pF	•	•	•	•	•	•			F, G, J, K, M
511	510 pF	•	•	•	•					F, G, J, K, M
561	560 pF	•	•	•	•					F, G, J, K, M
621	620 pF	•	•	•	•					F, G, J, K, M
681	680 pF	•	•	•	•					F, G, J, K, M
751	750 pF	•	•	•	•					F, G, J, K, M
821	820 pF	•	•	•	•					F, G, J, K, M
911	910 pF	•	•	•	•					F, G, J, K, M
102	1000 pF	•	•	•	•					F, G, J, K, M
112	1100 pF	•	•	•						F, G, J, K, M
122	1200 pF	•	•	•						F, G, J, K, M
132	1300 pF	•	•	•						F, G, J, K, M
152	1500 pF	•	•	•						F, G, J, K, M
162	1600 pF	•	•	•						F, G, J, K, M
182	1800 pF	•	•							F, G, J, K, M
202	2000 pF	•	•							F, G, J, K, M
222	2200 pF	•	•							F, G, J, K, M
242	2400 pF	•	•							F, G, J, K, M
272	2700 pF	•	•							F, G, J, K, M
302	3000 pF	•	•							F, G, J, K, M
332	3300 pF	•	•							F, G, J, K, M
362	3600 pF	•								F, G, J, K, M
392	3900 pF	•								F, G, J, K, M
432	4300 pF	•								F, G, J, K, M
472	4700 pF	•								F, G, J, K, M
512	5100 pF	•								F, G, J, K, M

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART

DIELECTRIC (VISHAY CODE)		C0G (D)										
STYLE		VJ2525										
CASE CODE		2525										
VOLTAGE (V_{DC})		300	500	630	800	1000	1500	2000	2500	3000	3600	TOLERANCE
VOLTAGE CODE		D	E	L	I	G	R	F	O	H	W	
CAP. CODE	CAP.											
1R0	1.0 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R1	1.1 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R2	1.2 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R3	1.3 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R4	1.4 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R5	1.5 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R6	1.6 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R7	1.7 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R8	1.8 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
1R9	1.9 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
2R0	2.0 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
2R1	2.1 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
2R2	2.2 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
2R4	2.4 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
2R7	2.7 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
3R0	3.0 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
3R3	3.3 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
3R6	3.6 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
3R9	3.9 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
4R3	4.3 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
4R7	4.7 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
5R1	5.1 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
5R6	5.6 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
6R2	6.2 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
6R8	6.8 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
7R5	7.5 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
8R2	8.2 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
9R1	9.1 pF	•	•	•	•	•	•	•	•	•	•	B, C, D
100	10 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
110	11 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
120	12 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
130	13 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
150	15 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
160	16 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
180	18 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
200	20 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
220	22 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
240	24 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
270	27 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
300	30 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
330	33 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
360	36 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
390	39 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART												
DIELECTRIC (VISHAY CODE)		C0G (D)										
STYLE		VJ2525										
CASE CODE		2525										
VOLTAGE (V_{DC})		300	500	630	800	1000	1500	2000	2500	3000	3600	TOLERANCE
VOLTAGE CODE		D	E	L	I	G	R	F	O	H	W	
CAP. CODE	CAP.											
430	43 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
470	47 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
510	51 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
560	56 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
620	62 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
680	68 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
750	75 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
820	82 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
910	91 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
101	100 pF	•	•	•	•	•	•	•	•	•	•	F, G, J, K, M
111	110 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
121	120 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
131	130 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
151	150 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
161	160 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
181	180 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
201	200 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
221	220 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
241	240 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
271	270 pF	•	•	•	•	•	•	•	•	•		F, G, J, K, M
301	300 pF	•	•	•	•	•	•	•				F, G, J, K, M
331	330 pF	•	•	•	•	•	•	•				F, G, J, K, M
361	360 pF	•	•	•	•	•	•	•				F, G, J, K, M
391	390 pF	•	•	•	•	•	•	•				F, G, J, K, M
431	430 pF	•	•	•	•	•	•	•				F, G, J, K, M
471	470 pF	•	•	•	•	•	•	•				F, G, J, K, M
511	510 pF	•	•	•	•	•	•					F, G, J, K, M
561	560 pF	•	•	•	•	•	•					F, G, J, K, M
621	620 pF	•	•	•	•	•	•					F, G, J, K, M
681	680 pF	•	•	•	•	•	•					F, G, J, K, M
751	750 pF	•	•	•	•	•	•					F, G, J, K, M
821	820 pF	•	•	•	•	•	•					F, G, J, K, M
911	910 pF	•	•	•	•	•	•					F, G, J, K, M
102	1000 pF	•	•	•	•	•	•					F, G, J, K, M
112	1100 pF	•	•	•	•	•	•					F, G, J, K, M
122	1200 pF	•	•	•	•	•	•					F, G, J, K, M
152	1500 pF	•	•	•	•							F, G, J, K, M
182	1800 pF	•	•	•	•							F, G, J, K, M
222	2000 pF	•	•	•	•							F, G, J, K, M
242	2400 pF	•	•	•								F, G, J, K, M
272	2700 pF	•	•									F, G, J, K, M
302	3000 pF	•	•									F, G, J, K, M

