MULTILAYER CERAMIC CHIP CAPACITORS

QUAD HIFREQ

Surface-Mount Multilayer Ceramic Capacitors for RF Power Applications

KEY BENEFITS

- Ultra low ESR: 0.01 Ω at 150 kHz and 1000 pF in the 1111 case size
- Ultra high Q: > 2000
- High serial resonant frequency (SRF) and parallel resonant frequency (PRF)
- QUAD case sizes: 0505, 1111, 2525, and 3838
- High voltage: 250 V for 0505, 1500 V for 1111, 3600 V for 2525, and 720 V for 3838

APPLICATIONS

- Telecom
- Medical equipment
- Military communications
- Instrumentation

RESOURCES

- Datasheet: QUAD HIFREQ - http://www.vishay.com/doc?45221
- For technical questions, contact mlccrf@vishay.com
- Material categorization: for definitions of compliance, please see http://www.vishay.com/doc?99912

A WORLD OF SOLUTIONS™

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ELECTRICAL SPECIFICATIONS

Note

- Electrical characteristics at 25 °C unless otherwise specified

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

Extended Temperature (up to 500 V_{DC}):
0505: -55 °C to 200 °C from 0.1 pF to 75 pF
1111: -55 °C to 200 °C from 0.2 pF to 200 pF

Capacitance Range:
0505: 0.1 pF to 100 pF
1111: 0.2 pF to 1000 pF
2525: 1.0 pF to 2700 pF
3838: 1.0 pF to 5100 pF

Voltage Rating:
0505: 200 V_{DC} to 250 V_{DC}
1111: 300 V_{DC} to 1500 V_{DC}
2525: 300 V_{DC} to 3600 V_{DC}
3838: 500 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	100 pF
	1111	1500	0.2 pF	1000 pF
	2525	3600	1.0 pF	2700 pF
	3838	7200	1.0 pF	5100 pF

Notes

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

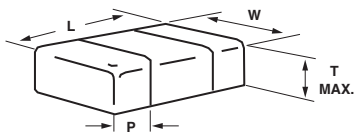
ORDERING INFORMATION

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	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 = no marking M = marking (EIA) Q = marking (non EIA)	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

DIMENSIONS in inches (millimeters)



CASE CODE	STYLE	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATIONS PAD (P)	
					MINIMUM	MAXIMUM (1)
0505	VJ0505	0.055 + 0.025 / - 0.010 (1.40 + 0.64 / - 0.25)	0.055 ± 0.015 (1.40 ± 0.38)	0.057 (1.45)	0.004 (0.10)	0.016 (0.41)
1111	VJ1111	0.117 + 0.020 / - 0.010 (2.98 + 0.51 / - 0.25)	0.110 ± 0.020 (2.79 ± 0.51)	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)

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