Surface Mount Multilayer Ceramic Chip Capacitors High Frequency DSCC Qualified Type 05001

FEATURES

- US Defense Supply Center approved
- Federal stock control number, CAGE CODE 2770A
- Case size 0805
- High frequency
- Excellent aging characteristics
- Tin / lead termination code "Z"
- Lead (Pb)-free terminations code "M"
- Surface mount, wet build process
- Reliable Noble Metal Electrode (NME) system
- Made with a combination of design, materials and tight process control to achieve very high field reliability
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb Available
RoHS* Available
HALOGEN FREE

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

- Broadband wireless communication
- Satellite communication
- WiFi (802.11) and WiMax (802.16)
- VoIP networks and cellular base stations
- Subscriber based wireless devices

ELECTRICAL SPECIFICATIONS

Note

- Electrical characteristics at +25 °C unless otherwise specified

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

Capacitance Range: 1.0 pF to 100 pF

Voltage Rating: 50 V_{DC} to 250 V_{DC}

Temperature Coefficient of Capacitance (TCC):

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

Dissipation Factor (DF):

BP: 0.05 % max. at 1.0 V_{RMS} and 1 MHz

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: 200 % of rated voltage

For technical questions, contact: mlcc@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

QUICK REFERENCE DATA

DIELECTRIC	CASE CODE	MAXIMUM VOLTAGE (V)	CAPACITANCE	
			MINIMUM	MAXIMUM
BP	0805	250	1.0 pF	100 pF

ORDERING INFORMATION

05001-	1R0	B	C	Z	-	T
DSCC NUMBER	CAPACITANCE NOMINAL CODE	DC VOLTAGE RATING (1)	CAPACITANCE TOLERANCE	TERMINATION	GROUP C TESTING OPTION (2)(3)	PACKAGING
0805 Case size High Frequency	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	A = 50 V B = 100 V C = 200 V K = 250 V	B = ± 0.10 pF C = ± 0.25 pF D = ± 0.50 pF F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % M = ± 20 % **Note:** B, C, D ≤ 6.2 pF B, C, J, K, M 6.8 pF to 9.1 pF F, G, J, K, M ≥ 10 pF	M = silver palladium Z = Ni barrier with tin / lead plate min. 4 % lead	C = full group C L = 2000 h life test only M = 1000 h life test only H = low voltage humidity test only - = no group C testing	T = 7" reel / plastic tape J = 7" reel (low quantity) R = 11 1/4" / 13" reel / plastic tape B = bulk

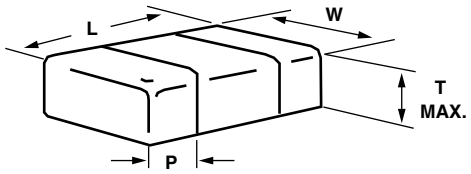
Notes

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

(2) Selecting one of the group C options with life testing may extend the delivery time

(3) To receive data package, add “P” to the end of the part number. For example, 05001-1R0BCZCCP. Group C will be completed and data included with shipment.

DIMENSIONS in inches (millimeters)



PART ORDERING NUMBER	LENGTH (L)	WIDTH (W)	MAXIMUM THICKNESS (T)	TERMINATIONS PAD (P)	
				MINIMUM	MAXIMUM
05001-	0.079 ± 0.008 (2.00 ± 0.20)	0.049 ± 0.008 (1.25 ± 0.20)	0.055 (1.40)	0.010 (0.25)	0.030 (0.76)

For technical questions, contact: mlcc@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

SELECTION CHART						
DIELECTRIC		BP				
STYLE		05001				TOLERANCE
CASE CODE		0805				
VOLTAGE (V_{DC})		50	100	200	250	
VOLTAGE CODE		A	B	C	K	
CAP. CODE	CAP.					
1R0	1.0 pF	•	•	•	•	B, C
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, J, K, M
7R5	7.5 pF	•	•	•	•	B, C, J, K, M
8R2	8.2 pF	•	•	•	•	B, C, J, K, M
9R1	9.1 pF	•	•	•	•	B, C, J, K, M
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
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
101	100 pF	•	•	•	•	F, G, J, K, M

Notes

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

• Plastic carrier tape

For technical questions, contact: mlcc@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

DSCC PACKAGING QUANTITIES [1]

CASE CODE	TAPE SIZE	7" REEL QUANTITIES		11 1/4" AND 13" REEL QUANTITIES	BULK
		PACKAGING CODE "T"	PACKAGING CODE "J"	PACKAGING CODE "R"	VIAL PACKAGING CODE "B"
0805	8 mm	3000	1000	10 000	100

Note

[1] Reference: EIA Standard RS 481 - "Taping of Surface Mount Components for Automatic Placement"

STORAGE AND HANDLING CONDITIONS

(1) Store the components at 5 °C to +40 °C ambient temperature and ≤ 70 % related humidity conditions.
(2) The product is recommended to be used within a time-frame of 2 years after shipment.
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.

For technical questions, contact: mlcc@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.