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART

DIELECTRIC (VISHAY CODE)		C0G (D)							
STYLE		VJ3838							
CASE CODE		3838							
VOLTAGE (V_{DC})		300	500	1000	2500	3600	5000	7200	TOLERANCE
VOLTAGE CODE		D	E	G	O	W	M	S	
CAP. CODE	CAP.								
1R0	1.0 pF	•	•	•	•	•	•	•	B, C, D
1R1	1.1 pF	•	•	•	•	•	•	•	B, C, D
1R2	1.2 pF	•	•	•	•	•	•	•	B, C, D
1R3	1.3 pF	•	•	•	•	•	•	•	B, C, D
1R4	1.4 pF	•	•	•	•	•	•	•	B, C, D
1R5	1.5 pF	•	•	•	•	•	•	•	B, C, D
1R6	1.6 pF	•	•	•	•	•	•	•	B, C, D
1R7	1.7 pF	•	•	•	•	•	•	•	B, C, D
1R8	1.8 pF	•	•	•	•	•	•	•	B, C, D
1R9	1.9 pF	•	•	•	•	•	•	•	B, C, D
2R0	2.0 pF	•	•	•	•	•	•	•	B, C, D
2R1	2.1 pF	•	•	•	•	•	•	•	B, C, D
2R2	2.2 pF	•	•	•	•	•	•	•	B, C, D
2R4	2.4 pF	•	•	•	•	•	•	•	B, C, D
2R7	2.7 pF	•	•	•	•	•	•	•	B, C, D
3R0	3.0 pF	•	•	•	•	•	•	•	B, C, D
3R3	3.3 pF	•	•	•	•	•	•	•	B, C, D
3R6	3.6 pF	•	•	•	•	•	•	•	B, C, D
3R9	3.9 pF	•	•	•	•	•	•	•	B, C, D
4R3	4.3 pF	•	•	•	•	•	•	•	B, C, D
4R7	4.7 pF	•	•	•	•	•	•	•	B, C, D
5R1	5.1 pF	•	•	•	•	•	•	•	B, C, D
5R6	5.6 pF	•	•	•	•	•	•	•	B, C, D
6R2	6.2 pF	•	•	•	•	•	•	•	B, C, D
6R8	6.8 pF	•	•	•	•	•	•	•	B, C, D
7R5	7.5 pF	•	•	•	•	•	•	•	B, C, D
8R2	8.2 pF	•	•	•	•	•	•	•	B, C, D
9R1	9.1 pF	•	•	•	•	•	•	•	B, C, D
100	10 pF	•	•	•	•	•	•	•	F, G, J, K, M
110	11 pF	•	•	•	•	•	•	•	F, G, J, K, M
120	12 pF	•	•	•	•	•	•	•	F, G, J, K, M
130	13 pF	•	•	•	•	•	•	•	F, G, J, K, M
150	15 pF	•	•	•	•	•	•	•	F, G, J, K, M
160	16 pF	•	•	•	•	•	•	•	F, G, J, K, M
180	18 pF	•	•	•	•	•	•	•	F, G, J, K, M
200	20 pF	•	•	•	•	•	•	•	F, G, J, K, M
220	22 pF	•	•	•	•	•	•	•	F, G, J, K, M
240	24 pF	•	•	•	•	•	•	•	F, G, J, K, M
270	27 pF	•	•	•	•	•	•	•	F, G, J, K, M
300	30 pF	•	•	•	•	•	•	•	F, G, J, K, M
330	33 pF	•	•	•	•	•	•	•	F, G, J, K, M
360	36 pF	•	•	•	•	•	•	•	F, G, J, K, M
390	39 pF	•	•	•	•	•	•	•	F, G, J, K, M
430	43 pF	•	•	•	•	•	•	•	F, G, J, K, M
470	47 pF	•	•	•	•	•	•	•	F, G, J, K, M
510	51 pF	•	•	•	•	•	•	•	F, G, J, K, M
560	56 pF	•	•	•	•	•	•	•	F, G, J, K, M
620	62 pF	•	•	•	•	•	•	•	F, G, J, K, M
680	68 pF	•	•	•	•	•	•	•	F, G, J, K, M
750	75 pF	•	•	•	•	•	•	•	F, G, J, K, M
820	82 pF	•	•	•	•	•	•	•	F, G, J, K, M
910	91 pF	•	•	•	•	•	•	•	F, G, J, K, M

Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

• Plastic carrier tape

SELECTION CHART

DIELECTRIC (VISHAY CODE)		C0G (D)							
STYLE		VJ3838							
CASE CODE		3838							
VOLTAGE (V_{DC})		300	500	1000	2500	3600	5000	7200	TOLERANCE
VOLTAGE CODE		D	E	G	O	W	M	S	
CAP. CODE	CAP.								
101	100 pF	•	•	•	•	•	•	•	F, G, J, K, M
111	110 pF	•	•	•	•	•	•		F, G, J, K, M
121	120 pF	•	•	•	•	•	•		F, G, J, K, M
131	130 pF	•	•	•	•	•	•		F, G, J, K, M
151	150 pF	•	•	•	•	•	•		F, G, J, K, M
161	160 pF	•	•	•	•	•	•		F, G, J, K, M
181	180 pF	•	•	•	•	•	•		F, G, J, K, M
201	200 pF	•	•	•	•	•			F, G, J, K, M
221	220 pF	•	•	•	•	•			F, G, J, K, M
241	240 pF	•	•	•	•	•			F, G, J, K, M
271	270 pF	•	•	•	•	•			F, G, J, K, M
301	300 pF	•	•	•	•	•			F, G, J, K, M
331	330 pF	•	•	•	•	•			F, G, J, K, M
361	360 pF	•	•	•	•	•			F, G, J, K, M
391	390 pF	•	•	•	•	•			F, G, J, K, M
431	430 pF	•	•	•	•				F, G, J, K, M
471	470 pF	•	•	•	•				F, G, J, K, M
511	510 pF	•	•	•	•				F, G, J, K, M
561	560 pF	•	•	•	•				F, G, J, K, M
621	620 pF	•	•	•	•				F, G, J, K, M
681	680 pF	•	•	•	•				F, G, J, K, M
751	750 pF	•	•	•	•				F, G, J, K, M
821	820 pF	•	•	•					F, G, J, K, M
911	910 pF	•	•	•					F, G, J, K, M
102	1000 pF	•	•	•					F, G, J, K, M
112	1100 pF	•	•	•					F, G, J, K, M
122	1200 pF	•	•	•					F, G, J, K, M
152	1500 pF	•	•	•					F, G, J, K, M
182	1800 pF	•	•	•					F, G, J, K, M
222	2000 pF	•	•	•					F, G, J, K, M
242	2400 pF	•	•	•					F, G, J, K, M
272	2700 pF	•	•	•					F, G, J, K, M
302	3000 pF	•	•	•					F, G, J, K, M
332	3300 pF	•	•	•					F, G, J, K, M
362	3600 pF	•	•	•					F, G, J, K, M
392	3900 pF	•	•	•					F, G, J, K, M
432	4300 pF	•	•	•					F, G, J, K, M
472	4700 pF	•	•	•					F, G, J, K, M
512	5100 pF	•	•	•					F, G, J, K, M
562	5600 pF	•	•						F, G, J, K, M
622	6200 pF	•	•						F, G, J, K, M
682	6800 pF	•	•						F, G, J, K, M
752	7500 pF	•	•						F, G, J, K, M
822	8200 pF	•							F, G, J, K, M
912	9100 pF	•							F, G, J, K, M
103	10 000 pF	•							F, G, J, K, M
113	11 000 pF	•							F, G, J, K, M
123	12 000 pF	•							F, G, J, K, M

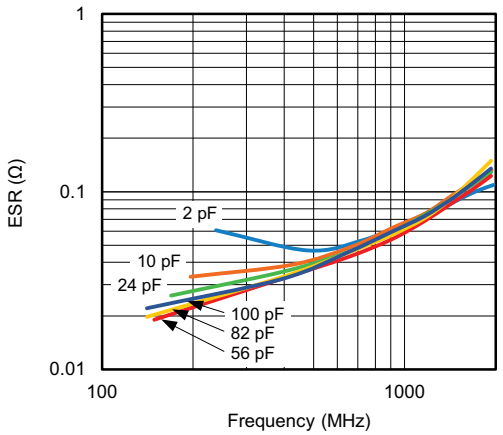
Notes

RoHS-compliant except when supplied with lead (Pb)-containing termination, code “L”

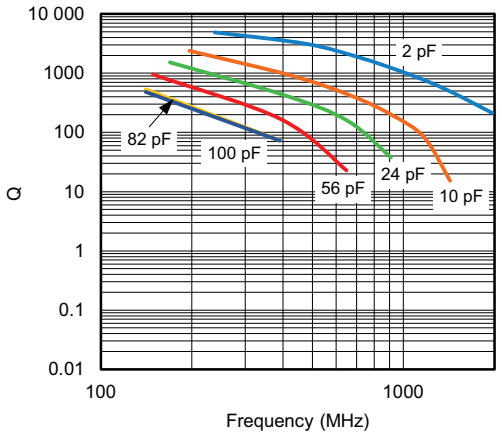
• Plastic carrier tape

QUAD HIGH FREQ DIELECTRIC - TYPICAL PARAMETERS

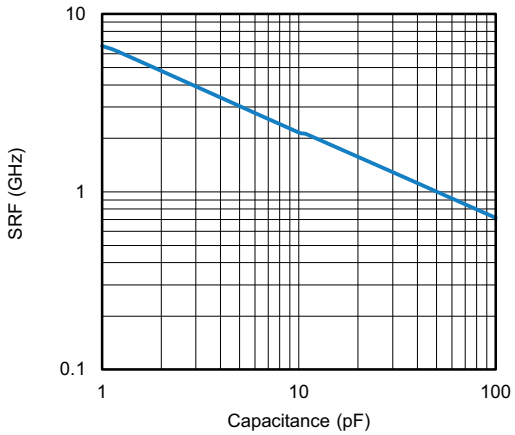
Typical ESR vs. Frequency (Size 0505)



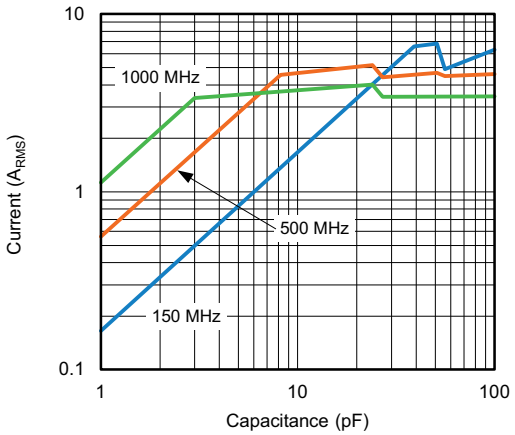
Typical Q Value vs. Frequency (Size 0505)



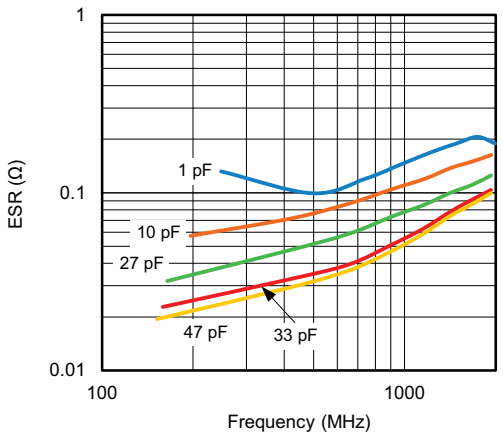
SRF vs. Capacitance (Size 0505)



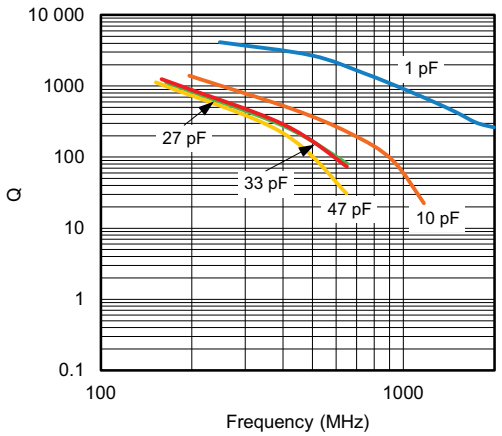
Current Rating (Size 0505, Ext. Voltage)



Typical ESR vs. Frequency (Size 1111)

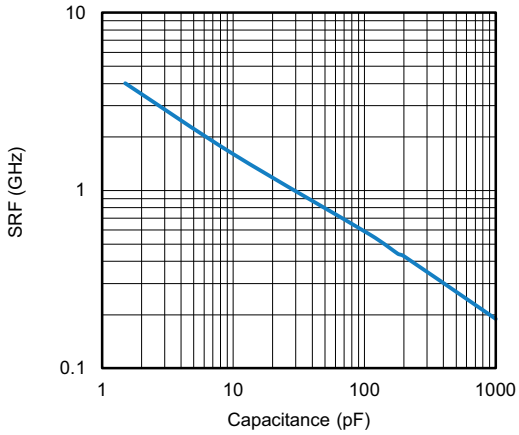


Typical Q Value vs. Frequency (Size 1111)

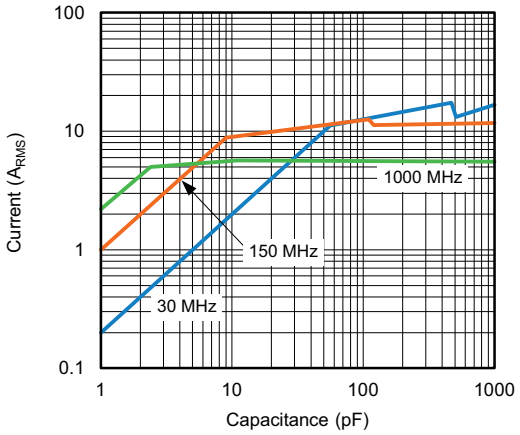


QUAD HIGH FREQ DIELECTRIC - TYPICAL PARAMETERS

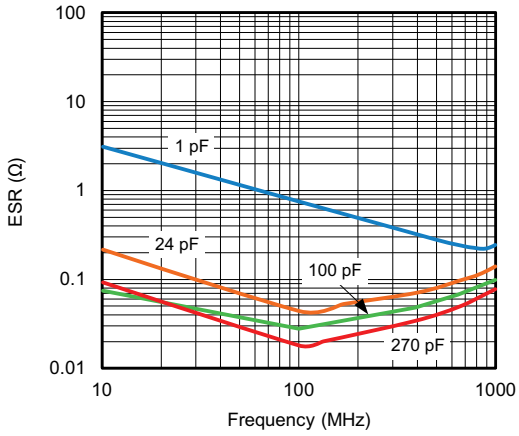
SRF vs. Capacitance (Size 1111)



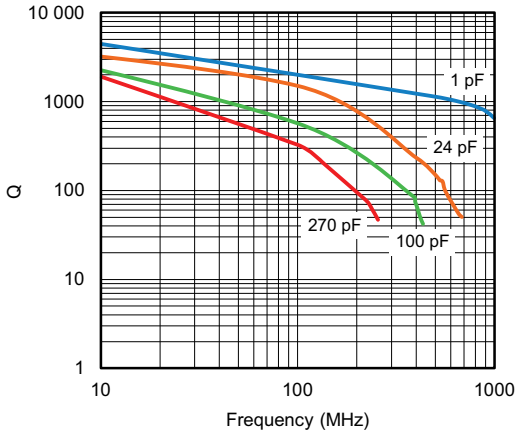
Current Rating (Size 1111, Ext. Voltage)



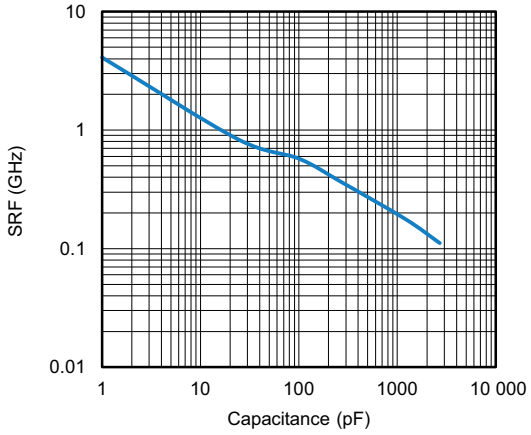
ESR vs. Frequency (Size 2525)



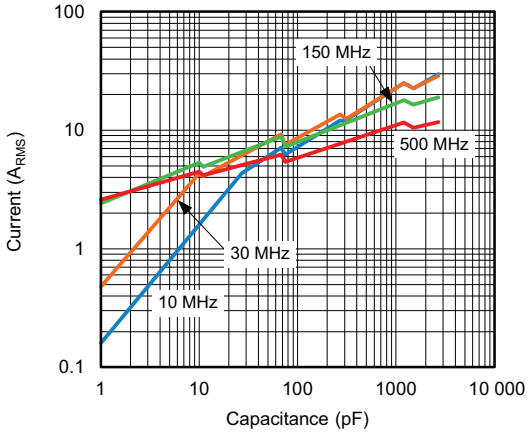
Q Value vs. Frequency (Size 2525)



SRF vs. Capacitance (Size 2525)

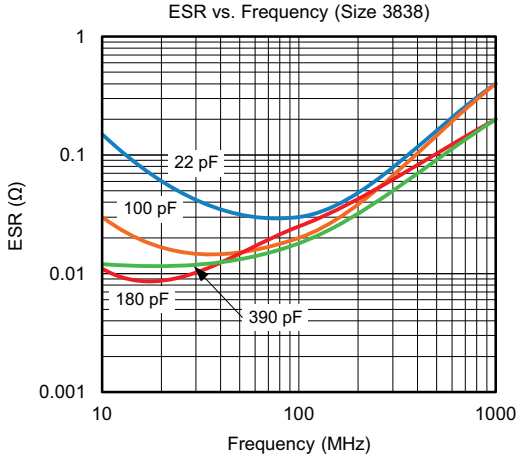


Current Rating (Size 2525, Ext. Voltage)

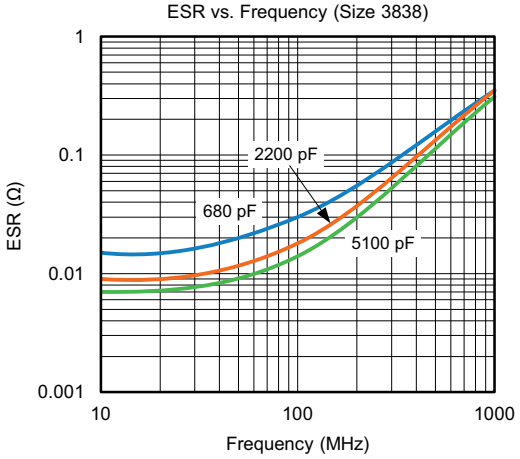


QUAD HIGH FREQ DIELECTRIC - TYPICAL PARAMETERS

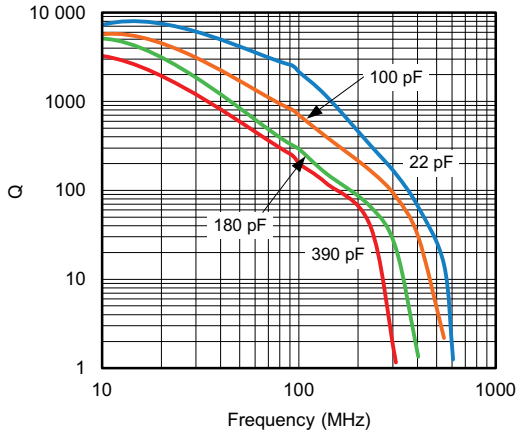
ESR vs. Frequency (Size 3838)



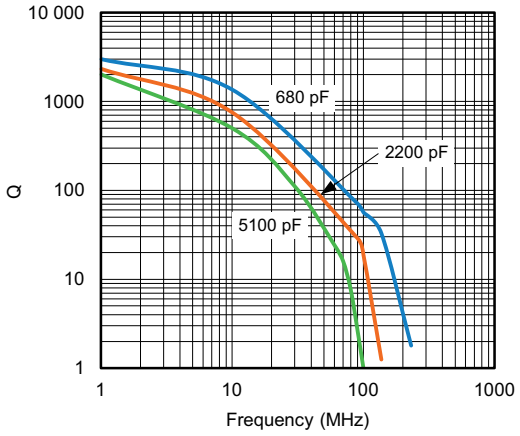
ESR vs. Frequency (Size 3838)



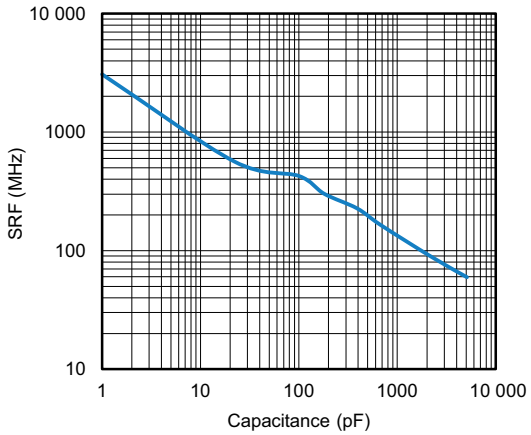
Q Value vs. Frequency (Size 3838)



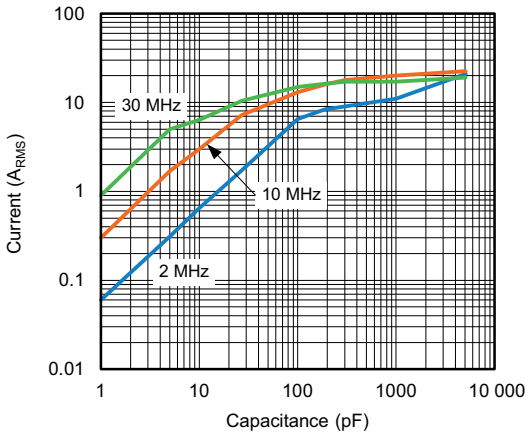
Q Value vs. Frequency (Size 3838)



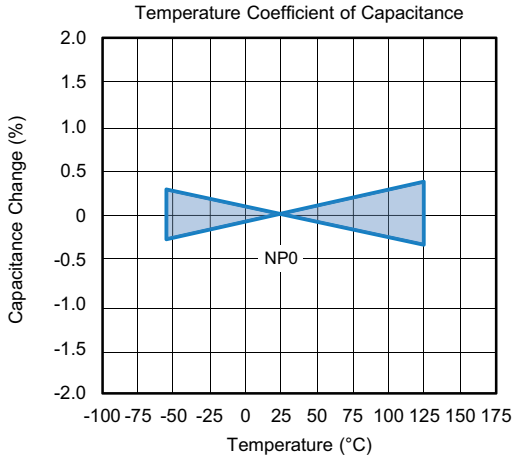
SRF vs. Capacitance (Size 3838)

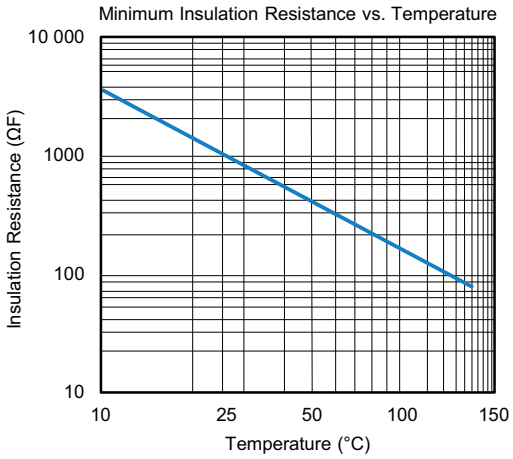


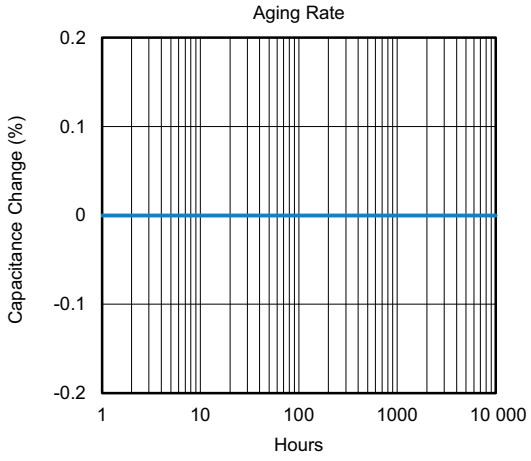
Current Rating (Size 3838, Ext. Voltage)

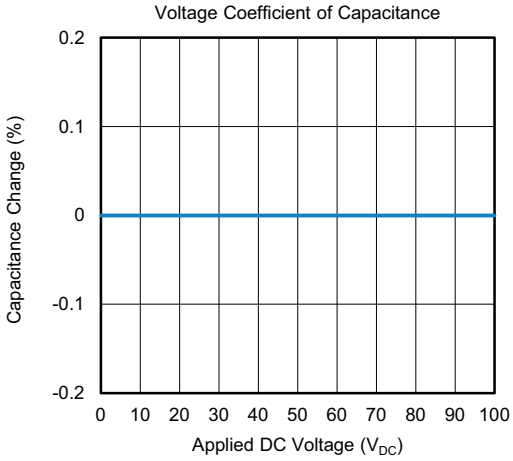


QUAD HIGH FREQ DIELECTRIC - TYPICAL PARAMETERS









STANDARD PACKAGING QUANTITIES (1)(2)(3)(4)

CASE CODE	TAPE SIZE	7" REEL QUANTITIES		11 1/4" AND 13" REEL QUANTITIES	WAFFLE PACK
		PLASTIC TAPE PACKAGING CODE "T"	LOW QUANTITY "J"	PLASTIC TAPE PACKAGING CODE "R"	PLASTIC WAFFLE PACK PACKAGING CODE "W"
0505	8 mm	3000	1000	10 000	n/a
1111	8 mm	2500	1000	9000	n/a
2525	12 mm	800	500	n/a	81
3838	16 mm	400	100	n/a	35

Notes

(1) Vishay Vitramon uses embossed plastic carrier tape
(2) REFERENCE: EIA standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"
(3) n/a = not available
(4) Final quantities for packaging can depend on product thickness

STORAGE AND HANDLING CONDITIONS

(1) Store the components at 5 °C to 40 °C ambient temperature and ≤ 70 % relative humidity conditions.
(2) The product is recommended to be used within a time-frame of 2 years after shipment (1 year for copper).
Check solderability in case extended shelf life beyond the expiry date is needed.

Precautions:

a. Do not store products in an environment containing corrosive elements, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. This may cause corrosion or oxidization of the terminations, which can easily lead to poor soldering.
b. Store products on the shelf and avoid exposure to moisture or dust.
c. Do not expose products to excessive shock, vibration, direct sunlight and so on.

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